bintec elmeg
Teldat Group Company

elmeg ICT

System help
English

These operating instructions can be a helpful guide to assist you in using your new ISDN telecommunications equipment (PABX system).

No matter whether your elmeg PABX is for your work or for your personal use, ease of use and enjoyment while using the phone are guaranteed.

Please take a little time to try out the functions that are packed into this ISDN PABX so that you can learn to take advantage of the full range of features provided.

Declaration of conformity and CE mark

CE

This device meets the requirements of the following EC directive R&TTE 6/3/EG:

»Directive 1999/5/EC of the European Parliament and of the Council of 9 March 1999 on radio equipment and telecommunications terminal equipment and the mutual recognition of their conformity«.

You can also request this EC declaration of conformity at the following Internet URL: http://www.bintec-elmeg.com.

The waste container symbol with the “X” through it on the device indicates that the device must be disposed of separately from normal domestic waste at an appropriate waste disposal facility at the end of its useful service life..

Function descriptions included in this documentation which refer to software products of other manufacturers are based on the software used and valid at the date the documentation was prepared or published. The product and company names used in this documentation may be protected by trademarks.

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1 PABX_elmeg_ICT

1_0_1 Introduction

Congratulations! And thank you for purchasing this PABX.

Your new PABX system is equipped with many useful and easy-to-use features to make communication in your network service provider's network more simple.

Please take a little time to try out the functions that are packed into this PABX so that you can learn to take advantage of the full range of features provided.

- **This help function assists you when configuring the following modular PABX systems:**
  - elmeg ICT46
  - elmeg ICT88
  - elmeg ICT880 (including ICT880xt)
  - elmeg ICT880-rack (including ICT880xt-rack)

You can use modules to expand the scope of functions for the modular PABX systems. The basic configuration is the same for all PABX systems. There are differences in the scope of features and in the configuration of some performance features.

Note:
Default Name: Service
Default PIN: Service

See also:

Features

1_0_2 Copyright

1_0_3 Description

The PABX is an ISDN telecommunications system (PABX) for interfacing with Euro ISDN (DSSI), analog networks or the Internet. Depending on the PABX equipment and the possible use of optional modules, these various access types can be implemented.

The PABX is provided with external ISDN, S2M, analog and WAN ports which are configured for interfacing to the connections of the network service provider. Depending on the type of PABX, ISDN connections can be set as required as internal or as external ISDN connections. The external ISDN connection can be programmed as a Point-to-Mulitpoint or Point-to-Point access.

Depending on the type of PABX, up to eight analog terminals can be connected (base model). It is also possible to use door phone units to implement external music on hold. Module slots are available for ISDN- UP0- and a/b connections, and also an «extension for the elmeg ICT880» and an «extension for the elmeg ICT880-rack». Such an extension has its own ISDN and analog connections. Further modules can be mounted. Internal numbers (the destination for the extension number with point-to-point connection) between 0000... 9999 can be freely assigned. The features provided for analog terminals can only be used with terminals which use tone dialing and which are equipped with a

flash button. Flash duration detection can be set by PC configuration. Analog terminal devices that use pulse dialing can not be used for functions or codes. Please that the buttons on some ISDN terminals available on the market may limit the use of the features provided by the PABX system.

All terminal devices connected to the system must be »TC Guideline Terminals« or »R&TTE Guideline« approved.

1_0_4 Printing the configuration file

You can print the data of the currently open configuration file.

- **Configuring the printer**
  Select »Print setup« from the »File« menu if you wish to change your standard printer settings or select a different printer.

- **Printing the configuration**
  Select »Print« from the »File« menu or use the shortcut »Ctrl+P«.

  A printing dialog then opens for the selected standard printer. Here you can make further settings as appropriate (selecting a different printer for example).

  Click »OK« to start printing.

- **Configuration preview before printing**
  Select »Print preview« from the »File« menu if you wish to view the data currently displayed by the Professional Configurator program before actually printing them. With larger files you can page forward or back, view two pages next to one another at the same time or increase the size of individual pages and then return them to their original size.

  You can display the page view in two sizes by clicking the Resize button.

1_0_5 Programming or loading a configuration file

- **Programming a new configuration**
  Select »New« from the »File« menu« or click »New« on the toolbar or use the shortcut »Ctrl+N«. A new configuration file is then available containing the default settings.

- **Opening an existing configuration file**
  Configuration files you have stored are identified by their »elg« extension.

  To open a file, select »Open« from the »File« menu« or click »Open« on the toolbar or use the shortcut »Ctrl+O«.

  A dialog then opens, where you can select the desired configuration file.

  The program opens the last directory that you selected under »Save as«. If you have not already selected a directory up to now, Windows will automatically open the »My documents« directory.

Note:
If you have already opened a configuration file save this file before opening a new one. If you wish to open one of the four files that you were previously editing, select this file in the »File« menu.

1_0_6 Sending a configuration file by email

You can send a configuration file as an email attachment.

Select »Send mail« from the »File« menu. A window for a new message is then opened in your standard e-mail program. The currently open file of the Professional Configurator is attached to the email.

Note:
You can only use this function if you are using an e-mail program on your computer that is MAPI (Microsoft Appli-

cation programming Interface) compatible (for example Microsoft Outlook).

1_0_7 Saving a configuration file

- **Saving a configuration file under the current name**
  You have loaded a configuration file into the Professional Configurator using the »Open« command and have made changes to that file. You may now want to save this file under the same name.

  Select »Save« from the »File« menu«, click the »Save« button or use the shortcut »Ctrl+S«.

  To save this file under a different name, select »Save as« from the File menu.

Note:
If you attempt to save a new configuration file in the manner described above the »Save as« dialog window is opened automatically. You can now save the file under a different name.

- **Saving a configuration file under a new name**
  The »Saveas« command lets you save a file under a different name. When you save the file, the system automatically attaches the »elg« extension to the file name.

Note:
You can store your files in any directory you choose. The program remembers the last directory that you selected. If you have not already selected a directory up to now, Windows will automatically open the »My documents« directory.

1_0_8 Configuration access to PABX

The PABX has numerous features requiring a more or less complex configuration. Use a PC to dial into the PABX and configure the system. Different authorization levels are set for configuring the system to prevent accidentally deleting essential settings. Dialing into the PABX requires a user name and a password (PIN). The PABX can also be configured remotely by an authorized dealer using the service access.

- **Default user name:**
- **Service**
- **Default password:**
- **Service**

- **Launching Professional Configurator**
  When you start the Professional Configurator you will be requested to enter a user name and a valid PIN. The configuration privileges for the PABX system are set using this log-on data.

  Click the »Extended« button to make further settings for access to the PABX system.

- **Online configuration**
  If you have a connection to a PABX system select the appropriate port. On dial in, the log-on data (user name, PIN) are compared to the data stored in the PABX system. Configuration of the PABX system is restricted by the privilege rights set for the particular log-on data.

- **Offline configuration**
  If you do not have a connection to the PABX system you can also start up the Professional Configurator offline. In the log-on data you must then log on as »Service« or »Admin.

You can specify that the same data is to be used repeatedly for logging on if you wish to have the Professional Configurator started always using the same log-on data. (see also »General«)

Use the mouse to click »OK« to begin dial-in to the PABX using the log-on data that has been entered.

Note:
The Professional Configurator will only be opened when you log on using the log-on data (user name, PIN) valid in the PABX system (online configuration), or in the program (offline configuration).

See also:

Configuration access to the PABX

Service access to the PABX

1_0_9 PABX configuration

- **You can use the following ports for configuring your PABX:**
  - — RS232 (V. 24) –port (with a PC or Laptop)
  - — USB port (with a PC or Laptop)
  - — Internal or external ISDN connection (service access). For this access you require an ISDN card in your PC (Laptop).
  - — LAN / Ethernet interface port (for installing a router module or a VoIP-VPN gateway)

Configuring the PABX requires the WIN-Tools programs, as for example Professional Configurator, Telephone Directory Manager, Charge Manager, or LCR Manager. Access to the configuration program of the PABX is divided into serveral authorization levels. Each of these authorization levels has a user name and a password. Every subscriber may only access or modify the PABX configuration program according to his or her authorization level.

The PABX checks the user name and password (PIN) when a subscriber establishes a connection to configure the system. Only the settings available based on the authorization level of the subscriber are then displayed in the configuration program.

Note:
The PABX can be configured only by using one of the listed connections. For example, if you use a USB port to configure the PABX you cannot configure the system via a RS232 or ISDN port or via a LAN-client at the same time.

Please check the PC ISDN board for an assigned extension if you cannot establish a connection to the PABX when configuring via internal ISDN port. You have to enter the * key before the service number (for example »*55«) if there is no assigned extension but automatic line access is activated for a telephone connected to the internal ISDN bus.

You also cannot run any applications on the port selected for configuration while the port is being used to configure the system. For example, while configuring the system via a PC connection (USB or RS323), it is not possible to use additional features with this connection at the same time (for example hotel application or RS323 printer when configured to use the RS323 port). TAPI can be used while configuring the system via a PC connection if run on the same PC.

Configuration via an external ISDN connection is possible if the service access of the PABX is set up and activated.

1_0_10 Customer data (information text)

You manage several PABX systems and remotely service these systems. Enter names, system data, and service s into the »Display customer data« field in the first screen mask of the Professional Configurator. This means that you or the service technician always has the most important system data and s available for review.

»Service« and »Admin« can enter texts in this text field, copy and paste from other text programs, or delete text. These texts will be stored together with the PABX data. »Users« can read but not change or append these texts. The text length is limited to 800 characters including control tags. The number of characters is displayed in the status bar as the text is being entered. If too many characters are entered, a warning is issued.

- **Entering or reading customer data**
  Select the »Display customer data« button in the opening screen of the Professional Configurator.

  Depending on the level of administration rights used to identify yourself in the PABX system or a file (in case of offline configuring), you are able to add, change, or only read customer data.

1_0_11 LCR Professional (firmware version 1.4 or higher)

Both provider and routing tables can be prepared and edited individually using this new LCR procedure.This LCR procedure can be configured using the Web-based PC program supplied with the system.

- **LCR Professional features:**
  - Configuration of up to 20 providers including provider name and prefix. A maximum of 12 positions is possible for each entry.
  - You can configure a GSM gateway as provider. If connected to the external ISDN port of the PABX system the trunk code for the respective port is dialed as a »Provider prefix«. When connected to one of the pabx's analog port, the internal extension number of the pabx is dialed.
  - Up to 50 zones with a maximum of 200 entries each (prefix, phone numbers, subscribers) can be configured.

The rate tables are configured for Monday through Friday, Saturday and Sunday for the zones that have been configured. You can configure two rate tables each, priority 0 (default) and priority 1 and 2 as fallbacks.

- Priority 0 (default): No fallback
- Priority 1: Fallback
- Priority 2:

The system telephone display shows the name of the provider being used for LCR. This display can be activated or de-activated for individual internal subscribers during configuration.

1_0_12 Features

Features	ICT 46	ICT88	ICT880 (incl. 880xt)
ISDN connections on the base module (module 0)	S01,S02	S01, S02, S03, S04	S01, S02, S03, S04
Switchable ISDN connections on the base module (internal / external)	yes, S01	yes, all	yes, all
Slots for subscriber modules	yes, 2	yes, 2	yes, 2 (4)
Special slots	yes, 2	yes, 2	yes, 2 (4)
Slot for a smart media card (SMC)	yes		
Port for external music on hold	yes		
Interface for ICT 880xt expansion	no	no	yes
Interface for S2M modules	no	yes	yes

Interface for router modules	yes		
Maximum number of internal ISDN connections	9	12	12 (26)
Maximum number of external ISDN connections	4	8	8
Maximum number of analog connections	22	24	24 (44)
Number of plug-in door terminal modules	1	2	2 (4)
Number of alarm inputs	12	20	20 (36)
Number of pluggable switching contact modules	1	2	2 (4)
Number of switching contacts	3	6	6 12)
Number of MSN extensions	100	250	250
Number of trunk groups possible for each subscriber	3	5	5
Number of teams	20	40	40
Number of subscribers in a team	8	16	16
Number of exception numbers with a point-to-point access (extended call allocation)	30	40	40
Number of direct calls	2	4	4
Number of charge data records Threshold value for information on charge counter overflow	1000 950	1800 1700	1800 1700
Number of router modules	1	1	1(1)
Hotel applications (ELMEG API with Anderwald)	no	yes	yes
Number of Voice applications (with SMC)	none (16)	4 (16)	4 (16)
Number of telephone directory entries	1000		
Number of Operator places for each internal ISDN port	2		
Number of connections in an »system parked Inquiry«	10		
Maximum number of call waiting signals for analog connections	16		
Number of calendars Switching times per calendar	2 4		
Number of SMS server telephone numbers	3		
Dialing control (number of barred / unrestricted numbers)	60 / 10		
Number of emergency numbers	6		
Telephone numbers for CLIP No Screening	10		

1_0_13 Deleting the phone number plan

Certain telephone numbers and numeric codes are permanently defined in the PABX. This facilitates operating the PABX since these telephones numbers are listed in a telephone number plan. For example, after switching the system on, the analog telephones can be reached by using their internal extensions. Procedures such as call pick-up and line access are possible using one of these numeric codes.

Depending on the PABX unit, up to 250 different internal extension numbers can be used. The internal extensions can have 2, 3, 4, or 4 digits (also mixed). You can use the different formats of the internal extensions simultaneously.

An internal extension can be configured for each analog connection. The number of configurable internal extension is unlimited for internal ISDN ports.

When an internal subscriber enters a telephone number (for example when setting up call forwarding) the PABX checks automatically whether the entered number is an internal one. If the entered telephone number is not set up in the PABX this number is processed as an external telephone number.

Note:
You can configure up to 4-digit direct dial-in numbers in the PABX for the point-to-point connection. For example: Point-to-point telephone number 1234 and direct dial-in telephone number 5678.

It is not possible to set up internal extensions with a different number of digits but starting with the same digits. For example, if the internal extension 22 has already been programmed you cannot set up additional internal extensions that also start with a 22 (as for example 220, 2211).

- **Deleting the phone number plan**
  In the default state, extension numbers are assigned to all internal subscribers connected to the PABX. You can assign other internal numbers during configuration, for example for other internal subscribers, teams or modified codes. You must first cancel the current assignment before you assign an existing number to a different subscriber. You can then reassign the extension number.

You have the option of deleting all internal extensions numbers of your PABX system. During configuration, you can the customize all extensions numbers as appropriate.

— Click »Delete« on the toolbar to delete all internal extension numers for subscribers, teams and modified code numbers.

— Click »Delete« - »Internal subscriber. / Team«, to delete the internal extension number for specific subscribers or teams.

— Click »Delete« - »Code digits« on the toolbar to remove the internal extension numbers to which you have assigned editable code digits.

1_0_14 System telephone configuration

Some system telephones can be configured through the internal ISDN connection of the PABX-system. You can then change setting of the system telephones remotely without having to carry the system telephone to the PC.

- **The following system telephones can currently (as of 2006) be configured throught the internal ISDN connection of the PABX-system:**

  — elmeg CS290

  — elmeg CS300

  — elmeg CS310

  — elmeg CS320

  — elmeg CS410

  — elmeg CS400xt

  — elmeg IP-S290

— elmeg IP-S400

- **The following system telephone applications can be used through the internl ISDN connection:**
  — Professional Configurator für the telephones
  — Telephone Directory Manager for the telephones
  — Sound Manager for the telephones

- **Reading the data of system telephones connected to the PABX**
  — Click »Read« to retrieve data from the connected system telephones.
  — Double click a system telephone entered in the list to display more detailed information.

- **System telephone configuration**
  — To highlight a system telephone entered in the list simply click on it.
  — Then click the left window part to select the appropriate program. The program opens and the system telephone data is read.
  — You can then change and save the configuration and export it back to the system telephone.

1_0_15 WIN Tool Launcher

The WIN Tool Launcher offers an overview over additional tools and programs that are available for configuring the PABX.
For example:

- **Telephone Directory Manager:**
  — The PABX system is equipped with an integrated telephone directory, Use the Phone Directory Manager to add, edit, or delete telephone book entries and specify additional settings for an entry (e.g., speed dialing index or trunk assignment). The import/export function of the telephone directory manager allows imported or exported data to be edited and processed in other programs.

- **Charge Manager:**
  — You can use the Charge Manager to read the connection records and subscriber-specific sum counters stored in the PABX. The call data records that are read out can be evaluated using various sorting and filtering functions, or exported for processing in other programs.

- **Call-by-Call-Manager:**
  — Use this program to configure the call-by-call function of the PABX. The PABX automatically adds the numeric code of a stored provider to the number to be called when dialing an external telephone number.

- **Download Manager:**
  — Use the Download manager to load new firmware from your PC to the PABX. Loading new firmware is possible with the serial port, the USB port, or the LAN interface. If your PC is already equipped with an IISDN board, the new firmware can also be loaded via the internal ISDN connection in the PABX.

- **Module download:**
  — Different modules of the PABX (e.g., router module, VoIP-VPN gateway or DECT multicell module) have their own firmware. This firmware can also be updated with the PABX.

- **TAPI Configurator:**
  — If you have installed the TAPI drivers and your PC is connected with the PABX, you can configure the TAPI functions of the PABX system.

1_0_16 LCR

- **LCR Manager:**
  Use the LCR Manager to configure the call-by-call functions with rate tables. This process is facilitated by loading rate tables of selected providers from a central server. You can also prepare your own rate tables or edit the loaded rate tables.

1_1 Menus

1_1_1 Menus

The menu bar of the Professional Configurator contains various menus with commands for using the program.

See also:

File« menu

1_1_2 Switching the display for internal subscribers

You can assign a name to any internal subscriber in the configuration. If the internal subscribers are to be shown in a list (for example for selecting a subscriber for a team), this list can be displayed sorted either by name or by phone number.

- **Example:**
  You assign subscriber 10 the name »Secretary's office«. After this, either »Secretary's office - 10« or »10 Secretary's office« can be displayed in the subscriber list.

1_1_3 »?« menu

The »?« (»About«) menu contains the following functions:

- **help topics**
  — Clicking »Help topics« starts the program's online help.
- **about ...**
  — Click »About ... « to display program information, version number and copyright information for the Professional Configurator.

1_1_4 »Presentation« menu

- **The »Presentation« menu contains the following functions:**
  — Show or hide the »Toolbar«.
  — Show or hide the »Status bar«.
  — »Setting the display mode for internal parties«
  — Selecting the language of the Professional Configurator. The PABX settings are not changed by this »Country settings«.

1_1_5 05_»File« menu

The File« menu contains the following functions:

Command	Shortcut	Description	See also
New	Strg + N	Creates a new empty configuration file .	»Programming or loading a configuration file«
Open ...	Strg + O	Opens an existing configuration file.	»Programming or loading a configuration file«
Save	Strg + S	Saves the currently open configuration file under its current name.	»Saving a configuration file«
Save as ...		Allows you to save the currently open configuration file under a different name.	»Saving a configuration file«
Send message ...		Allows you to send the currently open configuration file as an email attachment.	»Sending a configuration file by email«
Print setup ...		Allows you to select and configure a connected printer.	»Printing the configuration file«
Print ...	Strg + P	Prints the currently open configuration file.	»Printing the configuration file«
Print preview ...		Displays a complete print page for the currently open configuration file.	»Printing the configuration file«
Last file		Opens any one of the last four configuration files.	
Exit	Alt + F4	Quits Professional Configurator.	

1_1_6 Data exchange« menu

- **Read configuration« or »Send configuration**
  This menu allows you to read out the configuration of a connected PABX or upload a configuration file into the system.

- **COM/USB - settings**
  You can set the type and number for the interface (serial or USB) over which your PABX is connected to the PC.

- **TCP-settings**
  Here, you enter the IP-address for the router or the VoIP-VPN gateway, if your PABX is connected over a LAN port with the PC. You can also use the »Search« feature to find the router.

1_1_7 Status bar

- **The status bar contains important information about the Professional Configurator.**

- **For example:**
  The number of internal subscribers, functions forecall flash buttons at which the cursor is located, or the functions in a menu.

  The type of information that is displayed depends on the selected settings in the Professional Configurator.

1_1_8 Toolbar

Buttons for important functions / commands can be found on the toolbar. To trigger a function, click the corresponding button or select from the menu.

- **The toolbar contains the following buttons (from left to right):**
  — Create a new configuration file.
  — Open an existing configuration file.
  — Selection: Last file
  — Save the active configuration file.
  — Reading configuration files from the PABX.
  — Send configuration data to the PABX.
  — Delete all internal extension numbers (subscribers and teams) or changed codes.
  — Activate the online help for the Professional Configurator

2 PABX_type_Module_configuration

2_1 Additional modules

You can expand the function and performance of ICT PABX systems by installing various modules. At the beginning of the configuration procedure select the type of telephone system for your PABX system. If you wish to configure a PABX system with an »expansion module«, activate this module in the field »PABX type«.

Note:
You can also read out the configuration data from the interconnected PABX system. When this is done, the PABX type and any other modules that may be connected will be recognized automatically. Please that not all modules will be recognized automatically however when the configuration data is read out.

The available module slots for the selected PABX system, along with any modules that have been installed, are displayed in the lower portion of the window.

The PABX unit has several module slots. Use these slots to install different modules that expand or upgrade the basic PABX unit to include additional features.

2_1_1 You can use the following modules at the right and left slots provided in the PABX system:

- **4S0-module:**
  — has four ISDN ports. One can be used as internal or external ISDN port and the remaining three as internal connections.
- **2S0-module:**
  — has two ISDN ports, one of which can be used as internal or external connection and the other as an internal connection.
- **1S0-module:**
  — has one ISDN port that can be used as internal or external connection.
- **2S0-module V.2:**
  — has two ISDN ports that can be used as external or internal ISDN connection.
- **4S0-module V.2:**
  — has four ISDN ports. Two of these can be used as internal or external ISDN ports.
- **4a/b-module II:**
  — provides four ports for connecting analog terminal devices.
- **8a/b-module :**
  — provides eight ports for connecting analog terminal devices.
- **4Up0-module:**
  — has four internal ISDN ports for connecting UP0-compatible system telephones or ISDN phones via a Up0/S0 converter.
- **2 POTS module / 4 POTS module«:**
  — makes it possible to connect the PABX to the analog net (analoger exchange line HKZ). The 2 POTS module is equipped with two analog ports and the 4 POTS module with four.

- **DECT multicell module:**

  — Provides the connections for the elmeg DECT rfp (rfp = radio fixed part). Several handsets can be enrolled at each rfp. The DECT multicell module is part of the DECT 400 System.

Note:
You can use the following modules at the special slots on the left edge of the PABX system:

- **S2M module:**

  — makes it possible to connect the pabx to a primary multiplex port. This port provides up to 30 B-channels for outgoing calls.

- **Door intercom module:**

  — You can connect one door terminal device, 3 doorbells, 1 door opener, 2 switching contacts and 1 alarm input.
  You can use 3 bell buttons and an alarm input with the FTZ123D12 or 4-wire door intercom. You can use 3 bell buttons and an alarm input with the FTZ123D12 or 4-wire door intercom module.

- **Powerfail module:**

  — permits continued use of the PABX on loss of the 230 V AC power supply to make calls via an internal ISDN port using a telephone with emergency power capabilities / authorization.

- **Voice announcement module:**

  — enables you to implement the Voice announcement before answering feature for one B-channel.

- **Switching contact module:**

  — Six alarm inputs and three switching contacts can be used with this module.

Note:
You do not have to enter the NSP or Announcement modules in the configuration for the PABX system.

- **Router module«:**

  — provides features for linking a PC to a LAN (local area network) and enables high speed internet access using xDSL or ISDN. Required safety is provided by an implemented firewall in conjunction with NAT (network adress translation). The DHCP server and DNS proxy functions ensure that the scope of configuration, both for yourPABX system and your PC, is kept to a minimum. Internet access for all of the PCs connected to the router is provided via one single connection (SUA - single user account). Moreover, the router module enables you to program your pabx over the LAN.

- **Overload protection module:**

  — provides protection of analog and ISDN ports against surge voltages. Any overvoltage which occurs in the lines is diverted to the functional ground.

- **Smart Media Card:**

  — provides additonal memory capacity for voice applications.

- **VoIP-VPN Gateway module:**

  — The VoIP VPN Gateway module is the ideal complement to your elmeg ICT systems. This module combines modern Internet telephony through Voice over IP with secure data exchange via VPN. There are two slots integrated into this module for the M 4 DSP or M 8 DSP expansion modules. Use this module for simultaneous operation of IP telephones and standard phones (analog, S0, Up0) with a PABX system for gradual (i.e. reasonably priced) migration to VoIP. Connection to SIP providers is also supported. The VoIP VPN Gateway module can also be used in existing elmeg ICT installations.

- **M 2 DSP and M 4 DSP submodules:**
  - The M 4 DSP and M 8 DSP modules are installed as submodules on the VoIP VPN Gateway module. These modules are designed as plug-in modules for mini-PCI slots and are not equipped with any other connections. An LED informs you about the operating status for the DSP modules. An Infineon 4-channel Vinetic DSP is used to provide the necessary voice compression. The M 8 DSP module is equipped with two DSPs. The M 4 DSP module is provided with one DSP as a minimum.

In the telephone directory for the PABX you are able to save up to 300 names + 200 speed dialing destinations and telephone numbers.

Note:
Please refer to the descriptions of different modules and their application possibilities listed in the assembly instructions. The type and number of suitable modules differs for individual PABX models. Please refer to the manual or the assembly instructions of the PABX for further details.

2_2 1S0-module

The 1S0-module contains an S0 port that can be configured either as an internal or as an external ISDN connection. When shipped from the factory, the switchover jumper is mounted, i. e. the internal ISDN connection and the power supply to the terminal devices are active. If the ISDN is to be used as an external ISDN connection, the jumper must be removed and this connection edited in programming.

Note:
Examine your S0-modules prior to assembly!

The modules may not always be equipped with terminating resistors. There are three different variants supplied: with terminating resistors soldered in, without terminating resistors and with switchable terminating resistors.

The switchable terminating resistors are switched on/off using jumpers (jumpers inserted for ON).

- **You require terminating resistors in the modules:**
  - When you connect an external connection directly with the external network termination.
  - For a point-to-point connection.
  - When the bus begins directly with the connection for the PABX.

You can connect the terminating resistors directly to the terminals (if not already provided).

2_3 2S0-module

The 2S0-module contains two S0 ports. The S03 port is defined as an internal ISDN connection. The S04 port can be configured either as an internal or as an external ISDN connection. When shipped from the factory, the switchover jumper is mounted, i. e. the internal ISDN connection S04 and the power supply to the terminal devices are active. If the ISDN port S04 is to be used as an external ISDN connection, the jumper must be removed and this connection edited in programming.

Note:
Examine your S0-modules prior to assembly!

The modules may not always be equipped with terminating resistors. There are three different variants supplied: with terminating resistors soldered in, without terminating resistors and with switchable terminating resistors.

The switchable terminating resistors are switched on/off using jumpers (jumpers inserted for ON).

You require terminating resistors in the modules:

- When you connect an external connection directly with the external network termination.

— For a point-to-point connection.

— When the bus begins directly with the connection for the PABX.

You can connect the terminating resistors directly to the terminals (if not already provided).

2_4 2S0-module V2

has two ISDN ports that can be used as external or internal ISDN connection. The factory settings of all connections are activated as specified by the configuration. Use the configuration to switch to the external ISDN connection. A manual switching on the module is not possible.

The green LEDs show the operating status for a connected ISDN terminal.

Note:
Be sure that for the configuration as an internal ISDN connection (with feed-in from the bus) that this connection is not combined with an external ISDN connection (NT). In this case, the opposing in-feeds could result in damage to the devices.

- **The modules are fitted with switchable terminating resistors. The terminating resistors must be enabled:**

  — When you connect an external connection directly with the external network termination.

  — For a point-to-point connection.

  — When the bus begins directly with the connection for the PABX.

2_5 4a/b II module

The 4 a/b II module contains four analog connections.

Note:
If you wish to utilize the feature »Message to analog telephones«, you must use a module with the release version (C). The release version is indicated on the pcb.

4 a/b-modules are not supported.

2_6 4S0-module

has four ISDN ports that can be used as external or internal ISDN connection. The S04 port can be configured either as an internal or as an external ISDN connection. When shipped from the factory, the switchover jumper is mounted, i. e. the internal ISDN connection S04 and the power supply to the terminal devices are active. If the ISDN port S04 is to be used as an external ISDN connection, the jumper must be removed and this connection edited in programming.

Note:
Examine your S0-modules prior to assembly!

The modules may not always be equipped with terminating resistors. There are three different variants supplied: with terminating resistors soldered in, without terminating resistors and with switchable terminating resistors.

The switchable terminating resistors are switched on/off using jumpers (jumpers inserted for ON).

You require terminating resistors in the modules:

— When you connect an external connection directly with the external network termination.

— For a point-to-point connection.

— When the bus begins directly with the connection for the PABX.

You can connect the terminating resistors directly to the terminals (if not already provided).

2_7 4S0-module V2

The module is equipped with four S0-ports which can be configured as internal access or as external ISDN access for the connections 3 and 4. The factory settings of all connections are activated as specified by the configuration. Use the configuration to switch to the external ISDN connection. A manual switching on the module is not possible.

The green LEDs show the operating status for a connected ISDN terminal.

Note:
Be sure that for the configuration as an internal ISDN connection (with feed-in from the bus) that this connection is not combined with an external ISDN connection (NT). In this case, the opposing in-feeds could result in damage to the devices.

- **The modules are fitted with switchable terminating resistors. The terminating resistors must be energized:**

  — When you connect an external connection directly with the external network termination.

  — When the bus begins directly with the connection for the PABX.

2_8 4Up0-module

You can use the Up0-module and the Up0/S0-converter to increase the range for an ISDN connection (minimum of 1,000 m with a wire diameter of 0. 6 mm), or to allow double use of an existing ISDN line.

Four Up-connections (Up 1 … Up 4) are located on the Up0-module. Each of these connections is connected in a 2-wire manner with the end point of the connection, respectively one Up0/S0-converter or one Up0—capable system telephone.

As a result, two Up0- connections can be implemented via an existing 4-wire ISDN installation line. A normal »internal bus« can be installed at each Up0/S0-converter. The system power on this bus can be up to 2. 5 W. The Up0/S0-converter is designed for surface mounting.

2_8_1 Up0/S0-converter

- **Terminating resistors**
  The Up0/S0-converter is fitted with two switchable terminating resistors. The Up0/S0-converter can only function properly when activated terminating resistors are located at both bus ends.

- **Direct plug-in to terminal device connection**
  If a terminal device is operated directly via the port at the RJ45 jack of the module, thetwo jumpers must be inserted.

- **Connecting a »short passive bus«**
  Up to 12 ISDN jacks may be connected in series. You may connect up to 8 terminals, with each internal bus powering two terminals and the remaining six supplied from an external source (with a dedicated power supply unit). Two of the ISDN terminal devices can be in operation simultaneously (e.g., you can use two phones to telephone internally or externally simultaneously using one bus).

These two jumpers may only be inserted when the Up0/S0-converter is located at the beginning or at the end of the bus in the same manner as a PABX system.

If the Up0/S0-converter is installed like a PABX in the bus, the jumpers may not be plugged in.

2_9 8a/b-module

The 8 a/b-module contains eight analog connections.

2_10 Voice announcement module

The »announcement« module may also be used in addition to the »voice announcement before answering« function of the integrated voice application. The exchange of your PABX or a specific telephone is frequently busy. You want to make sure you do not lose any calls. Use the »announcement« module to accept these calls as well. The module answers the call, for example with a message such as »Thank you for calling. Please hold«. Once the initially called subscriber is available, the module automatically routes the call to the subscriber

The »Announcement before answering« or »Announcement when busy« features can be implemented using the »Announcement« module. Callers will then hear an announcement text. The caller is then switched to another telephone. The module is plugged into one of the doorline phone slots and connected to one of the analog ports. It behaves like an analog terminal device.

Note:
Please refer to the operating instructions for the voice announcement module for further information. This module can implement »Voice announcement before answering« for only one (1) caller.

2_11 DECT multicell module

represents a DECT controller unit to which a maximum of 4 »elmeg DECT rfps« (rfp = radio fixed part) can be connected. Up to four »elmeg DECT rfp« (rfp = radio fixed part) with four independent speech channels each can be connected to the elmeg DECT multicell module. Power is supplied through the module itself. Connection to the RFPs is implemented via a two-wire connection using the U-interfaces 0 ... 3, the maximum range being limited to 2,000 meters. Several DECT handsets can be operated at each »elmeg DECT multicell«. One module each can be operated in the pabx and in the extension (xt). Each of these two modules represents a system of its own. There is no direct link between the two modules; communication is ensured by the pabx system. The connections can be protected against overvoltages by an optional »Overload Protection Module«, one »Overload Protection Module« each protecting 2 connections (0.1 and 2.3).

Up to four »elmeg DECT rfps« (rfp = radio fixed part) with four independent speech channels each can be connected to the elmeg DECT multicell module. Power is supplied through the module itself. Connection to the RFPs is implemented via a two-wire connection using the U-interfaces 0 ... 3, the maximum range being limited to 2,000 meters.

Up to 10 DECT handsets can be enrolled at each of the 4 »elmeg DECT rfps«. One module each can be operated in the pabx and in the extension (xt). Each of these two modules represents a system of its own. There is no direct link between the two modules; communication is ensured by the pabx system.

- **The DECT multicell module is part of the DECT 400 System. The following are examples of the additional system components:**
  - — DECT handsets
  - — DECT RFP's
  - — DECT Repeater

2_11_0_1 Features

- **Multiple connections:**
  Up to two calls can be conducted simultaneously with the handsets. This makes performance features such as broker's call, three-party conference calls, accepting call waiting and call transfer possible.

- **Transfer functions:**
  Transfer functions can be used by all handsets. If all of the module channels are busy all further calls are signaled as busy.

- **Call forwarding:**
  Initiation of call forwarding on busy, on no answer and permanently is also possible. If all of the module channels are busy and call forwarding on busy has been configured for that particular subscriber, the call forwarding function will then be executed when a further call is received.

- **Completion of call to busy subscriber:**
  Completion of call to a busy subscriber from a handset is possible and is initiated using the code for "Completion of call to busy subscriber. Confirmation is shown in the display. The handset is called when the subscriber becomes available again and this is shown in the display. Existing call-backs can not be polled, but can be canceled using a code.

- **Completion of call on no answer:**
  Completion of call on no answer from a handset is possible and is initiated using the code for "Completion of call on no answer. Confirmation of this configured feature is made only by acknowledgement signals in the handset and by announcements from the exchange.

- **Malicious call identification (MCID):**
  You can activate this feature for calls using the appropriate code (even if the caller has already hung up. Activation from the exchange is indicated in the display.

- **Silent signalling:**
  This function is the same as with analog telephones. Execution (with or without sound) depends on the handset being used.

- **Communication cost display:**
  The sum of all accrued costs is displayed for connections that are charged. The amount is displayed with three digits in front of and behind the decimal point and a three-character currency symbol. The currency and conversion factor correspond to that specified in the PABXC system configuration.

- **DTMF on the B-channel:**
  You can use the handset menu to toggle between dtmf-mode and keypad mode (default setting is dtmf). Use the ALT-key for switching. This feature makes it possible to send dtmf-signals or keypad functions to the pabx during an ongoing phone call (current connection between two subscribers).

- **Follow me:**
  Call forwarding can be switched through immediately to a handset when it is removed from the charging receptacle and "Follow me" has been configured. The "Follow me" function is canceled when the handset is returned to the charger.

- **System functions**
  With elmeg DECT handsets (DECT300 and DECT400 system handsets)

- **System menu for the PABX:**
  These handsets can access the system menu of the PABX system and utilize the performance features available in that menu (e.g. PABX system telephone directory).

2_11_1 Configuration

After the DECT multicell module has been assembled and started, 8 DECT-subscribers are automatically configured. You can configure the DECT subscribers, and add new ones, using the Professional Configurator. Configuring of the functions and performance features for the handsets is performed in the same manner as for a system telephone, for example, in configuration. The possible number of DECT-subscribers depends on the pabx system being used.

2_11_2 Logging-on / Enrolling a handset

Loggin on a DECT-subscriber into the system must first have been enabled. Enabling is done with the help of the Professional Configurator or by entering a pabx-specific code. To enroll a handset proceed as described in the handset documentation. The handset is stored at the next available position of the DECT module and the corresponding internal extension number is assigned to it.

If you wish to assign a specific internal extension number to that handset, store the handsets' serial number at the desired position of the DECT module (Professional Configurator). When a handset is enrolled it is stored at the selected position and the corresponding number assigned.

When a handset has been successfully enrolled the internal number, or the corresponding number of the DECT subscriber, is shown in the display of an elmeg DECT handset.

If a handset has already been logged on its ID (serial number and software version) is displayed in the configuration data after exporting of the PABX system data.

2_11_3 Logging off a handset

Log off the handset as described in the operating manual, or use the Professional Configurator to remove the serial number of the handset from the PABX system configuration.

2_12 Overload protection module

The fine overload protection module (FSM) is provided to divert overvoltage at analog or ISDN connecting lines. Overload protection is required for each connection that is to be protected. Any overvoltage which occurs in the lines is diverted to the functional ground (FE terminals). It is imperative that you have functional grounding installed (min. 2. 5 mm, 2 cores) and that it is always connected to provide continuous protection. The overload protection module is plugged into the slots provided for it on the cable terminal bay. The overload protection module is of symmetrical design. Plug it in either way round.

Please that the FSM module is an expendable fusible link, i. e. once a module has been activated it must then be replaced with a new one. If a fine overload protection module is activated by excessive voltage, it creates a short-circuit in the connection lines. If you do not hear a dial tone after lifting the handset, have the module checked. Disconnect the external ISDN connection and the 230 V supply from the PABX prior to checking.

2_13 Switching contact module

The switching contact module is equipped with six alarm inputs (sensors) which have a dedicated power supply that is electrically isolated from the PABX internal power rail. Three free switching contacts (actuators) are also available on the module.

See also:

Alarm call« tab«

Switching contacts

2_14 Emergency supply module

The powerfail feature module permits continued use of the PABX to make calls on loss of the 230 V AC power supply. The terminal with which you can make phone calls during power outages must also be equipped with an »emergency power« function. Make sure that this phone (system phone) is suitable for the point-to-multipoint or point-to-point connection type. In the event of a loss of power the relay contacts on the NSP module switch the external connection from NT directly to the internal ISDN port.

2_15 Smart Media Card

You can use the Smart Media Card to expand the memory for PABX system voice applications. You can store music on hold or announcement texts on the Smart Media Card in the course of »Voice applications«.

The smart media card is not formatted when restoring the PABX default settings. This requires the configuration function.

Only the smart media card can be used to log the functions of the »alarm inputs«.

2_16 POTS module

2_16_1 2 POTS-module / 4 POTS-module

makes it possible to connect the PABX to the analog net (analoger exchange line HKZ). The 2 POTS-module is equipped with two analog ports and the 4 POTS-module with four. Please follow the instructions given in the Assembly instructions for operating this module in your pabx. POTS features can fully be used in conjunction with the following country-specific versions: DE, IT, ES, PT, PL, DK, NL, CH. AT, BE, FR, HU and GR. All other countries can use the basic features, excluding functions like CLIP, dial tone detection or charge pulse.

When returning the call to a waiting queue with voice announcement, be sure to provide a minimum pause of 3 seconds within or after the announcement. This is important for busy tone detection in case a caller hangs up during a voice announcement.

2_16_2 Under this tab you can make the basic settings for the selected subscriber.

- **Connection name:**
  For easier handling, you can designate names for connections during configuration.

- **Trunk group selection:**
  Select trunk groups available for specific trunk group selection. The trunk groups you specify here can be used for making outside calls in conjunction with the »Specific trunk group selection« feature.

- **Dialing method:**
  This option lets you specify whether the pabx is to use pulse dialing or tone dialing (DTMF).

- **Dial tone detection /dial pause:**
  When operating the module in one of the specified countries, you can enter the dial tone detection. The PABX then begins dialing imediately after having detected the dial tone. Use the dial pause in case the pabx system does not detect a dial tone or no dial tone is transmitted. You will have to determine the length of the pause.

- **Busy tone detection:**
  With activated busy tone detection you can specify a time interval, during which the busy tone should be detected. If no busy tone is detected during that time interval, the connection will be released.

Note:
If the busy tone cannot be detected within 5 seconds (default setting), you can change this setting to 3 seconds. The longer the time interval, the more reliable the busy tone detection. When the timing is too short, faults could possibly be identified as busy tones.
When returning the call to a waiting queue with voice announcement or music on hold, be sure to provide a minimum pause of 3 seconds within or after the announcement or music on hold. This is important for busy tone detection in case a caller hangs up during a voice announcement or when transferring the call to a specific subscriber or team.
With a caller put on hold and one of the internal music on hold melodies active, the busy tone may not be positively detected. If this is the case please use music on hold of your own and appropriate pause settings.

If the Network Service Provider (as for example in UK) transmits a »K-Break« (short power supply interruption), this will be detected and treated just like a busy tone. You should deactivate busy tone detection for this purpose. For pbx-systems configured for use in the UK the busy tone detection feature is always off.

- **Access:**
  Here you can specify which POTS connection is active and which not. This avoids erroneous use of a POTS connection which may not be connected. Restart your pabx system in order to release the unestablished connection.

- **Number display:**
  The countries have different methods for presenting call numbers. Contact your Network Service Provider and enter FSK oder dtmf respectively.

- **Charge transfer:**
  The countries have different methods for presenting call numbers. Contact your Network Service Provider and enter data as appropriate.

- **Dial End Monitoring Timer:**
  The end-of-dialing timer is started after each digit is dialed to determine the end of the phone number. When this timer expires, the pabx starts dialing. Only change the default setting of this timer if it is absolutely necessary.

2_17 VoIP-VPN Gateway-module

The VoIP VPN Gateway module is the ideal complement to your elmeg ICT systems. This module combines modern Internet telephony through Voice over IP with secure data exchange via VPN. There are two slots integrated into this module for the M 4 DSP or M 8 DSP expansion modules. Use this module for simultaneous operation of IP telephones and standard phones (analog, S0, Up0) with a PABX system for gradual (i.e. reasonably priced) migration to VoIP. Connection to SIP providers is also supported. The VoIP VPN Gateway module can also be used in existing elmeg ICT installations.

The VoIP VPN Gateway module can be installed at any standard slot in elmeg ICT systems (analog or expansion). One module can be used for each ICT system. It is not possible to use a VoIP VPN Gateway module together with a Router ICT module. If both of these modules are installed in one ICT system, only the VoIP VPN Gateway module may be used. In this case the slot for the Router ICT module is not active.

You can use the VoIP VPN Gateway module in any ICT system and expansion installation, including existing ICT systems.

2_17_1 Hardware submodules M 4 DSP , M 8 DSP, M 30 DSP

The M 4 DSP, M 8 DSP and M 30 DSP modules are installed as submodules on the VoIP VPN Gateway module. These modules are designed as plug-in modules for mini-PCI slots and are not equipped with any other connections. An LED (only modules M 4 DSP, M 8 DSP) informs you about the operating status for the DSP modules.

Note:
Module M30 DSP:This module may not be used in parallel with the M4 DSP/ M8 DSP module. The M4 DSP/ M8 DSP module is rendered non-functional in this case.

2_18 Up0-module

You can use the Up0-module and the Up0/S0-converter to increase the range for an ISDN connection (minimum of 1,000 m with a wire diameter of 0. 6 mm), or to allow double use of an existing ISDN line.

Eight Up-connections (Up 0 … Up 8) are located on the Up0-module. Each of these connections is connected in a 2-wire manner with the end point of the connection, respectively one Up0/S0-converter or one Up0—capable system telephone.

As a result, two Up0- connections can be implemented via an existing 4-wire ISDN installation line. A normal »internal bus« can be installed at each Up0/S0-converter. The system power on this bus can be up to 2.5 W. The Up0/S0-converter is designed for surface mounting.

2_19 ICT 880xt extension

2_19_1 ICT880 PABX systems are equipped with an interface for connecting the ICT 880xt extension.

These extensions provide 6 Up0-ports, 4 analog ports and slots for plugging in additional modules. Extensions are equipped with the same module slots as the PABX systems,

2_20 Module S2m (Primary multiplexer PRI)

2_20_1 Primary multiplex port (S2m connection)

You can use a primary multiplexer port via module s2m at special slot 2 in the PABX system (not in expansion module). This port provides up to 30 B-channels for outgoing calls.

The S2M connection is considered the same as a point-to-point connection with special configuration options for configuration of the PABX system.

You can select one of three directional options for each B channel to enhance your overall accessibility. These settings apply only to the assignment of B channels by the PABX system (outgoing calls to external ties). Incoming calls are accepted regardless of the configured direction of the B channels in the PABX system.

Connection designation module S2m		Different connection designations of network service providers			
RJ45 jack	Hardwired connection		UK= PRI : ISDN 30	Colt	
1	RL2 (-)	ab/a		Tx (1)	

2	RL1 (+)	ab/b		Tx (2)	
4	XL2 (-)	an/a		Rx (4)	
5	XL1 (+)	an/b		Rx (5)	
Screening	GND				

2_20_2 Connection of module S2m

Note:
for permanent installation of the module: The T terminal must be connected to the function ground terminal for the PABX system using a line with a minimum cross section of 0.5 mm2.

- **External connection (RJ 45):**
  - — Connection to the feed-in from the network service provider is made using the CAT.5 cable (2 meters) supplied with the system.
  - — A CAT. 5 cable with a maximum length of 10 meters can be used for grater distances.

- **External connection (fixed connection)**
  The maximum distance between the feed-in from the network service provider and the s2m module can be 10 meters.

2_20_3 Installation of the S2m module in the ICT 880-rack PABX system.

Here, use the »S2m« connecting cable to effect a connection to jack »S2M/PRI« on the front panel. No other connection is required. The RJ45 jack, or the hard-wired connection on the s2m, is not used.

2_20_4 LED functions

LED 1 green	LED 2 Red	Significance
Off	Off	No function (e.g. Connector towards PABX not plugged in)
On	Off	S2m-Module in operation. No B channel assigned
On	On	At least one B-channel is busy
Off	flashes (4Hz)	Error in the net or in the exchange
Off	On	LOS loss of signal
Off	flickers	RAI: remote alarm indication. Signal error from S2m module to the modem

3 Connections

3_1 Connections

3_1_1 Connections

The PABX is an ISDN telecommunications system for interfacing with the Euro ISDN (DSSI) protocol. It has various analog and Internet connections:

- **ISDN connections (S0):**
  — The PABX is provided with external ISDN connections, which are configured for interfacing to the ISDN connections of the network service provider. Depending on the type of PABX, ISDN connections can be set as required as internal or as external ISDN connections.
  »ISDN connections«

- **UP0-connections (UP0):**
  — The base module of the »Extension« has Up0 ports for connecting Up0 compatible system telephones or ISDN terminal devices via the Up0 / S0 converter.
  »Up0-Connection«

- **S2M connection:**
  — With the S2M module plugged into the special pabx slot, you can use the pabx at a primary multiplex port (S2M connection). This port provides up to 30 B-channels for outgoing calls
  »S2M port«

- **External analog lines (POTS):**
  — By using any of the POTS modules you enable your PABX to connect to analog telephone lines as well.
  »POTS module«

- **CAPI-port (CAPI):**
  — Allocation of a default number for CAPI-applications when installing a router or the VoIP-VPN-gateway.
  »CAPI«

Note:
Names entered here for any of the connections will not be used in the ongoing configuration process. They simply describe the connection.

3_1_2 ISDN connections

The PABX's ISDN ports can be configured as internal or external ISDN connections. The external ISDN ports are used for interfacing with the ISDN network of the service provider. The internal ISDN ports are used for connecting the different ISDN terminal devices (telephone, PC...). vorgesehen.

- **You can set up the type of external ISDN access port to work either in point-to-multipoint (P-MP) or point-to-point (P-P) access mode. With multiple ISDN access ports, you have the following configuration options:**
  — All external ISDN connections are point-to-multipoint (P-MP) connections.
  — All external ISDN connections are point-to-point (P-MP) connections.
  — The external ISDN connections are point-to-multipoint (P-MP) and point-to-point connections (P-P).

Internal ISDN connections are always point-to-multipoint connections. When connecting terminal devices to an internal ISDN port please that not all of the ISDN terminal devices offered on the market can utilize the features provided by the PABX system from their keypad.You can configure each internal ISDN connection according to the operating mode and type of installation (see assembly instructions).

A name can be assigned to each internal or external ISDN connection when configuring the PABX. This name can be up to 12 characters in length and serves to identify individual ISDN ports in the configuration program.

3_1_3 S2M connection

With the S2M module plugged into the special pabx slot, you can use the pabx at a primary multiplex port (S2M connection). This port provides up to 30 B-channels for outgoing calls. All B-channels of the S2M-connection are part of the same trunk group.

The S2M connection is considered the same as a point-to-point connection with special configuration options for configuration of the PABX system.

- **Configuring a B-channel**
  You can use the pabx at an S2M-connection with up to 30 B-channels. If your network service provider furnishes you with less than 30 B channels you must de-activate the corresponding number of B channels that are not available. For example, 15 B channels are provided for one half of an S2M connection in Germany. This means you would have to de-activate the remaining unavailable 15 B channels.

  You can select one of three directional options for each B channel to enhance your accessibility at the S2M connection. These settings apply only to the assignment of B channels by the PABX system (outgoing calls to external parties). Incoming calls are accepted regardless of the configured direction of the B channels in the PABX system.

  — Incoming only - The B-channel is reserved for incoming calls.

  — Outoing only - The B-channel is reserved for outgoing calls.

  — Altenating - The B-channel can be used for both, incoming and outgoing calls.
  This setting allows you to specify the maximum number of outgoing connections taking place at the same time. Due to the fact the B-channels have been reserved for incoming calls, you are still reachable for outside calls even though you can not call an outside number yourself.

Note:
The B-channels you have programmed for alternating use will be utilized by the pabx when all B-channels configured for outgoing calls are busy.

- **Assignment direction for B channels**
  You can use the assignment direction to define which B channels are to be used by the PABX system for the next outgoing call. The following options are available for the assignment direction:

  Ascending or descending assignment of the B channels within the range reserved for outgoing or alternating connections. The B channels are assigned linearly for this, beginning at 1 or 30.

Note:
Final allocation of the B channels is conducted by the exchange. The procedure used there may not concur with the configuration for the PABX system.

3_1_4 Up0-connection

You can use the Up0-module to increase the range for an ISDN connection (minimum of 1,000 m with a wire diameter of 0.6 mm), or to allow double use of an existing ISDN line. The 4 Up0-module is equipped with 4 (Up 1...Up 4), the 8 Up0-module with 8 UP0 ports (Up1...Up8). Each of these connections is connected in a 2-wire manner with the end point of the connection, respectively one UP0/S0-converter or one UP0-capable system telephone. As a result, two Up0- connections can be implemented via an existing 4-wire ISDN installation line.

3_1_5 LAN_WAN_connections_connections

- **Ports (WAN, LAN)**
  You can link the PABX system router with another network, for example the Internet, via the WAN port. You can connect a DSL modem with an Ethernet (10BaseT) port at a DSL port.

  You can connect PCs to the PABX for the local network (LAN) via Ethernet or Fast Ethernet. You can connect devices to the LAN port of the Router module via Ethernet or Fast Ethernet, regardless of the operating system platform you are using (Linux, Mac OS, MS Windows, Palm-OST, etc.) or the device type (PC, Mac, PDA, Webpad). PCs connected in this manner form a network (LAN - Local Area Network). If you wish to connect several PCs you will need a hub or switch.

  After you connect a PC IP-addresses must be assigned. When doing this you must ensure that the IP-addresses assigned to the PCs and the PABX systems are in the same IP network. This also applies if you wish to utilize common resources among several PCs in a LAN (for example released directories, network drives, network printers). All PCs located within the network require an IP-address.

3_1_6 POTS-connections

You can operate your PABX system on analog exchange connections using the 2 POTS and 4 POTS modules (HKZ /POTS), form firmware version 1.5 on. These modules plug into special slot 2.

Some legacy ICT46 systems (up to march 2004) do not support the use of POTS-modules, because they are lacking the push-on connector for connecting the modules.

Depending on how the PABX is configured, seizing of an analog exchange connection is performed by dialing the line access digit, or using a code for specific trunk group seizure. If both ISDN and analog ports are located within a trunk group the connection is first set up via the ISDN ports and then via the analog ports.

3_1_6_1 Dial and busy tones:

For further information on dial tones and busy tones, please refer to the assembly instructions.

3_1_6_2 Features

- **End of dialing monitoring**
  The end-of-dialing timer is started after each digit is dialed to determine the end of the phone number. When this timer expires, the pabx starts dialing.

- **Charge transfer**
  Charge transfer can be set for each analog exchange connection. The frequency for charge pulses is set centrally in the configuration of the PABX system for all analog exchange connections (12 or 16 kHz). The charge pulse for analog subscribers is transferred in accordance with the configuration for a particular subscriber. Charge information is transferred as a currency amount at ISDN phones.

- **Filter incoming**
  As specified in the configuration, incoming calls are put through to a team, to a subscriber or to a set announcement. The caller will also hear the dial tone when the call is signaled at a busy team or subscriber. Signaling of busy to the caller is not available. Callers will continue to hear the dial tone until they terminate the connection. As it is not possible to implement busy signal recognition at analog ports, incoming calls put through to »unending« voice applications, such as announcements, will be terminated automatically after 10 repeats. This prevents the analog port from being occupied permanently, even after the caller has already hung up the handset.

- **CLIP**
  You can define for each analog port whether Calling Line Identification Presentation (CLIP) is to be executed or not. When CLIP is activated a call will only be signaled (team, subscriber) via the corresponding analog port when all of the CLIP information has been received entirely.

- **Call waiting / call waiting lock-out**
  Call waiting and transfer of CLIP off Hook information by the exchange office can not be influenced (de-activated) by the PABX system. You must have this function de-activated at the exchange if you do not wish to utilize it.

- **GSM-gateways**
  In addition to being connected to external ISDN and internal analog ports, GSM Gateways can also be linked to POTS ports. A name and an external number can be assigned to each analog exchange connection for better orientation in the Professional Configurator. You can define the individual configuration settings for each analog exchange line under »Port configuration, 6 POTS-x module«. You can also assign an analog port to a trunk group here. Authorization for trunk group assignment is provided, as usual, separately for each internal party. Signaling of incoming calls can be set under »Call allocation«. You can manually select a GSM gateway through specific trunk seizure, or automatically using the “LCR Professional“.

- **SMS in the fixed-line network**
  You can also send or receive SMSs via the analog ports. More information is given about this in the description of performance features for your PABX system.

- **Keypad functions / net direct**
  Internal keypad dialing is converted to external DTMF dialing for analog exchange connections. This is only possible, however, for external analog ports that employ DTMF dialing. Keypad dialing is rejected (with a busy signal) with pulse dialing.

  The technical properties of analog exchange connections prevent calls on an analog exchange connection from being rerouted to a different analog exchange connection. Performance features such as external call forwarding, external team call signaling, gateways at external analog ports, can not be utilized. You can use the NetDirect (keypad) functions available with the analog exchange connections, for example, to configure call forwarding to your GSM cell phone at the exchange office.

- **Number of three-party conferences**
  You can conduct up to two three-party conferences at once using the PABXs. If the PABX has a POTS module installed, up to eight simultaneous three-party conferences are supported.

  Linking to analog exchange connections is currently only implemented completely for Germany, Italy, Spain, Portugal and Greece. Not all functions are available in other countries; in particular features such as CLIP, dial tone recognition or charge pulse may not be supported.

3_1_7 Configuration

See: olso

Configuring POTS-connections

3_2 Configuration_of_the_S0_Up0_S2M

3_2_1 Trunk group / trunk group reservation

You would like to assign an internal extension of your PABX to specific external ISDN, POTS, or VoIP channels for outgoing connections. These external ISDN connections can be trunk groupd and made available to subscribers when dialing out. This way all subscribers dial out with the same line access code but can establish a connection only via the trunk groups you allow them to use.

You have to make some urgent outgoing calls but all connections of your trunk group are busy. The dedicated trunk group reservation function allows establishing this external connection using a different trunk group. Trunk group (access) reservation The »Reserving a trunk group« feature is used to reserve a busy external line. Once the line becomes available, you can use it to dial out.

See also:

Configuring an external S0-port

Trunk group reservation

3_2_2 Misdialing feature

You have changed the telecommunications and data infrastructure of your company and with that the configuration of your PABX system. External extensions/direct dialing, for example, is no longer utilized. To make sure calls to these extensions are not lost, they are forwarded to a team or a subscriber. Calls with an incompletely dialed or incorrect number are also forwarded.

Select a team or subscriber for each external ISDN to which all non-deliverable calls are to be forwarded. Non-deliverable calls are those where

- the caller has dialed a nonexistent or incomplete direct dial-in extension number.
- the caller has dialed an extension of the point-to-multipoint connection not configured in the PABX system or a team is called that has no subscribers or where all subscribers are logged off.

Note:
If a wrong extension of a point-to-multipoint connection has been dialed, the call might not be routed through to your extension. Ask your network service provider for details.

3_2_3 Permanent layer 2 activation

The »Permanent layer 2 activation« function (also called permanent monitoring) continuously monitors the functionality and transmission quality of an external ISDN connection. This means the PABX system is continuously in contact with the exchange of your network service provider. If the »ISDN layer 2« is not permanently kept active by the exchange, the PABX can also initiate the repeated generation of layer 2.

Note:
You must apply for this feature to your service provider or realize it with the PABX system.

The ISDN layer 2 for point-to-point access connections may be switched permanently active in the exchange without additional procedures.

In case of point-to-multipoint connections, the ISDN layer 2 is usually deactivated after a specific downtime has passed.

3_2_4 S0 / Up0 / S2M configuration

The »S0/Up0/S2M configuration« menu option allows you to configure the internal and external connections for your PABX.

All ISDN connections available to the PABX are shown here.

If you have expanded the PABX system by connecting expansion units or installing modules the ISDN connections added as a result of this are also displayed. The Port column shows you the position of an ISDN connection as for example Base, Module or Extension. The other columns display settings for specific ISDN connections.

- **Selecting and opening an ISDN port**
  Click the ISDN connection whose settings you wish to edit. Double clicking the currently selected ISDN connection displays an input window.

  Make the settings as appropriate. Finally confirm your entries by clicking »OK«.

See also:

Configuring an internal S0-port

Configuring an external S0-port

Configuring an Up0-port(more

Configuring an S2m-port

Note:
Some of the PABX's ISDN ports can be configured as internal or external ISDN connections (marked as »variable« in the »External / Internal« column). Switching is performed in the configuration window for the specific ISDN connection.

Note:
Up0 ports are always internal ISDN connections.

3_2_5 Configuration of the S2M-port

With the S2M-module plugged into a special pabx slot, you can use the pabx at a primary multiplex port (S2M-port).

You can use the pabx at an S2M-port with up to 30 B-channels. If your network service provider furnishes you with less than 30 B channels you must de-activate (inhibit) the corresponding number of B channels that are not available. For example, 15 B channels are provided for one half of an S2M-port in Germany. This means you would have to de-activate the remaining unavailable 15 B channels.

- **Settings for the S2M connection**

- **Trunk group selection:**
  All B-channels of the S2M-connection are part of the same trunk group.
  In the »Trunk group« field, specify the trunk group to be used in conjunction with the S2M connection.

- **Connection name:**
  In the field »Connection name« you can enter a designation for the S2M-port. This name can be up to 12 characters in length and serves to identify the port in the configuration program.

- **Misdialing (general) (centralized forwarding point):**
  In the »Misdialing«» field you can select a team or internal number that is to be used as the central transfer point for the S2M-port.

- **Example:**
  At a point-to-point access a call with an incorrect or non-configured dial-in number is considered as having been dialed incorrectly and is then signaled at a configured team / subscriber.

  If all of the team members have logged out of the team (point-to-point or point-to-multipoint connection) a call for this team is signaled as an erroneous call at the configured team/subscriber.

- **Point-to-point connection:**
  A »Point-to-point access« requires further configurations.
  Select the »Extension number length« (0 ... 4) supplied to you by your network service provider.
  Under »Identification of calling extension number« enter the direct dial-in numbers to be transmitted with outgoing calls. This direct dial-in number is shown at the caller's for all outgoing calls via this ISDN connection, even if a different dial-in number has been configured in the subscriber settings.

- **Assignment direction:**
  You can use the assignment direction to define which B channels are to be used by the PABX system for the next outgoing call. The B channels are assigned linearly for this, beginning at 1 or 30.
  Please select the desired assignment direction.

- **CLIP no screening:**
  Use the external P-P-connection and the »CLIP No Screening« feature to transfer an unscreened number that normally is not part of your ISDN connection to the party being called. Select the variant you wish to use for the selected ISDN connection.

- **B-channel configuration:**
  Availability and direction of every B-channel can be configured individually. Select whether a B-channel is blocked or the direction for which it is to be used.

Note:
These settings apply only to the assignment of B channels by the PABX system (outgoing calls to external parties). Incoming calls are accepted regardless of the configured direction of the B channels in the PABX system. The B-channels you have programmed for alternating use will be utilized by the pabx when all B-channels configured for outgoing calls are busy.

3_2_6 Configuring an external S0-port

The external ISDN ports are used for interfacing with the ISDN network of the service provider. You can program the type of connection for the external ISDN connection either as a multipoint connection (P-MP), or as a point-to-point connection (P-P).

- **Selecting and opening an S0 port**
  Select »S0/Up0 configuration« and click the S0- port you want to edit in the list of available ISDN connections. Double clicking the currently selected S0-port displays an input window.

  To configure an external S0-port, »External« must have been selected in the »ISDN« field.

- **Settings for an external S0-port**

- **Trunk group selection:**

  — In the »Trunk group« field, specify the trunk group to be used in conjunction with this specific ISDN connection.

- **Connection name:**

  — In the field »Connection name« you can enter a designation for the external S0-port. This name can be up to 12 characters in length and serves to identify the S0-port in the configuration program.

- **Access type:**

  — Under »Access configuration« select the type of access for this external ISDN connection.
  Point-to-multipoint access (P-MP)
  Point-to-point access (P-P)
  You can select »Permanent layer 2 activation« in this field as well. Check this box as appropriate.

- **Point-to-point connection:**

  — A »Point-to-point access« requires further configurations.

- **Dial-in number length:**

  — Select the »Extension number length« (0 ... 4) supplied to you by your network service provider.

- **Identification of calling extension number:**

  — Under »Identification of calling extension number« enter the direct dial-in numbers to be transmitted with outgoing calls.
  This direct dial-in number is shown at the caller's for all outgoing calls via this ISDN connection, even if a different dial-in number has been configured in the subscriber settings.

- **CLIP no screening:**

  — Use the external P-P-connection and the »CLIP No Screening« feature to transfer an unscreened number that normally is not part of your ISDN connection to the party being called. Select the variant you wish to use for the selected ISDN connection.

- **Misdialing (general) (centralized forwarding point):**

  — In the »Misdialing«» field you can select a team or internal number that is to be used as the central transfer point for this ISDN access.

- **Example:**
  At a point-to-point access a call with an incorrect or non-configured dial-in number is considered as having been dialed incorrectly and is then signaled at a configured team / subscriber. If all of the team members have logged out of the team (point-to-point or point-to-multipoint connection) a call for this team is signaled as an erroneous call at the configured team/subscriber.

3_2_7 Configuring an internal S0-port

The internal ISDN ports are used for connecting the different ISDN terminal devices (telephone, PC...). vorgesehen. Internal ISDN connections are always point-to-multipoint connections. When connecting terminal devices to an internal ISDN port please that not all of the ISDN terminal devices offered on the market can utilize the features provided by the PABX system with theirecall flash buttonpad interface.

Selecting and opening an S0 port

Select »S0/Up0 configuration« and click the S0- port you want to edit in the list of available ISDN connections. Double clicking the currently selected S0-port displays an input window.

To configure an internal S0-port, »Internal« must have been selected in the »ISDN« field.

Settings for an internal S0-port

- **Connection name:**

  — In the field »Connection name« you can enter a designation for S0-port. This name can be up to 12 characters in length and serves to identify the S0-port in the configuration program.

- **Internal ISDN:**

  — Select the type of installation for the internal ISDN connection. Select »Internal S0 bus« if your internalISDN connection is configured as a short or extended passive bus.
  Select »Point-to-point«, if your internal ISDN connection is configured as a Point-to-Point access:
  Please refer to the Assembly Instructions for a detailed description of the various installation possibilities for an internal ISDN connection.

- **Default number:**

  — In the field »Default number« you can specify an internal number of this ISDN connection as standard number. If you connect an ISDN terminal device without configuring an internal number for that device for example, the default number will be displayed at the party being called when outgoing calls are placed.

3_2_8 Configuring an Up0-port

Up0-ports are always internal ISDN connections. To install an Up0-port, plug a »4Up0-module« into your PABX or use the »ICT880xt extension« (ICT880 only).

- **Selecting and opening a Up0-port**
  Select »S0/Up0 configuration« and click the S0-port you want to edit in the list of available ISDN connections. Double clicking the currently selected Up0-port displays an input window.

- **Settings for an Up0-port**

- **Connection name:**

  — In the field »Connection name« you can enter a designation for the Up0-port. This name can be up to 12 characters in length and serves to identify the Up0-port in the configuration program.

- **Default number:**

  — In the field »Default number« you can specify an internal number of this ISDN connection as standard number. If you connect an ISDN terminal device without configuring an internal number for that device for example, the default number will be displayed at the party being called when outgoing calls are placed.

3_2_9 Configuration of the VoIP-VPN Gateway: SIP-provider

Here, you can define the subscriber or the team to which the call is to be routed in the event of a wrong number being dialed. Under »External numbers«, »SIP Provider«, »Advanced« you can define a special subscriber or team as the transfer point (for wrong numbers) for each particular provider.

3_2_10 Layer 1 Synchronization

When connecting an external device (e.g. a GSM gateway) to an external point-to-point PABX system connection, the cycle of the external device may lead to a disturbance of the system cycle. You should only deactivate Layer 1 synchronization when such an error occurs.

4 Locations

4_1 »General«_tab

General

You can configure up to 20 (00…19) locations (including WAN and LAN) for use with the bandwidth management system described here. A location is identified by its set IP-address, or by a DynDNS address. The available bandwidth (upstream and downstream) and the percentage used for rtp traffic (VoIP connections) can then be set for each location.

Note:
Please the basic settings under » »Networks«, »Internet access«, »Bandwidth Management«.

4_1_0_1 Site name

- **Name:**
  — Here, enter the name of the location for the opposite terminal.
- **Bandwidth:**
  — Upstream:
  — Downstream:
  — If you enter »maximum« here, bandwidth management will not be activated. Enter the bandwidth of the far-end site.

4_1_0_2 Bandwidth management (Traffic Shaping)

The ICT systems support bandwidth management to also achieve the best quality for call connections in the WAN. Up to 20 locations can be configured in the ICT for this. The available bandwidth (upload and download) is configured for each of these locations and defines what percentage of this bandwidth can be used for rtp traffic (VoIP packets). Location identification is made automatically on the basis of the set IP-address, or using a DynDNS name.

Example: The Hamburg location has a DSL connection with 1024 KBit/s download and 128 KBit/s upload capacity. 75% of this capacity (bandwidth) is to be used for VoIP. The critical bandwidth to be observed in this case is the upload, on account of its lower value. For example, if a VoIP connection is set up using the G.711 codec the available bandwidth would be exhausted with only one connection already. Using the G.729 codec, with greater compression, at least 4 connections could be set up within the same bandwidth. ICT uses the bandwidth management function to ensure good-quality connections within the available bandwidth. Setup of further connections is refused when the available bandwidth would not provide an adequate level of quality. Threshold value 170 kB. For a bandwidth of <130 kB = compressed codecs, beginning with G729. for a bandwidth of > 130 kB = beginning with G711.

4_1_0_3 Max. RTP-Traffic

— **Percent**:
Using the »Max. RTP-traffic« you can then allocate bandwidth for data traffic (not for voice, though) and other applications. With the setting »maximum« the bandwidth for data transfer for voice transmission will be reduced until data transfer is no longer possible. The data link is not discontinued however, but is resumed when the voice transmission is completed.

4_1_0_4 IP-address / DNS Name

- **IP-address:**
  — You can enter the IP-address or the DNS name (available on Internet at dyndns.org) here.
- **Subnet mask:**
- **Dynamic DNS Name:**

4_1_1 Registration timer

— Here you can define the time period in which an IP telephone connected to the system, for example, must identify itself at the gateway.

4_2 »Codecs«_tab

4_2_1 Codecs

When setting up the Codec please , that good speech quality requires appropriate bandwidth and thus limits the possible number of simultaneous calls. The other terminal must also support the selected Codec.

Note:
Please the basic settings under » »Networks«, »Internet access«, »Bandwidth Management«.

The standard version uses the marked Codecs.

— G.711
— G.729
— G.726 (16 kbit/s)
— G.726 (24 kbit/s)
— G.726 (32 kbit/s)
— G.726 (40 kbit/s)
— G..723

You can however contact your providers and make separate settings or exclude the use of specific Codecs:

- **Voice connection**
  — »Automatic Codec Selection«
  From the active Codecs the pabx selects the appropriate Codec on its own.
  — »best speech quality«
  The bandwidth is set for best speech quality.
  — »small bandwidth«
  The smallest possible bandwidth is set for voice transmission.

4_2_1_1 G.726 Codec setting

— »I366«

Note:
»RFC3551 / x40« ()not for system telefons.

5 External_numbers

5_0_1 External numbers

The external numbers for the individual PABX system ISDN connections must be entered for each external ISDN connection. These numbers can be assigned to internal teams or subscribers for further configuration of the PABX system.

An index (0 ... 9) is automatically assigned to each of the external numbers you have entered. You need this index for programming features from a telephone set using code numbers, for example »Call forwarding through local exchange office« or »Preset number for next outgoing call«.

5_0_1_1 Selecting a port and displaying the dialog window

Select an external access by mouse click. Double clicking the currently selected connection displays an input window, where you can enter the external numbers, through which this extension can be reached.

5_0_2 External numbers with a point-to-point access

With a point-to-point access you will receive a system number, together with a 1, 2 or 3-place phone number plan. This phone number plan comprises the direct dial-in numbers for the point-to-point access. If you have applied for more than one point-to-point access the number of direct dial-in numbers can be expanded, or you can receive a further system number with a dedicated phone number plan.

With a point-to-point access external calls are signaled at the subscriber whose phone number corresponds to the direct dial-in number that has been dialed. This is performed automatically and does need to be configured in the PABX system.

If external calls are to be signaled at a different internal number you can enter the direct dial-in numbers in the PABX system and then assign them to a different internal number.

- **Example:**
  Let's assume you have a point-to-point access with the number »1234« and direct dial-in numbers from 0 to 30. A call placed to »1234-22« would normally be signaled at the internal subscriber with the phone number (extension) 22. If you enter the dial-in number 22 into this list however you can specify that calls made to »1234-22« will be signaled at the subscriber with the extension 321.

5_0_2_1 Selecting an ISDN port and displaying the input window

To edit the numbers for an ISDN connection select this connection by mouse click under »External numbers«. Double clicking the currently selected ISDN connection displays an input window.

Enter the PABX number into the field on the left (without local area code). Enter the direct dial-in numbers for your Point-to-Point access into the »Direct dial-in 0« to »Direct dial-in 9« fields. The digits 0 to 9 correspond to the index, that is automatically assigned to each of the direct dial-in numbers.

Note:
In the »S0/Up0 configuration« dialog, you can set the length of the DDI numbers for each external point-to-point ISDN access separately.

5_0_3 External numbers with a point-to-multipoint access

With a point-to-multipoint connection you can apply for up to 10 numbers (MSNs) for each ISDN connection. These MSN extension numbers represent the external numbers for your ISDN connections.

5_0_3_1 Selecting an ISDN port and displaying the input window

To edit the numbers for an ISDN connection select this connection by mouse click under »External numbers«. Double clicking the currently selected ISDN connection displays an input window.
Enter the MSN extension numbers (without local area code). The digits 0 to 9 in front of the input field correspond to the index, that is automatically assigned to each number.

5_0_4 External number for POTS access

You can enter one specific number for external analog POTS ports.

5_0_4_1 Selecting an ISDN port and displaying the input window

To edit the numbers for an ISDN connection select this connection by mouse click under »External numbers«. Double clicking the currently selected ISDN connection displays an input window.

5_0_5 External numbers at the S2M-port

Enter the external numbers as has been described for a »Point-to-point access«.

5_1 CLIP_No_Screening

5_1_1 CLIP No Screening

For calls you have initiated yourself, you wish to send an extension number that does not belong to the phone number plan of your ISDN access. For example, you may want to present to the called party the number of a call center (08 00 - 12 34 56). The »CLIP No Screening« feature enables you to transfer any desired MSN extension number to the called party.

Normally, when you initiate an external call yourself, you can only present to the called party an extension number from the range available to your ISDN access. If, while configuring your pabx, you have entered a different MSN extension number (one which does not belong to your ISDN access), the provider's exchange will automatically replace that number by the default number for your ISDN access.

The »CLIP No Screening« feature enables you to transfer any desired MSN extension number to the called party. This MSN extension number will not be verified by the exchange but transferred as is to the called party. This feature is availble for point-to-point connections only.

You PABX accepts up to 10 unscreened extension numbers. Depending on the configuration parameters for the external ISDN connection and for the internal phone, from which an external call is initiated, one of these unscreened extension numbers will be transferred to the called party.

The »CLIP No Screening« feature can be programmed separately for each point-to-point access.

- **Off:**
  — The function is deactivated. When this external ISDN connection is used, the extension number programmed for that internal subscriber is transmitted to the called party.

- **Global:**
  — For all outgoing external connections over this ISDN port the same unscreenedd extension number is transmitted to the called party. The first unscreened number stored in the list will be used for this purpose.

- **Single:**
  — You can set an unscreened extension number for each internal subscriber to be transmitted with outgoing connections to the called party.

Note:
All setting for the »CLIP No Screening« feature apply to connections initiated manually by the subscribers connected to the paby. This feature can not be used for automatic connections by the pabx (e.g. remote pabx configuration, update of LCR tariff tables).

Outgoing connections are not screened by the pabx. If certain features/connections are not possible when »CLIP No Screening« is active (e.g. sending SMS), the »CLIP No Screnning« feature should be switched off in the pabx or deactivated for the internal subscribers concerned.

In the case of a call forwarding over the second B-channel, an MSN extension number for the pabx will normally be shown at the call forwarding destination. With »CLIP No Screening« active, however, an unscreened extension number for the calling party will be transmitted and shown at the call forwarding target.

5_1_1_1 Configuration

— Under »External numbers«, »CLIP no screening« enter the call number you wish to transfer.

— Under »Access type« select the external access and activate the feature you wish to use for this access.

- **Off:**
  — CLIP NO Sreening is off for this access.

- **Single:**
  — Unter »Internal subscriber« you can select any one of the entered numbers.

- **global:**
  — The global number entered under »CLIP no screening« will be used.
  — Under »Subscriber Internal«, »Numbers«, »Outgoing number« select the »CLIP no screening« number (»Outgoing number«) you wish to be used.

See also:

Programming CLIP No Screening

5_1_2 Programming CLIP No Screening

To configure the CLIP No Screening feature, enter the unscreened extension numbers and program the feature for the external point-to-point access.

- **Entering unscreened extension numbers**
  To enter an unscreened extension number into the list, aufzunehmen, clicke one of the table fields to select. Double clicking the selected list field displays an input window.

  In the input dialog window you can enter the desired number. Finally confirm your entries by clicking »OK«.

- **Programming CLIP No Screening**
  Specify for each external point-to-point access (ISDN or S2M) separately, whether CLIP No Screening is to be used or not.

  All other settings are subscriber-specific and should be carried out under »Subscriber Internal«.

The »Global« tab does not offer any further configuration possibilities.

Under the »Single« tab, you have to specify for each internal subscriber separately, whether CLIP No Screening is to be used and which unscreened extension number is to be transmitted to the called party. For this purpose click »Subscribers Internal« and load the internal subscriber data. From the »Numbers« tab select the extension number to be transmitted for each external ISDN access.

5_2 SIP_Provider

5_2_1 SIP-provider

You can configure up to SIP 25 providers in each PABX system. For each SIP provider you can define the log-in data, the IP-address / DynDNS address of the provider, an associated trunk group and the settings for misdialing (dialing a wrong number). You can configure your numbers at the SIP provider as several individual numbers, or as one single dial-in block.

Note:
Trunk group numbers from 10...19 can also be used for SIP providers. The setting options for numbers are defined, among other things, in anticipation of expected business offers from SIP providers. The dial-in block setting can also be used for coupling PABX systems via SIP. In this way, the same functions as for (normal) external point-to-point connections would be available when these systems are coupled.

5_2_2 »Access data« tab

— SIP-Provider-Name:
You must choose a SIP provider beforehand, as the following entries are provider-specific.

5_2_3 Access data

- **Login-Name:**
  — Enter the access data here specified by your provider.
- **Password:**
  — Enter the access data here specified by your provider.
- **Confirmation:**
  — Enter the access data here specified by your provider.
- **User ID:**
  — Check this box and enter the access data you have received from your ISP.
- **Delete registration after restart:**
  — If a PABX reset is performed, for example after registration at a service provider, or if power is lost, it may not be possible to perform a further registration with some providers. Renewed registration can be prevented by activating this performance feature..
- **Upcircuit device with NAT:**
  — If, for example, a router is installed upstream of the PABX system, the WAN port will be deactivated in the PABX system and the connection set up to the router via the LAN. Linking to the WAN is performed through the router using a dedicated IP address.

- **Early media support:**

If a message (early media) is transmitted by the provider prior to a call, this message is accepted and a charge data record generated before the connection is established. This message is not accepted if this performance feature is deactivated.

5_2_3_1 General

These settings depend on the SIP provider that you select.

- **»Generate international phone number«:**
  - If you enable this feature and enter the country code under dial ranges (49 for Germany, for example) the software automatically adds +49 ahead of the subscriber number dialed with the leading area code.
- **»Generate national subscriber number«:**
  - When you activate this feature after having entered the area code (for Peine, for example, 5171) under Codes, the program will automatically place the code 05171 in front of the dialed number.
  - De-activate number suppression
  - Use user ID as phone number
  - Not registered with SIP provider
  - Enabling proxy log-in
  - Hold in the PABX
  - Replace international prefix by “+”

5_2_4 Access

You can activate or deactivate the access; this provider will not be used with »Not active«.

5_2_5 SIP Registrar

The SIP register is the server responsible for registration (logging in) of Internet phones and administration of registration. If an Internet phone is registered at a provider, the IP address is transmitted to the register, along with the time during which that phone is to remain registered.

Siehe auch

»Registierungstimer«.

- **IP-address:**
  - Enter the IP-address of your selected SIP provider
- **DNS Server Name:**
  - Enter the name of the DNS server specified by your SIP provider here.

5_2_6 Place:

- **Name:**
  - Select one of the given locations. The standard location here is »WAN«

5_3 »Extended« tab

5_3_1 Telephone number configuration

- **Individual number:**

  — Enter the numbers here specified by your provider.

- **Dial-in block:**

  — Enter the access data here specified by your provider.

5_3_2 Dial-in block configuration

- **Direct dial-in number length:**

  — Here you can enter the number of numerals for the direct dial-in number (for example:. 05171 11111-12). In this example, »12« is a two-digit direct dial-in number and you enter »2«.

- **Outgoing direct dial-in number signaling:**

  — Here you enter the numbers you wish the called party to see on her or his display. In the examle shown above, »22« is to be displayed instead of »12«.

5_3_3 Dial End Monitoring Timer

— Here, select the time that is to expire after you have dialed the last digit before the PABX system begins placing the outgoing call.

5_3_4 Number of simultaneous connections

— Here you can enter the maximum number of simultaneous call. Please the bandwidth settings. A value of »0« does not restrict the numer of simultaneous calls.

5_3_5 Replace number prefix (inbound sender ID)

5_3_5_1 Trunk group selection

- **Trunk group number:**

  — Here, you can assign the access point to a PABX system trunk group. You can use this trunk number to select an SIP provider in the program for placing external calls.

5_3_6 Return destination

— In case a »Wrong number« is dialed (an external subscriber has dialed a number not contained in the number block or not used), you can specify a number or a team to which that call will be transferred to. If, for example, 0 is selected as the dial-in number from an external location, a destination number must also be set here.

- **Team:**
  — Select the desired team.
- **Int. Subscriber:**
  — Select the desired subscriber.

5_3_7 Registration timer

5_4 »STUN« tab

A firewall including NAT installed in a network may lead to errors over the SIP-protocol. STUN (Simple Traversal of UDP over NAT) avoids these errors, which can appear in other Internet applications as well.

The VoIP-client establishes a connection with the STUN-server. The STUN-server identifies the NAT-type of the router as well as the IP-address the router has assigned to the VoIP-client. These data can now be used by the SIP-protocol. To activate STUN please use the data you have received from your SIP-provider.

5_4_1 STUN Server 1 (2):

— Here you can enter the IP-address or the name of the STUN-server you have received from your provider.

5_4_2 Repetition timer:

5_5 »Codecs« tab

See also:

SIP-provider, »Codecs« tab

5_6 »Numbers« tab

5_6_1 Individual number:

— If supported by your SIP-provider, you can enter more than one numer here.

6 Internal_subscriber

6_0_1 Configuring internal subscribers

The »Internal subscriber« menu allows you to configure the various internal subscribers of your PABX system.

6_0_1_1 »Subscriber list«

The subscribers are sorted by connection types. Selection of the desired type of connection is made on the left side of the »Subscriber list« field. Only those subscribers for the selected type of connection are displayed.

- **A distinctions is made between the following internal subscriber connections:**
  - »Configuring S0-subscribers«
  - »Configuring analog extensions«
  - »Configuring CAPI extensions«
  - »Configuring Up0-subscribers«
  - »Configuring DECT subscribers«
  - »Configuring VoIP extensions«
  - »Configuring router subscribers«

The location (installation) for each extension, as well as the extension number, name and calling privileges for that extension are displayed in the subscriber list.

6_0_1_2 Sortieren subscribers

By clicking on a column heading you can have the lines displayed sorted by the information given in that column. This sorting is undone by re-clicking on the same column heading.

- **Example:**
  Click with the mouse on the »Phone No.« column name to sort subscribers based on the telephone number. The numbers will initially be forted in ascending order (beginning with the numerically lowest number). Sorting is reversed by clicking on the »Phone number« column heading again. The data records will then be displayed in descending order (beginning with the numerically highest number).

Note:
The number of internal subscribers that can be configured in the PABX system is limited. An internal subscriber counts as being configured when an internal phone number has been assigned for that subscriber. In order to sort the displayed subscribers,

The »New ...« and »Delete« buttons are availalbe to internal S0-, Up0-, CAPI-, DECT-extensions only. You cannot add or delete analog or router subscribers.

See also:

Adding or removing internal subscribers

Searching for internal subscribers

6_0_2 Answering machine (analog / ISDN)

You can connect several answering machines to the PABX system. Even if a call is already signaled at or recorded by the answering machine, you are still able to pick up the call at your telephone and talk to the caller yourself.

If an answering machine has received a call, you can also take this call at any other telephone. There are two different variations for picking up calls from an answering machine.

6_0_2_1 Call pick-up (1st case)

The call is signaled at the answering machine and the answering machine has not picked up the call yet. The call can now be picked up with the »call pick-up« feature.

6_0_2_2 Call pick-up (accepting) (2nd case)

The call is signaled at the answering machine and the answering machine has already been activated and picked up the call. If an internal or external caller is already leaving a message on the answering machine, you can still transfer this call to your telephone after entering a numeric code.

Note:
Picking up a call is possible only within the pick-up group to which your terminal device has been assigned via configuration. The factory setting lists all terminal devices in Group 0. If several ISDN answering machines are assigned to one group, the call pick-up feature picks up the first available one.

6_0_3 Configuring CAPI subscribers

Click »Internal subscriber« and select »CAPI« from the »subscriber list« on the left.

Double click on a subscriber to open a window with that subscriber's settings.

- **The possible settings for an internal subscriber can be selected among the various tabs. Click any of the tabs as appropriate for changing the settings:**
  - »Numbers tab«
  - »Line Access« tab
  - Features tab«
  - »Communication Costs« tab«
  - »Registerkarte_»Vermittlungsfunktion«

Note:
You can also copy the settings for one subscriber to a second subscriber.

See also:

Copying subscriber settings

6_0_4 Configuring DECT subscribers

Click »Internal subscriber« and select »DECT-400« from the »subscriber list« on the left.

Double click on a subscriber to open a window with that subscriber's settings.

- **The possible settings for an internal subscriber can be selected among the various tabs. Click any of the tabs as appropriate for changing the settings**
  - »Numbers tab«
  - »Line Access« tab
  - Features tab«
  - »Communication Costs« tab«
  - »Registerkarte_Vermittlungsfunktion«
  - »Registerkarte_DECT-400_Einstellungen«
  -

Note:
You can also copy the settings for one subscriber to a second subscriber. (»Copying subscriber settings«).

6_0_5 Configuring analog subscribers

Click »Internal subscriber« and select »analog« from the »subscriber list«.

Double click on a subscriber to open a window with that subscriber's settings.

- **The possible settings for an internal subscriber can be selected among the various tabs. Click any of the tabs as appropriate for changing the settings:**
  - »Analog settings« tab
  - »Numbers tab.««
  - »Line Access« tab
  - Features tab
  - »Communication Costs« tab
  - »Registerkarte_Vermittlungsfunktion«

Note:
You can also copy the settings for one subscriber to a second subscriber.

See also:

»Copying subscriber settings«

6_0_6 Adding or removing internal subscribers

6_0_6_1 Adding an internal subscriber

Click »New ... « if you wish to add a new internal subscriber. Then select the installation / the module (Module 1 ... 4, Expansion module), the internal ISDN connection (S0 Bus 1 ... 4 or UP0-Bus 1 ... 6) and the internal number for the new subscriber.

A new subscriber is added to the end of the corresponding subscriber list. Use the mouse button to click »Sort« to have the subscriber list sorted by the installation (location) of the internal subscribers (base, module 1... 4, S0-1... S0-4).

6_0_6_2 Removing an internal subscriber

Click the internal subscriber you wish to remove from the list. Click »Remove« to delete this subscriber.

Note:
You cannot add or delete analog or router subscribers.

You can also add a new subscriber using the settings copied from an existing subscriber. (more).

6_0_7 Searching for internal subscribers

6_0_7_1 Search for subscriber

If you are not sure to which type of connection an internal subscriber belongs, or if the subscriber lists are very large, you can also search for a subscriber.

Here you can search for the internal number or for the name of a subscriber.

Select the number or the name from the entries listed in the field »Search for subscriber« or enter a number or a name. Click »Start search«.

If your search has been successful, the subscriber list is displayed with the subscriber that you were searching for.

6_0_8 Copying subscriber settings

- Copying settings from one subscriber to another (new) one
- You can copy the settings for one internal subscriber to another internal subscriber.
- To do this, use the mouse button to click on the subscriber whose settings you wish to copy. Click the right mouse button and then select »Copy«.
- Use the mouse button to click on the subscriber to which you wish to copy these settings. Now click the right mouse button and select »Overwrite«.
- If you want to configure a new subscriber using these copied settings, click the right mouse button and then »Paste«. You can then add a new subscriber using the copied settings.
- If you want to check which subscriber settings you have copied click the right mouse key and then »Show clipboard«

6_0_9 Configuring router subscribers

Under »Internal subscriber« in the field »Subscriber list«, select »Router« at the left. You must also assign one of the external numbers to the internal router subscriber (Router 24…Router 27) under »02_Assign external number to internal subscriber«. A call (for example RAS) is assigned to the router using this external number.

A window containing the corresponding subscriber settings can be opened by double clicking on the selected subscriber.

Possible settings for an internal subscriber are distributed among various tabs. Simply select the tab you wish to edit:

- »Numbers tab«
- »Line Access« tab
- Features tab«
- »Communication Costs« tab«
- »Registerkarte_Vermittlungsfunktion«

Note:
You can also copy the settings for one subscriber to a second subscriber.

See also:

Copying subscriber settings

6_0_10 Configuring S0-subscribers

Click »Internal subscriber« and select »internal S0« from the »subscriber list«.

Double click on a subscriber to open a window with that subscriber's settings.

- **The possible settings for an internal subscriber can be selected among the various tabs. Click any of the tabs as appropriate for changing the settings:**
  - »Numbers tab«
  - »Line Access« tab
  - Features tab«
  - »Communication Costs« tab«
  - »Registerkarte_Vermittlungsfunktion«

Note:
You can also copy the settings for one subscriber to a second subscriber.

See also:

Copying subscriber settings

6_0_11 Configuring Up0-subscribers

Click »Internal subscriber« and select »Up0« from the »subscriber list«.

Double click on a subscriber to open a window with that subscriber's settings.

The possible settings for an internal subscriber can be selected among the various tabs. Click any of the tabs as appropriate for changing the settings:

- »Numbers tab«
- »Line Access« tab
- Features tab«
- »Communication Costs« tab«
- »Registerkarte_Vermittlungsfunktion«

Note:
You can also copy the settings for one subscriber to a second subscriber...(»Copying subscriber settings«)

6_0_12 Operator set

This firmware release does not yet include the Operator Set feature.

6_0_13 VoIP extension Configuration

Click »Internal subscriber« and select »analog« from the »subscriber list«.

Double click on a subscriber to open a window with that subscriber's settings.

The possible settings for an internal subscriber can be selected among the various tabs. Click any of the tabs as appropriate for changing the settings:

- »VoIP Settings« tab
- »Numbers tab«
- »Line Access« tab
- Features tab«
- »Communication Costs« tab«
- »Registerkarte_Vermittlungsfunktion«

Note:
You can also copy the settings for one subscriber to a second subscriber.

See also:

Copying extension settings

6_0_14 Music on Hold

Music on hold can entertain callers on hold and make time seem to pass faster if the dialed subscriber is not available and the caller has to wait in a waiting loop until his or her call is accepted. The caller also hears waiting music during an Inquiry call made by the party called Music on hold does not have to consist of music but can also be an announcement for the caller. Two internally selectable music pieces, external music or voice announcements, or contents of the voice applications are available for use as music on hold. This music on hold can also be a company message, for example, featuring current offers.

The music pieces stored in the PABX are automatically played when operating different features. Three types of music on hold can be utilized. Two types of music on hold are permanently stored in the PABX. Additional music on hold can be stored in the PABX using the voice application. One additional music on hold can be fed to the system using an external MoH interface.

Which music on hold to be played when using certain functions (for example holding, transferring, system parked Inquiry) can be configured individually for each internal PABX subscriber. Additional features (for example wake-up calls) can be linked with specific stored music on hold.

6_0_14_1 Internal music on hold

Two music on hold pieces are stored in the PABX; these cannot be modified.

6_0_14_2 External music on hold

The PABX has an interface to connect an external music on hold source. This music on hold can be fed into the PABX via a stereo jack.

If you wish to connect external music on hold with the PABX system you must configure the analog port a/b-7 at the base station as »MOH input«. No other terminal devices can then be connected at this port.

To configure external music on hold, select »Internal subscriber« - »analog« - »base a/b-7«.

Click the »Analog settings« tab« and select »MoH input« from the »Terminal type« list.

6_0_14_3 Music on hold for the voice application

You can store additional music on hold in the PABX. The number of music on hold pieces depends on the amount of available memory of the voice applications. This music on hold is saved to the PABX memory or on an optional Smart Media Card in the format of a Wave file. This format is a proprietary Wave format that is not identical to the standard Wave format. Please use formatted Smart-Media cards only.

Note:
Please make sure that externally fed music or the music of the voice applications is not subject to copyrights of third parties.

6_0_15 PC connections

Use the PC interfaces to configure the PABX, connect an invoice printer, or use applications on the PC.

- **The PABX unit has one or several PC interfaces. The connected PC can then be used to run different applications (for example PABX configuration program, CTI server applications). Hardware requirements for installing and using the software on the supplied CD-ROM:**
  - IBM or 100% compatible PC.
  - Pentium or comparable processor, min. 233 MHz clock rate.
  - You should have at least 64 Mb of memory to run these applications.
  - You also need a VGA graphics adapter, 65 000 coulors, a resolution of at least 800x600 pixels.
  - The PC has to have a CD ROM drive.
  - The required free disk space for installation is 140 MB.
  - A PC with a free USB port and / or a free RS232 (V. 24, COM-Port) connection.
  - If configuration is to be performed via Ethernet you must have a network card installed (PABX with Router module or VoIP-VPN-gateway).
  - To configure your system via the internal ISDN connection, you must have an operational ISDN PC card installed in your PC.
  - One of the following operating systems has to be installed: Windows 98, NT4 (only RS232), 2000, ME or XP.
  - Internet Explorer Version 6.00 or higher must be installed to use the »WEB- LCR«.

6_0_15_1 RS232 (V. 24) connection

The RS 232 port of the PABX can be used for connecting a laptop, PC or a printer with serial port. Programming of the PABX via PC or laptop is performed via this port. Transmitting CLIP information from the PABX to the base station of the phone DECT300 is a special use of the RS232 port. To operate the PABX at a computer you require a PC with serial ports and an appropriate operating system.

Note:
Only use the RS232 cable delivered with the system, as this is not a standard serial cable.

6_0_15_2 USB port

The USB port can be used for connecting a laptop, PC or a printer. Programming of the PABX by means of these devices is performed through this port. You can not only use PABX systems with USB ports for easy access to an ISDN network for telephony, this is also an easy method for connecting a PC equipped with a USB port to the ISDN network. Depending on the programs and drivers you have installed, you can, for example, use the USB port for executing data transfer, sending or receiving fax messages, implementing an answering machine via your PC or surfing the Internet. You may not need any additional ISDN card for your PC.

You require a PC with a USB ports and the Windows 98, ME, 2000 or XP operating system. The PABX system is a full-speed USB terminal device. A fast device of this kind supports a data transfer rate of up to 12 Mbit per second.

Power supply to the USB port of the PABX is provided through the 230 V AC mains plug, or by means of a plug-in power supply unit. You can thus connect the PABX to passive hubs or to terminal devices with an integrated hub (such as a keyboard). If you use a hub please ensure that the hub is compatible with the system in accordance with the USB Specification 1. 1. Use the USB cable supplied with the system for connecting the PABX to your PC. If you have a different USB cord, please that the distance between the PABX and the PC may not be greater than five meters, depending on the type of USB cord that is used.

Note:
The PABX system is a self-powered, full-speed terminal device.

6_1 »Numbers«_tab

6_1_1 »MSN extensions« tab

Under this tab you can make the basic settings for the selected subscriber.

- **Internal »Numbers«:**
  — Enter the internal extension number for a specific subscriber
- **»Subscriber's name« (12 characters):**
  — Enter a name for a specific subscriber. This name will be displayed at internal system telephones.
- **Permit configuration:: »Configuration access«:**
  — Allows a subscriber to have configuration access to the PABX system based on the set privilege (authorization) settings. Authorization is checked using the subscriber name and the PIN that has been input.
- **»Log-in name«:**
  — Use this name to identify as authorized »User« with the rights granted during pabx configuration.

Note:
When designating names to IP-telephones and IP system telephones please refrain from using other characters than numerals, as not all terminal devices support the use of letters or special characters.

- **»PIN«:**
  — Enter the PIN required for configuring the pabx system. Confirm the PIN by entering it once again.
- **»Trunk group seizure«:**
  — Select trunk groups that may be used for outgoing calls. The trunk groups you specify here will be used for direct line access or for line access with the line access digit.

— PABX system ICT 46: 3 trunk groups.

— PABX systems ICT 88 / 880: 5 trunk groups

- **Call authorization with PIN**

  — This function allows you to use the performance feature configured for your phone for making external calls at a different phone. This includes trunk group assignment, call authorization, etc. The associated costs will then be charged to your own phone. Where possible, the party being called will see your name or number in the display of their phone. This also applies to inquiry calls. This PIN is allocated in the configuration for each subscriber..

Note:
Using this PIN, any authorized subscriber can make external calls from any phone. Example: A virtual (or physically present) phone can be configured in the PABX system. The functions for this phone can then be taken from other phones and assigned using a code and a PIN. This function is also possible with the performance feature »LCR«.

The PIN (4-place) must be different for all configured phones – only numbers (digits) may be used for this PIN.

- **Pick up : »Call pick-up«:**

  — Enter the number of the group in which calls are to be taken.

- **Outgoing number: »Specifying the outgoing number«:**

  — Selection of the numbers for each ISDN connection that is to be transferred for outgoing external calls. Select the number to be entered under »CLIP no screening«. Under »Access type« appropriate authorization levels (»Single« or »Global«) must habe been specified

- **Activate specific trunk group selection:**

  — Release the trunk groups you wish to make available for dedicated trunk group seizure. The trunk groups you specify here can be used for making outside calls in conjunction with the »Specific trunk group selection« feature.

6_1_2 Specifying the outgoing number

You would like to transmit not your own telephone number (MSN) when initiating an external call but the number of your admin office. Use the PABX configuration program to specify which number is to be transmitted (MSN) when placing an external call.

An extension of your ISDN connection is displayed when calling an external party. Specify in the PABX configuration program for each internal subscriber which outgoing number to display. This telephone number is then always displayed when initiating calls with the line access code or the numeric code for the trunk group seizure.

Note:
Before placing an external call, decide whether to display the telephone number or not.Only enter telephone numbers into the PABX configuration program that have been assigned to your ISDN access by your network service provider. A telephone number that has not been assigned by your network service provider as part of your ISDN connection is not displayed on telephones of external subscribers receiving your calls.

Note:
In case of an external point-to-multipoint access, use the »CLIP No Screening« feature to transfer an unscreened number to the party being called. This makes it possible to display a telephone number that normally is not part of your ISDN connection.

See also:

Defining the outgoing number for the next outside call

6_1_3 Trunk group seizure

You would like to assign the internal extensions of your PABX specific external ISDN ports for outgoing connections. These external connections can be trunk groupd and made available to subscribers when dialing out. This way all subscribers dial out with the same line access code but can establish a connection only via the trunk groups you allow them to use.

You have to make some urgent outgoing calls but all connections of your trunk group are busy. The dedicated trunk group reservation function allows establishing this external connection using a different trunk group.

The external ISDN connections of your PABX can be bundled. You can set up up to 8 trunk groups (0...7 or 00...08) (ICT46 5 trunks with POTS). Each ISDN connection can be included in only one trunk group. In the default state all external ISDN connections are assigned to one trunk group.

Setting up »VoIP-DSP« gives you an additional 10 trunk groups (10 .... 19).

When a call is initiated using the line access digit or with direct exchange line access, a trunk group released to the subscriber is used when the connection is being established. The connection is established using the first available trunk group if a subscriber is authorized to use several trunk groups. If a trunk group is busy, the next available or released trunk group is used. If all released trunk groups are busy, the subscriber will hear a busy signal.

6_1_3_1 Trunk group seizure for internal subscribers

If an internal subscriber is to use only certain trunk groups for external connections, you can configure each subscriber's authorizations accordingly. Each subscriber, however, has to have at least one assigned trunk group.

Dialing out uses a trunk group by applying the line access digit. The connection is established using the first available trunk group if a subscriber is authorized to use several trunk groups. If a trunk group is busy, the next released trunk groups are used sequentially. If all trunk groups assigned to a subscriber are busy, the subscriber will hear a busy signal.

6_1_3_2 Specific trunk bundle selection

An internal subscriber can also target a specific trunk group for use. This requires that an external connection is initiated with the corresponding numeric code needed to seize or acquire the trunk group instead of dialing the line access digit.

The subscriber has to have authorization to perform a dedicated trunk group acquisition. This authorization can also include trunk groups the subscriber usually cannot seize. If a subscriber does not have authorization for the dedicated trunk group seizure or if the selected trunk group is busy, the subscriber will hear the busy signal after dialing the code number. If »direct exchange line access« has been set up and activated for a subscriber, he or she has to press the * key before a targeted trunk group seizure and then initiate dialing out by using the code number for the trunk group seizure.

6_1_3_3 Order of trunk group seizure

- **External connections are:**
  - — ISDN port through NT
  - — ISDN port through the S2M module
  - — Analog connection through the module POTS

— Ip-Connection through the VoIP-VPN Gateway- module.

If the PABX system is set up to work with multiple external access ports, automatic seizure takes place in the following order (factory default settings):

— 1. ISDN
— 2. POTS
— 3. IP (SIP-provider)

You can modify this order using the Configurator.

Note:
Incoming connections, regardless of the trunk group structure, are signaled via the call modes.

A subscriber can seize or acquire trunk groups (even targeted assignments) only if they are released for the subscriber in the configuration.

The configured extension number is displayed to the caller for trunk group seizures (as well as targeted trunk group seizures).

See also:

Reserving a trunk group (ISDN connection

Configuring an external ISDN-port

6_1_4 Numbers

Certain telephone numbers and numeric codes are permanently defined in the PABX. This facilitates operating the PABX since these telephones numbers are listed in a telephone number plan. For example, after switching the system on, the analog telephones can be reached by using their internal extensions. Procedures such as call pick-up and line access are possible using one of these numeric codes.

Depending on the PABX unit, up to 250 different internal extension numbers can be used. Internal numbers may have 1, 2, 3 or 4 digits. You can use the different formats of the internal extensions simultaneously.

An internal extension can be configured for each analog connection. The number of configurable internal extension is unlimited for internal ISDN ports.

When an internal subscriber enters a telephone number (for example when setting up

call forwarding) the PABX checks automatically whether the entered number is an internal one. If the entered telephone number is not set up in the PABX this number is processed as an external telephone number.

Note:
You can configure up to 4-digit direct dial-in numbers in the PABX for the point-to-point connection. For example: Point-to-point telephone number 1234 and direct dial-in telephone number 5678.

It is not possible to set up internal extensions with a different number of digits but starting with the same digits. For example, if the internal extension 22 has already been programmed you cannot set up additional internal extensions that also start with a 22 (as for example 220, 2211).

6_1_5 Subscriber names

Who knows all of the extensions of all internal subscribers by heart? After you have dialed the number you can also press the speaker button to have the number dialed. For example Ms. Smith at extension 44. Extension 44 is then linked with the name Smith in the configuration program. Anytime Ms. Smith calls, it will be her name and not her extension that is displayed.

You can assign names to all internal subscribers in the configuration program (analog and ISDN phones). This name is shown in the display of the called person when making an internal call. This name can also be displayed when settings are shown in the PABX system menu. For example, if this menu features a direct call for subscriber 44 (name »Smith«), the name »Smith« will be shown instead of the extension 44 when specifying additional direct call settings or when deleting the direct call feature. You can also assign names to teams, ISDN ports or installed entrance access phone modules. These names are used for identification purposes when configuring the PABX and only displayed in the configuration program.

Note:
The name of an internal subscriber entered into the configuration program of the PABX has higher priority than the name entered into the telephone directory.

Note:
For example: You assigned the name »Smith« to the internal subscriber 44 and also entered an entry for extension »44« - name »Ms. Smith« - into the telephone directory. When receiving an internal call from this subscriber the display of the called subscriber shows the name »Smith« from the configuration program and not the name »Ms. Smith« from the telephone directory.

6_2 «Line_access«_tab

6_2_1 »Line access« tab

Under this tab you can make the various settings for access to outside lines for a subscriber.

6_2_1_1 »Line access authorization«

Dialing privileges for a subscriber specifies what type of calls (internal, external, etc.) this subscriber can place. The PABX offers several authorization levels.

6_2_1_2 Type of connection

The various settings for access to an outside line are compiled in the »Type of connection« field.

- **»Direct exchange line access«:**
  - This setting defines whether automatic line access is to be configured for a subscriber. With automatic access to an outside line the subscriber will hear the external dialing tone as soon as the handset is lifted off the cradle.
- **»Dialing control« F/S (Restricted numbers / Unrestricted numbers):**
  - If you have configured a dial filter (consisting of enabled and inhibited numbers) for the PABX system, you can use these settings to define whether the dial filter applies to a particular subscriber.

- **»Switchable exchange line access«:**
  — You can use this setting to assign or deny authorization to an internal subscriber for making external calls (call authorization).

- **»Answering machine«:**
  — The internal connection (analog or ISDN) must have been configured for the terminal device type »Answering machine«.

- **»Emergency call telephone«:**
  — Select this setting if the internal subscriber is to be given the privileges for use of an emergency phone.

- **»Voice mail system«:**
  — Configuring a voice mail connection provides the corresponding internal subscriber with typical functions supported by the voice mail system. For example, system telephones can access this voice mail system using a function key. Depending on the voice mail system employed, several internal subscribers can use one voice mail box (answering machine).

- **»Operator set«:**

6_2_2 Direct exchange line access

You have connected a variety of terminal devices to your PABX, which are used frequently for external calls but rarely for internal ones (for example fax machines or coin-operated phones). In this case, it would be useful if an external call can be initiated right after picking up the handset. Dialing a line access digit is not necessary if automatic line access is activated for these terminal devices - the caller can dial the external telephone number right away.

When direct exchange line access is activated, you will be switched immediately to the external ISDN connection when you lift the handset and will then hear the dial tone for the exchange. You can then begin dialing the external number at once. In case of dialing an internal extension, pick up the handset and press the * key; then dial the extension.

Manual line access requires that you dial a numeric code first, for example »0«, which accesses the external ISDN connection; then you can start dialing. To dial an internal extension, pick up the handset and start dialing the internal extension.

6_2_2_1 Making inhouse calls (internal code number)

For an internal call with automatic line access activated, press the * key first.

A * is prefixed to the telephone number of the caller based on the configuration when a subscriber receives an internal call with automatic line access. The telephone number can then be selected directly from the caller list, for example.

Note:
Different terminal devices with automatic dialing features use different line access methods when entering telephone numbers.

6_2_2_2 Configuration

»Automatic line access« can be customized in the PABX for each internal subscriber. You can specify whether to prefix internal telephone numbers with »*« when making an internal call. An internal call to an internal subscriber with automatic line access can be signaled with the internal line access number even if the telephone does not indepen-

dently support this function. The PABX then automatically precedes the extension to be displayed with the internal line access number. In case of a call-back (for example from the caller list), the extension can be dialed immediately.

6_2_3 Line access authorization

To keep a good grip on telephone costs, every company can determine the call authorizations for individual employees.

You want to prevent that a specific telephone is used (for example basement, warehouse) to make international, long distance, or local calls. Your PABX offers several authorization levels for this purpose. It is also possible, if needed, to grant a higher authorization level to one of the less authorized phones for the next call via an authorized telephone (booth function). If your company's business hours are fixed, the authorization levels for specific or all phones can be automatically switched with the calendar function.

Dialing privileges for a subscriber specifies what type of calls (internal, external, etc.) this subscriber can place. The PABX offers several authorization levels.

6_2_3_1 The following call authorizations are possible:

- **Unrestricted« (international):**
  — The subscriber has unlimited access and authorization to initiate all calls independently regardless of call destination. The numeric code for international calls (for example »00« in Germany) is defined in the PABX.

- **National long-distance:**
  — The subscriber can initiate all calls independently except international calls. The numeric code for domestic calls (for example »0« in Germany) is defined in the PABX. A telephone number starting with the numeric digits for international calls cannot be dialed.

- **Location:**
  — The subscriber can make only locals calls. Domestic long distance and international calls are not possible.

- **Incoming (receive only):**
  — The subscriber can be called by incoming external calls but cannot initiate any outgoing external calls. Internal calls are possible.

- **Internal (in-house only):**
  — The subscriber is not authorized for incoming and outgoing external calls. Only internal (in-house) calls are possible.

- **Region:**
  — The users cannot make any domestic long-distance or international calls. Ten (10) special numbers can be configured for these calling privileges; these numbers can be used to make domestic long-distance or international calls. A special number can consist of a complete phone number or parts of a number (for example the first few digits).

Note:
Use the PABX call control feature to release dialing of specific external telephone numbers (restriction filter) or block dialing (barring filter) for internal subscribers.

An external call can be transferred from a subscriber with unrestricted authorization to a subscriber with incoming-receive authorization only.

The operator set can assign an »undialed exchange line« to a subscriber with receive only or in-house only authorization. In this case, the operator set changes the authorization for the subscriber's next call to international authorization with automatic line access.

A telephone can receive a higher authorization level by dialing specified speed dial telephone numbers if only certain telephone numbers or prefixes (with own suffix) are to be available for dialing.

6_2_4 Switchable exchange line access

Do you need to revoke or grant authorization privileges of certain subscribers / terminal devices of the PABX for making external calls? You can specify separately for each telephone / terminal device whether the authorization privileges for making external calls are to be revoked or granted for a certain time defined in the calendar. After the authorization privileges have been changed automatically, these subscribers will not be able to place any external calls while other subscribers can continue to make external calls based on their respective call authorizations.

One subscriber's external call authorizations are revoked at a time specified in the calendar. Before the switch, the subscriber can make telephone calls based on his or her configured line access. After the switch, the subscriber continues to receive external and internal telephone calls but cannot make any external telephone calls.

An internal PABX calendar is assigned to this function for the automatic authorization switch procedure. The switching times of the assigned calendar apply to all subscribers with the automatic authorization switch function activated.

Emergency calls using terminal devices provided for this purpose, or emergency numbers, are exempt from this authorization privilege change. The call to a configured emergency number is put through regardless of the call authorization settings.

6_2_5 Emergency call telephone

6_2_5_1 Telephone with emergency call function

You can configure a telephone connected to your PABX system as a »Telephone with emergency call function«. You can then begin dialing the external number immediately, whether the external ISDN connection is available or busy. If the external B channels are busy, a B channel is freed (released) and the parties conducting their call on that channel will hear a busy signal. An emergency call already in progress is not interrupted. You can utilize this feature independently of the »Emergency call priority« feature.

6_2_6 Configuring an emergency call telephone

Emergency call telephones can be configured under »Internal subscriber« and »Line access-Type of connection«. The »Emergency call telephone / alarm system« option can be checked here for the selected subscriber.

Note:
Emergency calls can only be initiated via an ISDN or POTS interface. Priority can only be assigned to emergency calls via ISDN interfaces. Priority for emergency calls at an ISDN interface:

6_3 «Features«_tab

6_3_1 »Features« tab

Under this tab you can set the privileges for using the individual performance features by the selected subscriber.

6_3_1_1 Authorizations

- **»call modes«, swichting:**
  — Authorizes an internal subscriber to switch call modes.
- **»Net direct (keypad functions)«:**
  — Authorizes an internal subscriber to carry out keypad functions

- **»Call waiting lockout« (analog subscribers only):**
  — Enables or disables the call waiting signal for analog terminals. ISDN terminal devices use their own special procedures for this.

- **»Service access«:**
  — This permits a subscriber to activate the service access to the PABX system, or to establish a corresponding service connection on their own.

- **»Suppress call number display« (CLIR):):**
  — Number of caller displayed at party being called.

- **»Suppress call number display« (COLR:):**
  — Number of called party displayed at caller (for example, on call forwarding).

- **»Transmitting exchange line access number«:**
  — The line access digit is added as a prefix automatically by the PABX system on an incoming external call

- **»Transmit internal access number«:**
  — On an incoming internal call the internal codes are added as a prefix automatically by the PABX system.

- **»Wechselsprechen« reception:**
  — Allows intercom calls to the system telephone or to another identical ISDN telephone.
  — »Announcement« reception:
  Enables this phone to receive messages.

- **LCR active: »Least Cost Routing (LCR)«:**
  — External dialing by a subscriber is subject to the active LCR procedure.

- **»MSN Display at call (DECT system telephone)«:**
  — Displays the number with calls to a cordless DECT 100 system phone.

- **»SMS/MMS«:**
  — Authorizes an internal party to receive SMS or MMS messages.

- **Door terminal: »Door terminal/Alarm call/Switching contacts«:**
  — Authorizes an internal subscriber to establish a connection with the door entry phone or open the door.

- **TAPI: »CTI with TAPI«:**
  — Authorizes a subscriber to use the PABX's TAPI features.

- **Completion of call on no answer: »Automatic completion of call (CCBS / CCNR)«:**
  — The subscriber can utilize the automatic callback function (CCNR) if the party called does not answer the phone.

- **Show LCR provider Least Cost Routing (LCR):**
  — Allows for identifying the LCR provider in the display of a system telephone.

6_3_1_2 Telephone book use: »Telephone directory (speed dialing from the telephone directory)«

- **No:**
  The user cannot access the telephone directory.

- **Yes, based on call authorization settings:**
  The user can access the telephone directory subject to restrictions resulting from »entries« in the »Restricted numbers« configuration.

- **Yes, without any restrictions:**
  The user can dial all »Entries« in the telephone directory.

6_3_1_3 Music on Hold (MoH): »Music on Hold«

In this field you can select the music on hold (MoH) that the calling party hears while being transferred by the internal extension they have called in the first place.

6_3_1_4 Status Inhibiting calls: »Don't disturb«

Shows whether the internal analog extension had activated call barring at the time when the configuration data has been read out.

6_3_1_5 Room Monitoring status« : »Room monitoring«

Shows whether room monitoring is active at the internal subscriber when the configuration data is read out.

6_3_2 Call waiting

You want to accept every call of every customer even while you are already on the telephone. You can accept the new call indicated by the call waiting signal or a notification displayed in the LCD of your telephone.

The call-waiting signal automatically notifies an internal subscriber who is currently engaged in a telephone call. Call waiting is possible with internal and external calls. The call waiting on the line can be signaled visually and/or acoustically depending on the terminal device. If two subscribers are communicating with one another via analog telephones they both will hear the call waiting signal.

- **The called subscriber can:**
  - — Reject the signaled call waiting call and continue the current call. The caller will hear the busy signal after the call has been rejected. (code number).
  - — Accept the signaled call waiting call and put the current call on hold. (code number).
  - — Accept the signaled call waiting call after ending the current call.
  - — Ignore the waiting call. The signaling of a waiting call is automatically terminated after 30 seconds and the caller hears a busy signal.

6_3_2_1 Analog terminal devices

Call waiting can be programmed individually for every subscriber. Call waiting can be enabled or blocked in the configuration program or by using a numeric code.

Analog terminal devices hear the acoustic call-waiting signal of the PABX. The number of the call waiting party can be shown in the display of an analog telephone when that phone is equipped with the CLIP off Hook feature. Although CLIP off Hook is de-activated in the default settings of analog terminal devices you can activate this feature through PC configuration.

Call waiting can be activated only for a limited number of analog connections at once. If the maximum number has been reached, additional callers hear a busy signal. Transferring the existing call using analog telephones

If you hear the call waiting signal while engaged in a call , you can accept that call and transfer the existing one.

- **Using an appropriate operating procedure you can transfer an existing call and accept the call waiting. The following conditions apply here:**
  - — Every phone number that is dialed is accepted by the PABX system.

— After executing the operating procedure the subscriber and the call waiting party are connected immediately (without any acknowledgement signal).

— Transfer to your own phone number is possible, with call waiting then signaled.

— You can select internal and external destinations as well as teams.

— In the event that the destination number is invalid or busy a call-back is made.

— The transfer options available to the destination subscriber are not utilized; a call-back is then made.

— When the subscriber's line is available again a call-back is made on expiration of the configured time at the destination subscriber.

— On transfer to a team number there is no call-back when the team is busy, or when it cannot be reached.

— On transfer to a team number only call-back after set time is supported.

6_3_2_2 ISDN terminals

Setting and operation of call waiting is described in the manual of the respective terminal device. ISDN terminal devices use their own cal waiting signals.

- **Call waiting is not possible:**

  — during a three-party conference call

  — when station guarding is on (analog terminal devices)

  — during a message

  — during room monitoring

  — during an announcement

  — with terminal devices for which the data protection feature has been configured (for example: fax, modem)

  — when a subscriber has started dialing (handset lifted but no connection yet)

  — when call waiting lock-out is active

  — with more than 16 waiting calls already in the PABX

  — when a team number is dialed.

Call waiting is not possible with analog subscribers of a team.ISDN telephones can use the »call deflection« feature to transfer call waiting calls to a different subscriber at once.

An active connection is terminated by replacing the headset, for example. The waiting call is then signaled and can be accepted by picking up the handset.

- **Configuration**
  Call waiting lock-out for analog extensions can only be configured via a code number. ISDN telephones have their own (dedicated) procedures. (CLIP off Hook). Although CLIP off Hook is de-activated in the default settings of analog terminal devices you can activate this feature through PC configuration.

See also:

Features tab

6_3_3 Station guarding (Do not disturb feature)

You are in an important meeting or you have very important tasks that need to be finished. You do not want to be disturbed so you temporarily deactivate call signaling at your terminal device.

Use this feature to deactivate call signaling at your terminal device temporarily.

Analog terminal devices use numeric codes of the PABX to enable this feature. ISDN terminal devices are set up and configured for the »station guarding« function as described in the operating instructions of the respective terminal device.

- **The following descriptions apply to analog terminal devices only.**
  You can activate/deactivate the ringing of your analog terminal device. You will still have use of all of the other functions for the terminal device. When the caller places a call he/she will hear the ringing signal. When you lift up the handset during a call (you can not hear the call) you will be connected with the caller.

Note:
Even when this feature is active, the calling party hears the internal ringing signal.

When Do not Disturb has been activated for an analog terminal device, calls are signaled with the internal special dial tone (for example when going off-hook).

See also:

Features tab

6_3_4 Call mode

You have fixed business hours. A team of employees answers phones during this time. To offer relief to employees during break times, calls to the team are to be routed to other terminal devices (for example answering machine or operator set). You can set up additional call modes for this team. Switching the call mode signals the calls automatically at answering machine or operator set.

Calls can be signaled at different terminal devices simultaneously. These terminal devices are combined as the target within a call mode. Several call modes (for example for a team or a door terminal) can be defined in the PABX for different terminal devices. Switching between different call modes allows alarm calls at different terminal devices depending on the type of call.

6_3_4_1 System telephones

System phones can switch call modes via the PABX system menu or by using a programmed function key. The current (active) call mode can be displayed by the associated LED when switching call modes via function key.

Note:
Please refer to the Features/Call Modes chapter to learn more about call modes and their configuration and operation.

Call modes can be switched manually using a numeric code or automatically using a calendar.

6_3_5 Call forwarding

When using a PABX system with only one external ISDN point-to-multipoint connection you can define for each internal subscriber within the PABX system whether call forwarding is to be executed at the exchange or in the PABX system. You must apply for the performance feature »call forwarding« at your network service provider if you wish to have call forwarding performed within the PABX system and set an outgoing MSN for the external ISDN connection in the subscriber settings for the PABX system.

See also:

Call forwarding

6_3_6 CTI with TAPI

The abbreviations CTI and TAPI de the standard interface for Windows telephony applications from Microsoft. Telephones and computers can work hand in hand via this interface.

- **CTI:**
  Computer Telephony Integration

- **TAPI:**
  Telephony Application Programming Interface

This allows you to dial directly from TAPI-compatible Windows programs, and the calls can be used by the software. Consequently, setting up a connection via TAPI is considerably faster than with normal calling.

TAPI, with its standard Microsoft interface, has the advantage that it is already supported by a large number of programs and this number is growing all the time.

- **Method of operation:**
  The TAPI application runs under Windows and uses the TAPI commands for telephony. The TAPI interface receives standard TAPI commands from the application. TSPI (Telephony Service Provider Interface) is provided with the PABX system and translates standard commands to a format that can be processed by your PABX system. These commands can then be executed in the PABX system.

6_3_7 Announcement

Would you like to call your co-workers to a meeting, or invite them out to eat? You could call each separate person to do this, or you can use the message function. With this function, you need to make only one call to reach all of the telephones that are authorized for messages, without the called parties having to lift up the handsets of their phones.

Please : Although you can be heard when you use the message function, it is not possible to hear your co-workers or family members that you call.

The message function allows you to establish a connection to a different telephone, without this connection having to be actively accepted (picking up the handset, hands-free calling or loudspeaker).

As soon as a telephone accepts the message, the connection is established. The person sending a message and the party being called hear a positive acknowledgement signal at the beginning of a message. The length of a message is not limited.

A message may be sent to ISDN and analog phones if they support the »Message« feature. Refer to the operating instructions for your telephones whether the phones support the message feature. A numeric code activates or deactivates this feature for your telephone.

6_3_7_1 System telephones

Messages may be sent to and from system phones. System telephones can initiate a message using the menu of the system telephone or by using a programmed function key. If a message is initiated with the function key, then the display of your telephone shows the same indicators as for a normal connection status and the LED of the message key is activated. The message can be ended by pressing the message button again, or by pressing the speakerecall flash button. The associated LED is deactivated when the message is terminated.

When a message comes in for a system telephone, the number of the party sending the message appears in the display of the phone being called. The message is preceded by a brief acoustic signal over the speaker. The message can be terminated at any time by pressing the ESC key.

Another function key with associated LED can be programmed on system phones to activate or deactivate the message function.

6_3_7_2 Individual message

You can initiate a targeted message by selecting the internal extension number of a telephone. The message can be enabled or blocked by the receiving party. The positive acknowledgement signal announces the message to the receiving party and the person sending the message.

6_3_7_3 Team message

A message can also be sent to a team by selecting the team extension number. Team subscribers hear the message simultaneously. The positive acknowledgement signal announces the message to the final parties and the person sending the message. The message to a team is also possible from within an Inquiry call. Establishing the connection to individual subscribers of a team

can take up to four seconds. The message is then sent to the team subscribers who have accepted the call within this period.

- **Messages are accepted automatically by the phones being called by activating the open listening function when:**

  — the telephone is idle,

  — the message feature is active and

  — the »Station guarding« feature is not active.

6_3_8 Transmit internal access number

You have connected a variety of terminal devices to your PABX, which are used frequently for external calls but rarely for internal ones (for example fax machines or coin-operated phones). In this case, it would be useful if an external call can be initiated right away. If terminal devices with direct exchange line access are to be used for internal calls the internal code must first be dialed (asterisk key).

If an internal is call made to these telephones, their number that is transmitted is not provided with the required internal line access number. As a result, a wrong number is dialed on call-back. The PABX system can automatically place the internal code in front of the phone number for internal calls in order to avoid this.

An internal call to an internal subscriber with automatic line access can be signaled with the internal line access number even if the telephone does not independently support this function. The PABX then automatically precedes the extension to be displayed with the internal line access number. In case of a call-back (for example from the caller list), the extension can be dialed immediately.

6_3_9 LCR: Call-by-Call. Up to firmware 1.3 only

With this LCR procedure, up to 10 providers can be entered into the PABX for dialing external parties. The PABX automatically adds the numeric code of a stored provider to the number to be called when dialing an external telephone number. The first numeric code to be added belongs to the provider entered first into the list of providers. If that provider is busy the PABX will automatically dial the number of the next provider in the list. If all of the providers in the list are busy the connection will be set up using your standard network service provider.

You can define 50 number in the PABX (partial numbers) that are not affected by the call-by-call function. If you make a call that begins with one of the partial numbers in the list this number is dialed directly, without the code for the provider being added.

Examples of partial numbers that should not be subject to the call-by-call function:

1, 2, 3, ...9	Numbers in your own area network
010	Selecting a different provider
0130, 0180, 0190	Service numbers in Germany
0700, 0800, 0900	Service numbers in Germany
0800	Service numbers in Austria
0800, 0900	Service numbers in Switzerland

- **Configuration**
  Use the WIN-Tools Call-by-Call Manager to set up and configure for the LCR procedure 10 providers to be used for dialing external telephone numbers. Use this program also for specifying 50 numbers (partial numbers) not subject to the LCR procedure.

See also:

Least Cost Routing (LCR).

6_3_10 LCR: Call-by-Call with adaptable tariff tables. Up to firmware 1.3 only.

- **Function (export versions only)**
  This LCR procedure corresponds to the »call-by-call with rate tables« procedure. This special case allows you to edit or add new data to existing rate tables or provider data. All data needed for the LCR procedure have to be set up manually if the export countres do not have any available LCR service providers.

- **Configuration**
  A special version of the WIN-Tools LCR Manager is used to configure this LCR procedure. The menu items added for the editable LCR are located in the menu bar under »Edit«. Select the corresponding entry in the tree structure (»LCR Table«) to change or delete network operator data, zone data, or exception numbers. Then make the corresponding changes in the menu item using the menu bar and »Edit«.

6_3_10_1 Sequence when configuring the editable LCR

- **Mobile Communication Networks**
  Enter up to 10 different mobile communication networks. Mobile communication networks with the same name but different telephone numbers are automatically combined into one network. A total of max. 20 telephone numbers can be assigned to the max. 10 mobile communication networks.

  Max. 10 entries are available for creating mobile communication networks (max. 14) and international zones (max. 10). For example, if 6 mobile communication networks are set up, then only 8 international zones can be specified.

6_3_10_2 Charge Settings

Here you specify the input and display of the charges. Charges can be displayed in euros (for example Euro 0. 12) or cents (for example 12 cents). Charges between 0 and 998 can be entered when setting up the individual providers. If the amounts are not high enough, enter a multiplier to expand the range.

6_3_10_3 International Prefixes

Enter up to 300 different international prefixes. The entered countries can be assigned to individual country zones based on this list when generating a rate table for a provider.

6_3_10_4 Exception Telephone Numbers

Enter up to 200 telephone numbers or partial telephone numbers not subject to the LCR procedure. If you make a call that begins with one of the partial numbers in the list this number is dialed directly, without the code for the provider being added.

For example: emergency and service numbers.

6_3_10_5 Rate zones

There are 3 different rate zones: City, Region 50 and German Call. The names of these zones can be customized. Assign up to 100 prefix regions to the first two rate zones.

6_3_10_6 Provider / Network operator

The network code number is set for all providers/network service providers. The network code or identifier is a prefix applicable to all providers, for example 10 for 10xy, 010 for 010xy, etc.

- **The following settings are possible when creating or changing a provider/network service provider:**
  - Name and telephone number (digits after network code)
  - Logon, min. charge or basic charge, if needed
  - International calls and assigning of international prefixes to individual international zones. If international calls are not possible the corresponding rates are hidden.
  - Basic charges or discounts for individual connections
  - Charges for individual rate zones, mobile communication networks or international zones at different times of the day.

See also:

Least Cost Routing (LCR)

6_3_11 LCR: Call-by-Call procedure with tariff tables. Up to firmware 1.3 only

The LCR automatic function offers the especially useful automatic update, once a month, for example. The system automatically dials the most cost-effective and available provider. The system telephone display shows the name of the provider.

When this LCR procedure is used the PABX will dial up the least expensive provider, based on the rate tables and the time when the call is placed. You can select up to 40 providers for this whose rate tables can be loaded in the PABX. Selection of the cheapest provider is made based on the time and the rate zone chosen on the grounds of the local, national or network prefix code. The steps to follow in case a selected provider is busy can be specified by configuring the LCR procedure. The PABX can carry out up to 10 dialing attempts using different providers (max. 4 attempts per provider). If establishing a connection fails (for example because providers are busy) the connection is set up via your standard network service provider.

You must always download the most current rate tables for your selected providers in order to utilize the LCR function most effectively in your PABX. The LCR service provider »Teledata Update« is available for initial configuration of the rate tables, or for subsequent updating of the tables.

- **The following files are loaded when connecting to the LCR service provider:**
  - List of available providers
  - Rate table of selected providers
  - Zone information when dialing outside of local area.
  - Permanent and partial telephone numbers not subject to the LCR procedure (exception numbers).

- **Important notice for Germany**

Note:
You can obtain the rate data for the LCR function from TELEDATA-UPDATE Gesellschaft für Telefon-Tarifdaten-Management mbH using the default number in the product. bintec elmeg GmbH cannot warrant that this tariff data is up-to-date, complete and correct and declines any liability resulting from the use of such data. Additional costs are incurred when updating the rate tables for the LCR service provider.

- **Configuration**
  Use the WIN-Tools LCR Manager to configure this LCR procedure. Use this program to select providers, the number of redial attempts per provider (max. 4) and the total number of redial attempts (max. 10). You can also use this program to specify whether the rate table of the providers is to be updated automatically or manually.

6_3_11_1 Initial configuration / Download of tariff tables

Initial configuration of this LCR procedure and the requisite download of the rate tables can only be carried out using the WIN-Tools LCR manager. The PABX saves the necessary data (for example number of the LCR service provider, desired providers, type of regular download) to your system to enable you to automatically update the rate tables according to your needs at later dates.

In its initial state there are no provider data stored in the PABX. A list of available providers is loaded during the first connection to the LCR service provider. Select the interface to be used for connecting to the LCR provider.

You can select up to 40 providers from the list of available providers that you wish to use for making calls. After you have selected your preferred providers you can load the rate tables from the LCR service provider.

The rate tables are then stored in the PABX and can be monitored with your PC depending on the selected data transfer interface. You can deactivate the providers in the list that you do not wish to use and load the modified data into the PABX.

6_3_11_2 Updating the tariff tables

There are four different methods for updating the rate tables of your selected providers.

— Manual update using the WIN-Tools LCR Manager

— Automatic updating at a pre-programmed time (for example periodically on the 1st of every month) by means of the first available external ISDN connection

— Manual update using the PABX system menu

— Manual update using a code procedure

Automatic updating of the rate tables is only possible when you input the appropriate data concerning the time and interval of automatic updating during the initial download via your PC. This data is stored in the PABX. At the pre-programmed time (date), the PABX sets up a data link automatically to the LCR service provider and loads the new rate tables for the providers stored in the PABX. If you deactivate the loaded rate tables for certain providers before the next download, the tables for these providers will not be reloaded.

After an automatic update using the LCR manager on the WIN-Tools CD check to ensure that the update was carried out properly.

You can also perform a manual update of the provider rate tables in the PABX using the appropriate code procedure. When the data link has been established successfully you will hear the music on hold of your PABX. At the completion of data transfer you will hear the busy signal.

6_3_12 Least Cost Routing (LCR). Up to firmware 1.3 only

Would you like to save calling costs? Cheaper providers are a good way to save costs. The PABX can help you by searching for the cheapest provider. The system then dials through this provider without you having to enter the provider's prefix.

The PABX automatically adds the numeric code of a stored provider to the number to be called when dialing an external telephone number. Provider selection depends on the configured LCR procedures. The PABX system supports different procedures: Call-by-Call, Call-by-Call with tariff tables and Call-by-Call with adaptable tariff tables.

6_3_12_1 System telephones

When a connection is established via a provider, the name of that provider is shown in the display of system telephones.

- **The PABX supports the following LCR procedures:**
  - »Call-by-Call«
  - »Call-by-Call procedures with tariff tables«
  - »Call-by-Call with adaptable tariff tables« (export versions only)

Note:
Please that there are some providers whose services must be applied for. Some of these providers automatically set up a connection to enroll unregistered customers.

Using the LCR procedure can result in the call data records of the PABX incompletely logging the rate information since these are not transmitted by all providers.

- When call forwarding is activated you should enter the network service provider as the main provider to ensure a high degree of accessibility.
- Call forwarding in the exchange, or automatic call-back to an external party will always be executed via the main network service provider.

6_3_13 Number display features

6_3_13_1 Number display features Displaying the number of caller at the called party

(CLIP – Calling Line Identification Presentation) This feature permits the number of the caller to be displayed at the party being called.

6_3_13_2 Restricting the display of the caller's number at the called party (CLIR – Calling Line Identification Restriction)

This feature allows the caller to restrict (suppress) the display of his/her number at the party being called.

6_3_13_3 Displaying the number of the called party at the caller's phone (COLP - Connected Line Identification Presentation)

This feature allows the phone number of the party being called to be displayed at the caller's phone. For example, it the party being called has configured call rerouting to a third party, the caller can have the final number displayed at his/her phone using this feature.

6_3_13_4 Restricting the display of the called party's number at the caller's phone (COLR – Connected Line Identification Restriction)

This feature restricts (suppresses) the display of the number of the party being called at the caller's phone. For example, if the party being called has configured call rerouting to a third party the final party (third party) can prevent his/her number from being displayed at the caller's phone using this feature.

Note:
Not all of the features described here may be implemented in the standard ISDN access. Contact your service provider to determine how or if you must apply separately for the individual features for your ISDN access.

6_3_14 MSN display with call to a DECT 100 system phone

Up to three numbers (MSNs) can be assigned to each mobile unit of the DECT 100 system telephone. When calls are made to the DECT 100 the dialed number is not shown in the display of the mobile units.

The PABX system can show the numbers in the display of the mobile units so that you can see which numbers the caller has dialed when using these telephones.

6_3_15 Net direct (keypad functions)

Only recently you purchased the most modern telephone on the market. Since then, however, new features have been added to the public network which you are not able to use just by pushing a button. Using the »Keypad« function you can use current ISDN functions offered by your service provider by entering a key sequence from your ISDN or analog telephone.

The Keypad function allows you to control service or performance features in your provider's network by entering character or digit strings.

Note:
You can only utilize this feature if it is supported by your network service provider and has been applied for for your ISDN access.

Internal users for which you have programmed a direct exchange line access can not use the keypad functions directly. You must deactivate the »Direct exchange line access« feature first or press the asterisk button and then enter the code number for manual exchange line access (for example 0). Start the keypad function by pressing the asterisk or the hash key.

The keypad functions can only be used by terminal devices to which an external MSN extension has been assigned during configuration and which are authorized accordingly.

The features and services offered by your network service provider are always set up for the terminal device whose number is additionally transmitted (MSN).

- **Configuration**
  Use the PABX configuration program to set individual keypad function authorizations for every internal PABX subscriber. This means only authorized users/subscribers (terminal devices) are able to switch features within the public network.

6_3_16 Room monitoring

Let's say you wish to acoustically monitor a room. Place a phone in this room that is connected to your PABX system. You can then apply a procedure to make this phone a monitored phone, meaning you can call this phone from any authorized external or internal phone for monitoring the room for any acoustic input.

An inhouse telephone connected to the PABX is configured for room monitoring. This requires that the handset of the relevant telephone in the room which is to be monitored or that hands-free talking is activated followed by a numeric code. The handset may not be replaced and hands-free talking must not be deactivated once the numeric code has been entered. Room monitoring is now enabled with this telephone. This telephone is no longer accessible for calls for the duration of the room monitoring.

6_3_16_1 Room monitoring from an inhouse telephone

An internal call to the room monitoring telephone (direct dialing of extension of telephone) is now accepted by this telephone automatically and the connection is established. The caller can use the connection to the telephone in the room to be acoustically monitored for this function.

6_3_16_2 Room monitoring from an external telephone

Room monitoring from an external subscriber can be initiated only by remote access to the PABX. In this case, dial a specific PABX extension from an external telephone assigned to the service telephone number in the PABX configuration program (internal virtual subscriber). The PABX uses a 6-digit PIN (PABX PIN 2) to check the remote access authorization. The PABX establishes a connection to the room monitoring telephone if the internal extension of this telephone is entered after successfully entering the PIN. The caller can use the connection to the telephone in the room to be acoustically monitored for this function.

6_3_16_3 Deactivating room monitoring

If the caller ends room monitoring, the feature remains active with the room monitoring telephone. Room monitoring from an internal or external telephone is again possible. Once the handset of the room monitoring telephone is replaced or hands-free talking is deactivated, further room monitoring connections are not possible. The room monitoring feature is then disabled.

Note:
Room monitoring can be released only at the room monitoring telephone itself.

This feature can not be used in conjunction with Inquiry call, call forwarding or team call functions.

Room monitoring is deactivated after each pabx configuration and must subsequently be enabled and configured once again.

You can only listen to sounds in a room monitored. Talking is deactivated in this case.

- **Configuration**
  - — Room monitoring from an inhouse telephone
  - — There are no configurations required for monitoring a room from an inhouse telephone.
  - — Room monitoring from an external telephone
  - — You must assign the service number of the PABX (internal virtual user) to an external number (point-to-multipoint access) or to an external direct dial-in number (point-to-point access).
  - — Remote access for operating and configuring the PABX from an outside phone must be enabled. Remote access is protected by the 6-digit PIN (PIN 2 of the PABX).
  - — Remote access using this 6-digit PIN2 of the PABX is only possible when this PIN 2 has been changed individually, i. e. it is no longer in its default setting of »000000«.

6_3_17 Transmitting exchange line access number

Some ISDN telephones available on the market cannot utilize the caller list when connected to a PABX. If an external call is made at these telephones, their number that is transmitted is not provided with the required exchange line access number. As a result, a wrong number is dialed on call-back. You can configure »External assignment code (LAD)

for caller list« for this telephone to prevent this from happening. The PABX will then place the LAD in front of the number automatically for external calls.

An external call from an internal subscriber can be signaled with the exchange line access number even if the telephone does not independently support this function. The PABX then automatically precedes the extension to be displayed with the exchange line access number. In case of a call-back (for example from the caller list), the extension can be dialed immediately.

Note:
The PABX may not send an exchange line access number for telephones with an already specified access number that is automatically provided for incoming calls. If your telephone and PABX precede the extension with an exchange line access number, a call-back (for example from the caller list) will dial the wrong number.

This performance feature may not be used if the subscriber is utilizing direct exchange line access.

- **Configuration**
  Use the PABX configuration program to specify sending the LAD for every PABX subscriber.

6_3_18 Display / suppress number

The »Number display« offers various features.

6_3_18_1 Display number (NI - Number Identification)

The telephone number display of the telephone can display the telephone number of the caller as soon as a call is signaled. You know who is calling before even accepting the call. The display shows either the name or the telephone number of the caller depending on whether the transmitted telephone number is saved in the telephone directory of the PABX or the telephone itself.

Your telephone number is displayed to any parties you call (CLIP). The party you are calling can also see who is calling before picking up the telephone. You can block the display of your telephone number at your caller's telephone if desired (CLIR).

If the party you are calling has set up call forwarding, you do not know from which telephone the party you called picked up the call. In this case, you can view the extension of the telephone receiving the call forwarding call (COLP). It is also possible for the other party to prevent this number from being displayed (COLR).

6_3_18_2 Suppress number of calling party (CLIR / COLR)

You can specify that no telephone number is displayed on the telephone of the caller (COLR) or of the party called (CLIR) anytime a call is initiated from an internal telephone. Use the PABX configuration program to specify these settings for each individual subscriber separately.

This setting applies to all inhouse or outside calls initiated from that terminal device.

In order to prevent display of the telephone number with an external caller, your network service provider has to enable the » case-by-case telephone number display suppression« feature. This feature can be enabled separately for each telephone number (MSN) of your ISDN connection.

6_3_18_3 Setting in the exchange

Your network service provider can enable »permanent call number suppression« for every number of your ISDN connection. A telephone number (MSN extension) with call number display suppression is not displayed on the telephone of the party called (CLIR) or of the caller (COLR). This feature can be enabled separately for each telephone number (MSN) of your ISDN connection.

6_3_19 SMS (short messages)

You want to send a short message to a subscriber without talking to the subscriber. The subscriber can read your message at any time and respond the same way. SMS (Short Message Service) allows you to send/receive text messages to/from other telephones in the fixed-line network or to/from cell phones.

SMS (Short Message Service) allows you to send/receive text messages to/from other SMS-compatible telephones in the fixed-line network or to/from cell phones. After being transmitted, the text messages are shown in the display of the other terminal device. Depending on the terminal device being used, preset or self-generated short messages can be transmitted. Short messages are input using the key block of the telephone. A short message is restricted to 160 characters. Additional costs are charged when an SMS is transmitted.

Sending/Receiving of SMS messages is only possible when the caller's (sender's) number is also transferred and this number displayed at the receiving party. that all terminal devices that are used (telephones, PABX systems) must support the SMS feature.

Sending/Receiving of SMS messages is possible using analog or ISDN phones that support this feature.

6_3_19_1 System telephones

You can also use different system telephones for sending text messages. The system telephones can utilize this feature (SMS) in conjunction with PABX systems that support this feature as well.

An incoming text message is signaled by two brief acoustic tones in the system phone. If the phone is idle, the number of messages received is displayed, along with information about these messages in the caller list. Every text message has to be associated with the extension number of the sender, which is why text messages without transmitted extension numbers are not displayed by the system telephone. New text message cannot be received and displayed if all of the memory for text messages has been used within the system telephone.

Sending/Receiving of SMS messages is only possible:

- If you have applied for this feature for your ISDN access
  (Calling the service provider SMS center and starting the login procedure).
- If the number for the SMS center for your service provider is stored in the telephones and in the PABX.
- When the sender's number is also transferred and this number displayed at the receiving party.

You can enable terminal devices for SMS reception. Within a team call assignment configuration you can only assign one telephone (analog or ISDN) with SMS authorization in order that the SMSs reach that specific phone. You can only assign one outgoing number (MSN) to an SMS-authorized telephone. Assignment is made in the subscriber settings. Log-in at the SMS center and receiving of the SMSs are then made using this number. If you enter an SMS-authorized telephone in the team call allocation in several teams with different MSNs, the SMS will only be received at the telephone with the number entered as the outgoing number.

Contact your service provider to find out what the costs are for sending/receiving SMS.

See also:

General

6_3_20 Intercom

The intercom function can be used by the boss, for example, to talk to his secretary in the secretary pool without having to pick up the handset of the telephone. Before hands free calling is activated for the called person, the system te-

lephone signals this type of incoming call with a warning tone and text depicted in the display. Longer intercom calls utilize a warning tone emitted every 20 seconds to remind both parties of the established connection. Every intercom call is automatically terminated after approx. 2 minutes.

The intercom function allows you to establish a connection from a system telephone to another system telephone without the called system telephone having to accept the call actively (lift up handset, hands free calling/activate open listening). As soon as the system telephone has accepted the intercom call, the connection is established. The calling and the called system telephone hear a warning tone at the beginning of the intercom call. The duration of an intercom call is limited to two minutes. If the handset of a participating telephone is picked up during this time, the call continues in a normal connection.

System phones can initiate intercom calls. System telephones and ISDN telephones with the same function can be the target of an intercom call. These telephones can be enabled or blocked for intercom calling by entering a numeric code of the PABX.

System telephones can initiate an intercom call using the menu of the system telephone or by using a programmed function key. If an intercom call is initiated with the function key, then the display of the system telephone shows the same indicators as for a normal connection status and the LED of the intercom key is activated. The intercom call can be ended by pressing the function button again, or by pressing the speakerecall flash button. The associated LED is deactivated when the intercom call is terminated.

The display shows the number of the caller if a telephone or a system telephone is the target of the intercom call. Intercom calls are preceded by a brief acoustic signal over the speaker. The intercom call can be terminated at any time by pressing the ESC key.

A function key can also be set up at a system telephone to enable or inhibit intercom calling.

- **Intercom calls are accepted automatically at the phone being called by activating hands-free calling when:**

  — the telephone is idle,

  — intercom calls are permitted and

  — the »Station guarding« function (Do not disturb) is not activated.

If an intercom call is not terminated by one of the two parties, the connection is terminated automatically after around 2 minutes by the PABX.

- **Configuration**
  Use the PABX configuration program to specify for each subscriber whether intercom calling to this or similarly designated ISDN phones is to be enabled. You can also use the numeric codes described below to enable or inhibit intercom calling

6_3_21 LCR Professional

The built-in Least Cost Routing feature lets you make calls via an alternative carrier or service provider. When this performance feature is activated the PABX system attempts to set up the most reasonably priced or optimum connection for that time. The optimum connection may not always be the most reasonably priced however.

Diverse information must be available for selecting the best price and reasonably priced service provider for a call:

— ·To where is the call being placed?

— ·Time of the call?

The charge rate data for the LCR function can be downloaded from the Internet site www.telefonsparbuch.de. bintec elmeg GmbH is not liable for, nor can it guarantee the up-to-dateness, completeness and correctness/freedom from error of the rate tables.

Normally, you are connected with your network service provider when you lift the handset of your phone and dial the line access digit (default: 0). The built-in Least Cost Routing feature lets you make calls via an alternative carrier or service provider.

In its initial state, no LCR procedure is activated in your PABX. Configuration of the various LCR procedures is performed using a PC and the WIN-Tools CD supplied with the system.

Please that there are some providers whose services must be applied for. Some of these providers automatically set up a connection to enroll unregistered customers. If you terminate such a connection during dialing and then subsequently attempt to set up this link again, this may result in errors during calling (communication will not be established). In this case it will be necessary to deactivate the provider concerned in the LCR professional on the WIN-Tools CD and to update the date records in the PABX.

6_3_21_1 LCR Professional features

— Configuration of up to 20 providers including provider name and prefix. Setting options for individual routing procedures (standard, trunk group, MSN)

— Up to 50 zones with a maximum of 200 entries each (prefix, phone numbers, subscribers) can be configured.

— You can configure a GSM gateway as provider. If connected to the external ISDN port of the PABX system the trunk code for the respective port is dialed as a »Provider prefix«. When connected to one of the pabx's analog port, the internal extension number of the pabx is dialed.

— Three different fallback stages can be set.

— The rate tables are configured for Monday through Friday, Saturday and Sunday for the zones that have been configured.

— Preconfiguration and download of rate tables from the Internet (www.telefonsparbuch.de).

— Importing and saving the rate tables and transferring them to your PABX system.

6_3_21_2 Important notice for using the LCR procedure

— When a connection is established via a provider, the name of that provider is shown in the display of system telephones.

— Users can be inhibited from using this feature in PC configuration.

— The rate information is not logged completely in the call data records of the PABX when using the LCR procedure, as this information is not furnished by all service providers.

— When call forwarding is activated you should enter the network service provider as the main provider to ensure a high degree of accessibility.

— Call forwarding in the exchange, or automatic call-back to an external party will always be executed via the main network service provider.

— When you lift the handset you will hear a special dial tone in all country-specific variants, except for DE and AT.

6_3_21_3 Operation

You can activate/de-activate the LCR procedure using either the »Professional Configurator«, or a code sequence on the telephone.

6_3_22 Information from the ISDN network (MWI - Message Waiting Indication)

Information from the ISDN network (MWI - Message Waiting Indication)

You wish to know if a new message is present in your mailbox, or if you have new e-mails waiting for you at your Internet service provider. You currently have to constantly check your mail without knowing whether new messages

have actually arrived or not. The performance feature »MWI« allows your PABX system to receive this information about new messages from the corresponding service provider so that you can then be notified. You then only need to poll your mailbox or e-mail box when messages are actually present there. You can also transmit an MWI from a Voice Box connected to the PABX system, or from a system phone configured as a reception phone.

Function

Indication or signaling of this information is possible at terminal devices (analog device, ISDN device and system phone) that support this performance feature. MWI information from an external party is put through in a transparent manner. The bintec elmeg CA 50 phone displays an envelope symbol, along with a text generated in the phone and the phone number of the calling party when MWI is activated.

6_3_22_1 Analog terminal devices

— MWI may only be activated when the handset is in place (not lifted).

— A brief calling signal is transmitted when a message from a Voice Mail system arrives. Depending on the terminal device, either a symbol, a text generated in the phone or the number of the caller may be displayed. No signal is issued or displayed when MWI data is deleted.

— CLIP must be configured and enabled in the configuration for this feature at the terminal device.

— Call-back to the voice mail system, or to the reception phone is possible, but the MWI data is deleted in this process.

6_3_22_2 ISDN terminal devices

— MWI can be activated at any time (also during an ongoing call).

— A brief calling signal is transmitted when a message from a Voice Mail system arrives. Depending on the terminal device, either a symbol, a text generated in the phone or the number of the caller may be displayed. No signal is issued or displayed when MWI data is deleted.

— Call-back to the voice mail system, or to the reception phone is possible, but the MWI data is deleted in this process.

6_3_22_3 System phones

— MWI may be activated at any time (also during an ongoing call). The number of the calling party is entered in the caller list. Depending on the type of system phone being used, »External Voice Mail«, »Netbox today« and the name and number of the caller will be entered in the list. The »Caller list« LED also flashes.

— Call-back to the voice mail system, or to the reception phone is possible, but the MWI data is deleted in this process.

6_3_22_4 Room phone

— If a message from a voice mail system is present a special dial tone will sound when you lift the handset.

6_3_22_5 Reception phone

— MWI information can be activated and deactivated at a room phone using a phone procedure from the reception phone. When MWI data is activated at a room phone the number of the reception phone will be entered in the caller list and the special dial tone activated.

Configuration

— MWI can be configured for any terminal device under »Internal subscriber«. The performance feature MWI can be activated and deactivated from a reception phone, or via a Voice Box, using a phone code procedure.

6_3_22_6 Deactivating an MWI message

— Deactivating an MWI message

— Manual deactivation from the reception phone using a phone code procedure.

— Call from the reception phone to the room phone. The MWI data is deleted automatically when a call is in progress.

— A call-back from the room phone to the reception phone deletes the MWI data.

6_4 «Communication_Costs«_tab

6_4_1 »Communication Costs« tab

Under this tab you can make settings for the call costs for the subscribers.

6_4_1_1 Authorizations

- **Call cost logging:**
  If external calls for the selected subscriber are to be stored in the call data records, you can activate this setting in this field.

  Recording of the call data records is made based on the general settings defined under »Call data records«.

If you wish to limit the amount that a subscriber has available for calling you can set up a »Call account« for that person.

6_4_1_2 Programming a charge limit

- **Cost limit active:**

  — Activate the account by checking the check box.

- **Limit:**

  — Enter the amount that is available for making calls.

- **as of:**

  — The current counter reading is displayed below the charge limit field.

- **Reset:**

  — Click »Reset« if you wish to delete the current counter reading.

6_4_2 Charge limitation

You want to limit costs for individual internal terminal devices since calls from these devices are excessive. Specify the amount available for calling for the corresponding internal extension. Once this amount has been exhausted, external calls can no longer be made from this terminal device. External calls are possible again once the charge counter have been reset or if the amount available has been replenished or increased.

A call charge account can be programmed for each internal user. The charge rate amounts available to that particular user are defined in this account. If the user uses up his/her allotted units he/she can then only make internal calls. If this limit is reached during an ongoing call, the call can be completed. The user can make external calls again when the number of units on his/her account is increased or the counter is deleted.

Note:
Please that user's charge account must be activated and transmission of the rate information must be applied for at your network service provider in order to utilize this feature. If you make a call using a different provider which does

not transfer the charge rate information, the call account function will be ineffective.

Before you enter the amount for the call cost account you must clear the charge counter for the internal number of the account holder. You can then set up the call account.

- **Configuration**
  Use the PABX configuration program to set amounts available for calling for individual subscribers. Input this parameter with 3 places after the decimal point.

For example:

Amount available for making calls	Enter the amount
100 Euro	100,000
25 Euro	25,000
3. 50 Euro	3,500
0. 20 Euro	0,200

The rate factor has to be set within the PABX as well. Transmitted units are converted to amounts or transmitted amounts are converted to units to generate charge pulses based on this factor.

6_5 «Analog_settings«_tab

6_5_1 »Analog settings« tab

You can make the basic settings for an analog subscriber under this tab.

6_5_1_1 »Terminal type«

You can configure each analog port to accept a different terminal device. Additional settings or special functions may be required depending on the type of terminal device. Terminal device types which require special functions / applications can be set at some analog connections.

6_5_1_2 »Dialing method«

Your PABX system supports tone and pulse dialing. The dialing method to be used can be set separately for each analog connection.

When using analog terminal devices with MFC dialing you can set the flash time for these devices.

Miscellaneous

Number display (CLIP)

Number display (CLIP Off Hook)

If you are using analog terminal devices that display the caller's number (CLIP) you can set the transmission of that number for the corresponding connection.

6_5_1_3 »Charge pulse«

If your analog terminal devices support the display of cost and charge information you can set the transmission of charge pulses at the corresponding connections.

- **Flash time:**
  Here, you can define the time that the PABX system has to recognize the flash pulse from a tone dialing (DTMF) terminal device.

6_5_2 Terminal type

You have different analog terminal devices (for example fax, answering machine) and you want to continue using these devices with the PABX system. Set the type of the terminal device to be connected to make sure the PABX can detect the device. For example, the »call waiting« feature is deactivated for a fax or modem. A numeric code can be entered for »call pick-up« for a connected answering machine.

Service identifiers assign calls within the ISDN network based on their content (for example telephony, data, fax). The service identifier ensures that calls are signaled at those terminal devices only, that support this service. A telephone would thus never accept a »data« service call.

Since analog terminal devices do not support service identifiers, the terminal device type of the connected device is set for every analog port in the PABX. The corresponding analog port has to be set to »modem« if the transmitted data is to be accepted by a modem.

- **You can configure the following terminal devices at the analog ports:**
  — Telephone
  — »Multifunctional device«
  — Answering machine:
  — Modem.
  — Telefax group 3
  — »Voice Announcement Device«
  — »Voice Mail System«
  — »Alarm input««
  — »GSM Gateway«

The Call waiting function is automatically suppressed for all terminal devices except telephones.

See also:

Protection of data link

The following settings do not apply to types of terminal devices, but, rather, to special functions/applications for which an analog connection is required. These ports can no longer be used for making phone calls.

- **Alarm input:**

  — The analog connections for the base station, or the expansion module can be configured as alarm inputs. The number of alarm inputs that can be used in the individual PABX systems is limited.

See also:

Alarm call

6_5_2_1 Assignment of the analog ports to the door terminals plugged into the special slots

PABX system ICT88 / ICT880: Special slot 1 (door terminal 1) —-> a/b-8, base special slot 2 (door terminal 2) —-> a/b-7

elmeg ICT880xt extension module: Special slot 3 (door terminal 3) —-> a/b-4, extension special slot 4 (door terminal 4) —-> a/b -3

With the ICT46, one door terminal module only can be plugged in. Here, all analog ports can still be used for making phone calls.

Note:
Additional settings or special functions are possible depending on the type of terminal device.

6_5_3 Charge pulse

You want to continue using your existing analog telephones with cost display. You want to continue cost monitoring through transmitted call charge information. The cost of a current call can be monitored with these phones as well. The PABX can use the rate and charge information from the ISDN network to generate charge pulses for your analog terminal devices.

Charge information is transmitted to analog terminal devices in the form of charge pulses. This pulse is detected by the terminal devices and can be converted into an amount using a calculation factor. The PABX converts the charge information from the ISDN network into charge pulses for analog terminal devices. A global setting for all analog connections can be specified at 12 kHz or 16 kHz.

Note:
Refer to the operating instructions for your analog terminal devices whether they analyze transmitted charge pulses and are able to display charge information.

If you want to maintain charge pulses at all analog terminal devices, use only those devices that can analyze the same charge pulse (12/16 kHz).

— Charge transmission during a call has to be activated by the network service provider.

— With a GSM-gateway being connected to an analog port, the charge pulse is deactivated.

- **Configuration**
  The frequency for the charge pulse is set with the configuration of the PABX system centrally for all analog ports (12 or 16 kHz).

  Whether to transmit the charge pulse to a terminal device can be specified in the analog connection settings.

6_5_4 GSM Gateway

You need a number of connections to GSM mobile telephones because your customers, or your staff are always on the move and that is the only way to keep in contact with them, for example. These many connections to the mobile radio networks run up your telephone costs.

Using GSM gateways at your PABX system you can save phone costs when you set up connections to the mobile units via the gateways linked to the system. Using the LCR Professional (starting from firmware Version 1.4) you can define that gateways are to be used automatically for connections to mobile handsets.

GSM gateways can be connected at external ISDN and internal analog ports of your PABX system.

The GSM gateway at an external ISDN port can be reached in the same manner as for a normal external ISDN port (using a code, trunk code or by dialing = »0« (UK = »9«). You do not have to specifically configure the external ISDN port; the connection type, either point-to-point or point-to-multipoint, is freely selectable. You must configure an GSM gateway connected to an analog port explicitly as a GSM gateway in the »Analog Settings« configuration menu. These configuration settings define the defaults for certain performance features: The subscriber is switched to tone dialing, with charge impulse and number ID de-activated.

To prevent any tampering with the gateway from an external location (for example, dialing of the code for resetting the PABX system), it is important that you configure any analog port that interfaces with an analog gateway as »GSM GatewayX« under »Analog settings«.

You can configure up to 4 types of connections in the PABX system. All analog ports that are routed to a certain GSM gateway must be set for the same type of connection (1...4) in the configuration settings. The GSM gateway is reached at the analog port via the port's internal number. If a GSM gateway is connected to several analog ports these are then dealt with as a trunk group. If one of the analog ports is busy the system searches automatically for an available analog port within the »trunk group«.

If a »Direct call« is placed from the subscriber port at which the GSM gateway is connected to a different subscriber or team (internal or external), only this one destination can be reached. The external subscriber then no longer has to perform suffix dialing via the GSM Gateway.

Using LCR-based call forwarding, outgoing calls can also be placed via the GSM Gateway .

Call data records are stored for all GSM gateways. For this, the internal number for the analog port is placed directly in front of the destination number of the external subscriber.

Note:
If the gateway is operated at an external ISDN port, signaling cycle synchronization must be conducted via the network termination unit, as the PABX system does not provide any own signaling cycles. To do this, the input for the gateway is connected in parallel to the external ISDN port at the network termination unit.

- **The following performance features can not be used when a GSM gateway is connected:**
  - — Assignment of the ports to teams, team numbers
  - — Target for immediate return options
  - — Allocation of analog ports to MSNs/direct dial-in numbers, meaning calls by external parties are not possible
  - — Announcement, Call rerouting completion of call on busy, Call waiting ...

- **Configuration**
  In the configuration program under » »General« you can set a dialing pause of 0 to 5 seconds length for the GSM gateway.

6_5_5 Multifunctional device

You have an analog terminal device with integrated fax, telephone, and answering machine. This usually requires three different port configurations within the PABX. However, if you set this port to accept a combination device, you can take advantage of all the features your multifunction device offers. All incoming calls can then be signaled at this device. Select whether to establish an external connection with the fax or the telephone before initiating an external call.

If an analog terminal device connection for the PABX has been configured as a port for combination devices, all calls will come in, regardless of their service function. With exchange line access using a code, the service ID for »telefax group 3« can be transmitted, regardless of the configuration for the analog connection. The service ID »analog telephony« is transmitted when you dial a 0.

Example: You are unable to reach a fax machine of group 3 that is operated with the service ID at a remote ISDN PABX system. By dialing the appropriate code »*773«, your PABX transmits the service ID »telefax group 3«. The remote PABX system recognizes the service and connects you to the fax machine.

Note:
If you have configured a port as a »combination device«, call waiting is deactivated for this connection.

See also:

Terminal type

6_5_6 Voice announcement

You want to make an announcement to several people in a large area. Use the message feature for an announcement via intercom or a public address system (waiting room at the doctor's, large warehouse facility, etc.).

6_5_6_1 Default announcement

You can use an analog port of your PABX for an intercom function by configuring this port for voice announcements This enables you make voice announcements from an internal telephone. With an installed door terminal module, you can configure one of the switching contacts such that contact is made during an ongoing voice announcement. This is useful for switching additional devices (amplifiers) for the duration of the announcement.

6_5_6_2 Voice announcement with background music

In addition to standard voice announcements, background music can also be played during periods in which no announcements are made. This music is fed in via the external MoH input. The music is faded out automatically when an announcement is made. The music is faded back in on completion of the announcement. The party making the announcement will first hear a brief ringing signal after calling the device at an analog connection. The music is faded out while this is being signaled. The announcement can then be made.

Note:
You can make an announcement once the connection with the voice announcement extension is set up. They can hear you but you do not hear what is said at the location of the voice announcement extension. The announcement itself is not acoustically amplified. For amplification, you can use the switching contact of a door terminal module to add an amplifier for the duration of the announcement, for example.

— A remote access to the voice annoucement extension is not possible.

— The voice announcement extension can not be assigned to an external telephone number.

— The voice announcement extension can not be used in the team or doorline phone variants.

— Calls can not be forwarded to the voice announcement extension.

— No outgoing connections can be established from the voice announcement extension.

— One analog connection only if the PABX can be configured as voice announcement extension.

— Inquiry calls cannot be initiated when connected to the voice announcement extension.

— Conferencing, brokering or ECT are unavailable for an announcement extension enquiry call.

— Observe any third-party copyrights when importing any music (GEMA).

- **Configuration**
  A voice announcement extension is set up by configuring the analog connections. You can also configure a switching contact to switch connected devices.

6_5_7 Number display (CLIP / CLIP off Hook)

Your telephone number is displayed to any parties you call. The party you are calling can also see who is calling before picking up the telephone. You can block the display of your telephone number at your caller's telephone if desired.

If the party you are calling has set up call forwarding, you do not know from which telephone the party you called picked up the call. In this case, you can view the extension of the telephone receiving the call forwarding call. The party you called, however, can also block the display of his or her extension.

The telephone number display of the telephone, analog phones included, can display the telephone number of the caller as soon as a call is signaled. You know who is calling before even accepting the call.

Note:
The transfer of analog CLIP information can be set up separately for each analog device. Please refer to the operating instructions of your analog terminal devices whether they support the CLIP and CLIP off Hook functions.Not all of the features described here may be implemented in the standard ISDN access. Contact your service provider to determine how or if you must apply separately for the individual features for your ISDN access.

See also:

Number display features

6_5_8 Protection of data link

You are sending some faxes with your fax machine. Call waiting to a terminal device (modem or telephone) is disabled and the data stream can now flow feely.

The »call waiting« feature can be permanently disabled for specific terminal devices (modem or group 3 fax) for analog connections and cannot be enabled manually either.

- **Configuration**
  You can configure each analog port of the PABX to accept specific terminal devices. Call waiting is automatically disabled when selecting specific terminal devices (all except »telephone«).

6_5_9 Dialing method

Modern analog telephones dial using the multi-frequency calling method (MFC/DTMF). Your company, however, still utilizes terminal devices that use pulse signaling (PS) methods (for example fax machine) and you want to continue using these devices. It is thus possible to set the dialing method individually for your terminal devices depending on the type of connection.

6_5_9_1 DTMF / pulse dialing

The PABX is configured for the multi-frequency calling method at the internal analog connections. Pulse signal dialing (PS) can be configured for all analog connections. This dialing method facilitates dialing internal and external telephone numbers. All functions initiated with the flash, grounding, * or rhombus key (for example transferring calls or Inquiry calls) are not possible.

6_5_9_2 Flash button

A flash is a defined loop current interruption at analog connections. The time of interruption can be configured for each analog connection to between 100 and 1,000 milliseconds.

6_5_9_3 Grounding button (signal button, Recall flash button)

The grounding key function is not supported with both dialing methods (DTMF and PS).

Note:
Before configuring the flash length for an analog connection, please refer to the operating instructions of the terminal device for more details about this function.

6_5_10 Voice mail system

Several subscribers of the PABX need an answering machine. You could purchase a separate answering machine for each subscriber. However, the costs for purchasing and installing several terminal devices are high. Connect an external voice mail system instead. Several subscribers at once can use this voice mail system as their personal answering machine (voice mail box).

You can connect a voice mail system to your PABX system. These systems can be connected to an internal ISDN port or an analog port. Configuring a voice mail connection provides the corresponding internal subscriber with typical functions supported by the voice mail system. For example, system telephones can access this voice mail system using a function key. Depending on the voice mail system employed, several internal subscribers can use one voice mail box (answering machine).

6_5_11 System telephones

You can also set up a function key at system telephones to control voice mail functions. The LED assigned to the voice mail system tells you about new messages in your voice mail box, depending on the particular system used. You can then set up a connection to your voice mail box by pressing this button.

Note:
All connections/telephone numbers of a voice mail system are combined (trunk groupd) and managed by the PABX as a whole. This requires that all connections/phone numbers are set up as parts of a voice mail system.

Examples of connectable voice mail systems: elmeg VMS350, voice mail system of the company Discofone, CAPI-Butler. Further information about operation is given in the operating instructions for the voice mail system.

- **Configuration**
  Use the PABX configuration program to set up the internal subscriber (connection/extension) as part of a »voice mail system«.

- **Operation**
  Operating voice mail systems is dependent on terminal devices. Please read the instructions for these terminal devices to find out more about this function.

6_6 «DECT-400_Settings«_tab

6_6_1 »DECT-400 Settings«-tab

This tab depicts information about the used DECT module such as serial number, software version, etc.

You can also enter the serial number of the used elmeg DECT handset.

6_6_1_1 Enrolling handsets

A handset can only be enrolled if a DECT subscriber is available.
The handset is normally stored at the next available position of the DECT module and the corresponding internal extension number is assigned to it.

If you wish to assign a specific internal extension number to that handset, store the handsets' serial number at the desired position of the DECT module (internal subscriber). The handset is stored at the selected position and the corresponding internal extension number is assigned to it.

6_7 «Switching_functions«_tab

6_7_1 «Switching_functions«_tab

Under this tab you can make the settings for transfer functions for internal subscribers. Individual switching functions can be programmed for every internal subscriber, every team, and every answering station. You can select your customized settings from different call modes. Switching of the call mode can be carried out manually as well as from an assigned »calendar«. The individual settings for transfer functions for internal subscribers are divided among three other tabs.

6_7_1_1 General tab

- **Calendar assignment:**
  Select a calendar if the transfer functions are to be switched over automatically. After selecting a calendar you can set the active call mode (»Day« or »Night«).

  — No calendar
  — Calendar 1
  — Calendar 2

6_7_1_2 Active variant

This option lets you specify which variant should be enabled after the configuration have been uploaded to the PABX.

- **Day**
- **Night**

6_7_1_3 »Day« and »Night« tabs

You can also set the two variants for the transfer functions independently of one another. Click the tabs as appropriate.

6_7_1_4 Switching functions

Please select the switching feature you wish to install. The following settings are possible:

- **No Return**
  — (switching functions are not utilized)
- **Return on Busy**
- **Immediate return**

Additional settings may be required depending on the specific type of switching feature you wish to install.

6_7_1_5 Busy options (for »Return on Busy« only)

- **Size of Queue:**
  — Use this field to set the size of the queue. The queue can take up a maximum of 10 subscribers. Additional callers will hear the busy signal. You can also set here what the caller will hear while in the queue (internal, external or self-configured music on hold, announcement).
- **Accept waiting calls with MoH**
- **Not active**
  — Configured MoH:
  Select any of the tunes set up under »Melodies««.
- **Internal melody 1**
- **Internal melody 2**
- **External connection:**
  — A music playback device connected to the PABX. Please be sure not to violate any copyrights of third parties to the music used in your system.

6_7_1_6 Maximum waiting time in the queue« (for »Return on Busy« only)

— Here, you can set the maximum time that a caller spends in the queue. When this time expires the caller will be transferred to the preprogrammed call return destination. By entering zero, you specify a waiting queue without any time restriction.

6_7_1_7 Return options

Use this field to specify a return target. Select a subscriber or team to which the disconnected subscriber is to the transferred. You can also set here what the caller will hear while being transferred (internal, external or self-configured music on hold, announcement).

- **in combination with:**
  Select any of the tunes set up under »Melodies.

- **Return call to:**
  Select the desired extension who should receive the returned call according to the return options.

6_7_1_8 Transfer with:

Callers hear the preset voice announcement or music while their calls are being transferred.

- **Ringing signal**
  Configured MoH: Select any of the tunes set up under »Melodies««.

- **Internal melody 1**

- **Internal melody 2**

- **External connection:**
  A music playback device connected to the PABX. Please be sure not to violate any copyrights of third parties to the music used in your system.

6_8 »VoIP-VPN-settings«_tab

6_8_1 01_»VoIP-VPN-settings« tab

You can use this tab to make the basic settings for a VoIP subscriber.

6_8_1_1 Log-on authorization

Enter locations in the folder »Locations«. These locations can be enabled in accordance with the log-in authorization privileges for the individual subscribers.

- **No site:**
  No Logon possible.

- **all sites incl. LAN:**
  Log-in authorization privileges for the specified locations and for the internal LAN

- **unrestricted:**
  The subscriber can then log-in at all of the locations and LANs that have been entered.

- **Selected location:**
  The subscriber may only log in at one of the specified locations. Scroll through the locations to select one.

6_8_1_2 Setting for G.726 coding

- **I366:**

Note:
Not for elmeg System telephones

- **RFC3551 / x420**

6_8_1_3 Set IP address for SIP clients

If terminal devices are used which do not register themselves in the system, you can define for the terminal devices that a call is nevertheless to be taken. The IP address, the protocol and the port must be specified for this. If the same values are entered for the terminal device, the call is taken without registration (for example at the Microsoft Office Communications Server). A maximum of 30 client entries is possible here.

- **Activated:**
  — Check this box to enable the function.
- **IP address: '**
  — Enter the set IP address for the server here.
- **Port setting:**
  — Enter the port here.
- **Transport protocol:**
  — Choose between UDP and TCP.

6_8_1_4 Operation as subsystem

— Possible only with connection of an elmeg T444 or elmeg T484 as a subsystem to an elmeg ICT.

6_8_1_5 Permit multiple connections:

— When this feature is deactivated, only one connection can be set up via subscriber SIP registration. If a second call is placed, this call is taken and the former call is put on hold.

When this feature is activated several SIP connections can be made using the same registration.

7 Team_onfiguration

7_1 Team configuration

Teams are groups of persons who work together to achieve a set goal. Normally, this means that all of the members of a team can be reached at a common number for external and internal calls. In the PABX this means that a number can be specifically assigned to each team of telephones / terminal devices, allowing all team members to be reached at all times for external and internal calls. Individual company structures can be depicted with teams. Departments such as service, sales, development, etc. can be dialed directly from an external or internal telephone using team telephone numbers. Within a team, for example, the call can be signaled simultaneously at all or initially only one telephone, then at a second, etc. Answering machines or voice mail systems may be utilized in a team as well.

»Day« (1) and »Night« (2) modes are assigned to each team. You can select either »Team day« or»Team night«. Switching of the call mode can be carried out manually as well as from an assigned.

- **The following settings are required to configure a team:**
  - — General settings for a team : »General« tab«
  - — Assignment of internal subscribers : »Variant tab«
  - — Programming switching functions : »Switching functions« tab

The settings you make under the »General« tab« apply to all call modes for teams (day and night). The settings under »Assignment« and »Switching functions« are done separately for each team call mode.

7_2 »General« tab

A team number or team name can be specified in PC configuration for the team for internal team calls. When a team telephone number is dialed, the caller sees the team name displayed until an individual team subscriber has accepted the call. Then the name of the team subscriber is displayed.

See also:

Internal parties on the team

External subscriber as a team

7_2_0_1 Team name (12 places)

- **Name:**
  - — Enter the desired team name. The team name is restricted to 12 characters.

7_2_0_2 Team number:

- **Telephone number:**
  - — From the list of available unassigned numbers select one for the team.

7_2_0_3 General

- **Allow call forwarding:**
  - — Lets you specify whether call forwarding should be enabled for the team.

- **Operator team:**
  — This option lets you specify whether »Switching functions« are to be offered by one or two terminals configured for this purpose.

7_2_0_4 Day/night calendar:

Select a calendar if the transfer functions are to be switched over automatically. After selecting a calendar you can set the active call mode (»Day« or »Night«).

- **No calendar**
- **Calendar 1**
- **Calendar 2**

7_2_0_5 Active variant

This option lets you specify which variant should be enabled after the configuration have been uploaded to the PABX.

- **Day**
- **Night**

7_2_0_6 Collective call functions (Time in seconds)

- **Forwarding time:**
  Here, enter the »Forwarding time« after which call forwarding by time is to be executed.
- **Simultaneous on no response:**
  The linear and rotating team calls allow you to configure a time interval (1 ... 99 seconds) after which all members of the team will be called at the same time.

7_2_1 Call forwarding to external party

- **Through the PABX:**
  Call forwarding is carried out by the PABX using two outgoing channels.
- **Through the exchange office:**
  Call forwarding is carried out in the exchange office. No outgoing channels are used on the PABX.

7_2_2 Return target on no answer

- **Team number:**
  The »return destination« for a caller if no team member answers.
- **Waiting time until call return:**
  The »waiting time« until a call gets returned to a team number can be set to between 0 and 9999 seconds.

See also:

Call return on no answer

7_2_3 Automatic call pick-up with Music on Hold (with simultaneous signalling in the team)

See also:

.Automatic call pick-up in teams

7_3 »Variant« tab

You can assign serveral internal numbers or one number for external call forwarding to each of the teams.

Under this tab you can define whether calls for a team are to be signaled at the internal subscribers, or at the external subscriber.

Under Assignment select the desired call signaling method (internal or external).

7_3_0_1 Assignment

- **Internal:**
  This option lets you specify whether the call should be signaled at internal parties.
- **External:**
  This option lets you specify whether the call should be signaled at an external party.

7_3_0_2 External assignment

After selecting external, you must make several additional entries.

- **Telephone number:**
  Enter the phone number of the external subscriber.
- **Charges allocation:**
  As costs are charged for signaling of calls rerouted to an external number, these costs must be allocated to an internal party. You can pick an internal party as the receiver of the charges.

7_3_0_3 Accessibility

- **Default:**
  If a party is in an ongoing conversation, they here a call waiting tone, if so enabled, while the caller hears the ringing tone.
- **Busy on Busy:**
  If a party is already conducting a call this incoming call is rejected and the caller hears a busy signal.

7_3_0_4 Team busy

- **from x connections on:**
  Specify the number of calls that must be ongoing in a team before a caller hears a busy signal.

7_3_1 Signaling

See also:

Under Door terminal/Alarm call/Switching order »Signaling«

Internal assignment

7_3_1_1 Internal assignment

Here you can pick up to 16 team members. Use the scrollbar to select a party. By choosing Log out you can log out a party entered on a team list. The effect is the same as logging into and out of the PABX in the course of normal operations,

See also:

Internal parties in a team

External subscribers as a team

7_4 Call tranfer features (team)

If a caller does not dial the number of a specific employee, the call can be automatically switched to a specified customer service team. For example, a company has several employees working in the sales department. A call to this department is transferred to an available employee.

Two team members can be configured as the Operator set. All assigned terminal devices are called based on the configuration settings if an external caller dials the internal extension assigned to a team in the call mode, or if an internal subscriber dials the team extension. Different terminal devices can be assigned to the teams (for example telephone, fax group 4); calls are signaled according to their function.

Note:
Teams can also be called during an ongoing Inquiry call or on call forwarding. It is also possible to forward a call to a team without advance notice. If you have set linear or rotating team call for a team, the members of this team can not forward calls when the call is being signaled.

7_4_0_1 Switching functions

Please select the switching feature you wish to install. The following settings are possible:

- **No Return:**
  (switching functions are not utilized)
- **Return on Busy**
- **Immediate return**

Additional settings may be required depending on the specific type of switching feature you wish to install.

7_4_0_2 Busy options

- **Size of Queue:**
  Use this field to set the size of the queue. The queue can take up a maximum of 10 subscribers. Additional callers will hear the busy signal. You can also set here what the caller will hear while in the queue (internal, external or self-configured music on hold, announcement).

7_4_0_3 Accept waiting calls with MoH

- **Not active**
- **Configured MoH:**
  Select any of the tunes set up under »Melodies««.
- **Internal melody 1**
- **Internal melody 2**
- **External connection:**
  A music playback device connected to the PABX. Please be sure not to violate any copyrights of third parties to the music used in your system.

7_4_0_4 Maximum waiting time in the queue« (for »Return on Busy« only«)

Here, you can set the maximum time that a caller spends in the queue. When this time expires the caller will be transferred to the preprogrammed call return destination. By entering zero, you specify a waiting queue without any time restriction.

7_4_0_5 Return options

Use this field to specify a return target. Select a subscriber or team to which the disconnected subscriber is to the transferred. You can also set here what the caller will hear while being transferred (internal, external or self-configured music on hold, announcement).

- **in combination with:**
  Select any of the tunes set up under »Melodies.
- **Return call to:**
  Select the desired extension who should receive the returned call according to the return options.

7_4_0_6 Transfer with:

Callers hear the preset voice announcement or music while their calls are being transferred.

- **Ringing signal**
- **Configured MoH:**
  Select any of the tunes set up under »Melodies««.
- **Internal melody 1**
- **Internal melody 2**
- **External connection:**
  A music playback device connected to the PABX. Please be sure not to violate any copyrights of third parties to the music used in your system.

See also:

Switching functions

7_5 Automatic call pick-up in teams

A call is to be accepted even while still being signaled - the caller is not to hear the ringing signal. This is easy to set up if you are utilizing automatic call acceptance for team calls. In this case, the call is automatically accepted by the PABX and the caller hears music (Music on Hold) or an announcement. The call is signaled to the specified team member during this time. When a subscriber accepts the call the connection is put through to the caller.

Specify in the PABX configuration that a call to a team is automatically accepted and that the caller will hear music or announcement. The final (target) subscriber(s) continues to be called during this time. Announcement or music are deactivated once the handset is picked up and the two parties are connected with one another.

7_5_0_1 Forwarding a call for a team member:

You can also define in the configuration whether call forwarding for a Team member is to be executed for »simultaneous« or »adding« signaling. With the rotating or linear signaling modes, calls for that team member will only be forwarded if the calls went directly to the internal extension number (or the assigned MSN extension number or the direct dial-in number).

7_5_0_2 The following settings are possible:

- **No**
  The caller will hear the ringing signal and the internal telephones will be called. The caller is charged for the call only when an internal subscriber takes the call.

Or, the call is taken automatically by the PABX and the caller will hear the music on hold melody. The call will continue to be signaled within the team. The caller will be charged for the connection that has already been set up.

Callers hear the preset voice announcement or music while their calls are being transferred.

- **No**
- **Configured MoH:**
  Select any of the tunes set up under »Melodies«.
- **Internal melody 1**
- **Internal melody 2**
- **External connection:**
  A music playback device connected to the PABX. Please be sure not to violate any copyrights of third parties to the music used in your system.

7_6 Internal parties on the team

In »Internal assignment« select the internal subscribers you wish to add to this team.

If you wish to temporarily exclude a team member from call signaling (for example, when a team member is on vacation), you can log this subscriber out of the system. Team calls are then not signaled at the subscribers who have been logged out. Each team member can log on or off on their own using a PABX system code.

Under »Availability« you can select whether a further call is to be signaled to the team as a call waiting (»Standard«), or whether the caller is to hear a busy signal (»Busy On Busy«).

A team number or team name can be specified in PC configuration for the team for internal team calls. When a team telephone number is dialed, the caller sees the team name displayed until an individual team subscriber has accepted the call. Then the name of the team subscriber is displayed.

The following team call options are available: simultaneous, linear, rotating, accumulating or simultaneous on no response (»Ringing«).
The linear and rotating team calls allow you to configure a time interval (1 ... 99 seconds) under the » »General« tab, after which all members of the team will be called at the same time.

Note:
If the »Inhibit« box located behind a subscriber is checked, that subscriber will remain listed in the team but is not active. If you log off all the subscribers in a team, calls such as »misdialing« are monitored and signaled at the corresponding team or subscriber.

The number of subscribers that can be in a team is limited.

7_7 External subscriber as a team

If you wish to configure an external subscriber you can enter the external number for the subscriber under »External assignment«. Under »Charge assignment« you can enter an internal subscriber whose account is to be charged for these external calls.

7_8 Call modes for teams

7_8_1 Call modes for teams

Let's say you wish to reroute important business calls from your office to an answering machine after hours so that you will not be disturbed at home. You can assign two different call distribution options (team call assignment day/night) to each team. Call forwarding to an external subscriber is also possible for team call assignments, allowing you to always be reached by important callers, for example. You then only need to switch the team call assignment option and calls will be signaled where you need them to be.

Which of the internal phones is to be used to signal the external call is specified in the team call assignment 1 and 2. This switchover can be performed by any user with the proper privileges (default setting: no subscriber).

Note:
A team can be assigned to several external numbers (team 00 for example to all external numbers).

An external number cannot not be assigned to more than one team.

Note:
A team can be assigned to several external numbers (team 00 for example to all external numbers).

An external number cannot not be assigned to more than one team.

7_9 Return on no answer

You have changed the infrastructure of your company and with that the configuration of your PABX system. External extensions/direct dialing, for example, is no longer utilized. To make sure calls to these extensions are not lost, they are forwarded to a team or a subscriber. Calls with an incompletely dialed or incorrect number are also forwarded.

Select a team or subscriber for each external ISDN to which all non-deliverable calls are to be forwarded. The following calls are non-deliverable:

— The caller has dialed a nonexistent or incomplete direct dial-in extension number.

— The caller has dialed an extension of the point-to-multipoint connection not configured in the PABX system.

— A team is called that has no subscribers or where all subscribers are logged off.

7_9_0_1 Return on no answer within a team

The call will be transferred to a different team if a call to a team is not accepted within a time specified in the configuration program.

You can configure one additional team as the return team for each team that you have defined and also set the time after which unanswered calls will be forwarded to the return team.The »Switching functions« of the team are not affected.

7_9_0_2 Transfer on no answer for internal subscribers

The call will be transferred to a different subscriber or to a different team, if a subscriber does not accept the call within a time specified in the configuration program. That extension or team is specified in the configuration program and can be programmed separately for each call mode. The switching functions of the team are not affected. Use the tabs »General«, »Timer« in the configuration menu to set the time for immediate return on no answer centrally for all subscribers.

7_9_0_3 Return target on no answer

- **Team number:**
  Select the team calls should be returned to.

- **Waiting time until call return:**
  Sets the time until the selected team should receive the returned call.

Note:
If a wrong extension of a point-to-multipoint connection has been dialed, the call might not be routed through to your extension. Ask your network service provider for details.

7_10 Switching functions

Your callers should not have to wait any longer than absolutely necessary. Time and costs are to be kept as low as possible for you and the caller. Manual switching, automatic switching from a queue, switching calls from busy subscribers to others are adjustable to meet the requirements of the company.

Individual switching functions can be programmed for every internal subscriber, every team, and every answering station. You can select your customized settings from different call modes. Switching of the call mode can be carried out manually as well as via an assigned calendar.

- **The following settings are possible:**
- **Return on Busy**
- **Immediate return**
- **No Return (switching functions are not utilized)**

7_10_0_1 Queue settings

The corresponding functions have to be configured for the respective subscriber. The factory setting specifies that all calls are assigned to the telephone numbers defined in the configuration program.

If »Return on busy« is enabled, the settings for the »busy options« and the »return options« have to be configured.

If »immediate return« is enabled, all calls do no longer ring the subscriber's terminal but are immediately transferred according to the »return options«.

7_10_1 Busy options

7_10_1_1 Determining number of possible calls in the queue:

Up to 10 calls can be queued. If no number is entered, the call for a busy subscriber is immediately transferred to the specified final subscriber. The subscriber longest in the queue is the one being polled next. If the number of specified queued call has been reached, additional calls are processed according to the »return options«.

7_10_1_2 Configuring busy for teams:

Configuration parameters determine how many subscribers of a team have to be busy before the entire team is considered busy. Callers on hold hear music or the ringing signal. Use the configuration program to determine whether a caller in the queue will hear music or the ringing signal (the latter option will not cost the caller).

7_10_1_3 Switching to music or the ringing signal when switching calls:

A caller from the queue signaled to the specified final subscriber will hear music or the ringing signal. As long as the caller hears the ringing signal, he or she is still queued but the call has not been picked up yet.

This means the call is still free. Once the caller hears the music for calls on hold or an announcement, the connection is already incurring costs.

7_10_1_4 Duration in queue until call-back:

The time a caller is to be queued can be set from 0 to 120 seconds. The caller is then transferred according to the »Return options«. If no time is entered, the caller remains in the queue until he or she hangs up the telephone.

7_10_2 Return options

7_10_2_1 Return destination

The return target can be configured as a final individual subscriber, a team or an answering station. If neither »Voice announcement before answering« , »Voice announcementwithout answering« nor the »Info box« have been set up, calls are transferred to the return target (immediate return). The number of subscribers in a »Voice announcement before answering« or »Voice announcement without answering« queue depends on the PABX capacity. An additional call switched to a full queue is automatically terminated by the PABX. A »Completion of call to busy subscri-

ber«CCBS) is not possible under such circumstances. The call is terminated after »Voice announcement before answering« or »Info box« », if a transfer target has not been defined.

7_10_3 Return to »Announcement before answering«

The caller can be transferred to the target specified in the enabled »voice announcement before answering« feature. The caller hears the announcement and is then transferred to the final subscriber (return target). If the »immediate return« feature has been enabled, the caller can also be transferred to a different subscriber. A caller from the queue will hear music or the ringing signal. As long as the caller hears the ringing signal, he or she is still queued but the call has not been picked up yet. This means the call is still free.

The call has to have been accepted in order to the caller hearing music or an announcement. This means he or she is incurring costs for the connection. The caller can be further transferred to the return target once the announcement has ended. He or she will then hear music on hold or the ringing signal (both incur costs).

7_10_3_1 Return to »info box«

If the call is transferred with the »voice announcement without answering« function enabled, the caller will hear an announcement. The connection is then atomically terminated by the PABX.

Note:
A waiting caller can be transferred within the PABX to a different subscriber only once. Linking return targets is not possible.

Call forwarding functions configured and activated in the PABX have a higher priority than transfer functions. Transfers to one's own telephone number are not possible. Transfer functions set up for teams do not utilize the transfer functions of the team members but only those of the team. The final subscriber cannot transfer calls to a different target during Inquiry calls. The final subscriber cannot transfer calls to a different target during Inquiry calls. Music on hold or an announcement are not activated.

8 Call_distribution

8_1 Call allocation

Use call assignment to allocate the telephone numbers you have entered under »Externalnumbers« (MSNs) to the teams or to an internal extension number. For ringing on analog terminal devices you can assign specific ringing tone patterns and sequences to each MSN extension number.»Ringing tone sequences«

The list with external numbers contains the following information:

- Connection, to which the external number belongs.
- Type of access (Point-to-Multipoint or Point-to-Point)
- External number.
- Team or internal extension number assigned to this external number.

In the default state, all external numbers are assigned to team 00.

8_1_0_1 Assignment

Assigning an external number to a team

Assigning an external number to an internal subscriber

Assigning an external number to a voice announcement

Assigning Call Through functionality to an external numer

Note:
If a blank list field appears in the »Call assignment« configuration, you have forgotten to enter the numbers you received from your network service provider as explained in the Section »Externalnumbers«.

When you assign an external number to the service number (default setting: 55), then this number is reserved for a remote access to the PABX.

See also:

Entering external numbers

Internal subscriber«

Team configuration.

8_2 Assigning an external number to an internal subscriber

Click one of the external numbers in the list to select. Double clicking the selected list field opens up an input window.

8_2_1 Assignment

- **Team**
- **Internal:**
  Select the Internal option from the list.

8_2_2 Calling rythm

Select a calling rythm to be used for signaling of incoming calls at analog terminal devices. Select Calling rythms if you wish to listen to the various calling cycle patterns.

8_2_3 Internal assignment

Select the internal party at which the call is to be signaled.

8_3 Assigning an external number to a team

Click one of the external numbers in the list to select. Double clicking the selected list field opens up an input window.

8_3_1 Team Assignment

In this field, select »Team«.

- **Team:**
  Select a team from the list.

8_3_2 Teamedit

- **Day:**

- **Night:**
  By clicking the »Day«« and »Night«« buttons you can edit the team settings.

8_3_3 Calling rythm

Select a calling rythm to be used for signaling of incoming calls at analog terminal devices. Select Calling rythms if you wish to listen to the various calling cycle patterns.

See also:

»Variant« tab

»General« tab

»Switching functions« tab

8_4 Assigning an incoming call to a voice announcement

— Using call allocation you can assign an announcement (information text) to external numbers for a port (analog, point-to-multipoint or direct dial-in port). This may be either a set announcement, or one that can be activated via the internal Calendar 1 or 2. You can configure different announcements for a number using the Day / Night call mode feature. The Day / Night mode can also be activated manually using a defined telephone code procedure.

Note:
You can only use this performance feature when you have previously assigned announcements to the application

»Infobox« or »Voice announcement before answering« in the configuration under »Melodies«.

8_4_1 General tab

8_4_1_1 Calendar assignment

Select a calendar if the transfer functions are to be switched over automatically. After selecting a calendar you can set the active call mode (»Day« or »Night«).

- **No calendar**
- **Calendar 1**
- **Calendar 2**

8_4_1_2 Active variant

This option lets you specify which variant should be enabled after the configuration have been uploaded to the PABX.

- **Day**
- **Night**

8_4_2 Day / Night tabs

8_4_2_1 Return options

Use this field to specify a return target. Select a subscriber or team to which the disconnected subscriber is to the transferred. You can also set here what the caller will hear while being transferred (internal, external or self-configured music on hold, announcement).

- **in combination with**
  Select any of the tunes set up under »Melodies.
- **Return call to**
  Select the desired extension who should receive the returned call according to the return options.

8_4_2_2 Transfer with

Callers hear the preset voice announcement or music while their calls are being transferred.

- **Ringing signal**
- **Configured MoH**
  — Select any of the tunes set up under »Melodies««.

- **Internal melody 1**
- **Internal melody 2**
- **External connection:**
  A music playback device connected to the PABX. Please be sure not to violate any copyrights of third parties to the music used in your system.

See also:

Switching functions

8_5 Call_Through

Call Through des the process in which an inbound call reaches the pabx through an external access and the pabx systems then makes an outbound call using another external connection.

Note:
In den Verbindungsdatensätzen wird für die kommende und gehende Verbindung je ein Datensatz erstellt.

Note:
Dieses Leistungsmerkmal kann nicht bei Anrufen über POTS genutzt werden. Gehende Verbindung über POTS sind möglich.

8_5_1 Call Through

- **Use Call Through:**
  Check to activate this feature.
- **Internal assignment:**
  Select an internal party you wish to use for »Call Through«. When configuring the PABX, one of its MSNs is specified for Call Through. An external party dialing this MSN extension will first hear a notice tone from the PABX.
- **PIN (6-place):**
  The PABX checks whether the caller is authorized for call through and then provides a simulated external dial tone. Authorization rights are checked against a 6-digit PIN.
- **Number verification:**
  Additional safety can be provided by entering the calling party's number into the phone book and enable it for Call Through. The system then verifies the access authorization by comparing the number transferred by the calling party with the number you have entered in the phone book and with the 6-digit PIN. Generally, al numbers stored in the phone book can be enabled for Call Through.

Note:
Call checking: A second security feature is also possible when the number of the caller is already entered in the phone book and enabled for Call Through. In this case, the PABX system compares the number in the phone book with the number of the caller and with the 6-digit PIN. Essentially, any number in the phone book can be enabled for Call Through.

- **PIN and number:**
  Calling is enabled after you enter a valid PIN and when the specified number agrees with the number given in the PABX system phone book.

- **PIN or number:**
  Calling is enabled after you enter a valid PIN, or when the specified number agrees with the number given in the PABX system phone book.

Use of the »PIN or number« or »Number« represents a security gap here, as access to your PABX system is protected only by a number that is also given in the phone book. Also note the risks associated with external parties with the performance feature »Clip no screening«

9 Extended_call_distribution

9_1 Extended call distribution (point-to-point access only)

In the past, you have used analog connections with extensions known to your business partners. However, you now want to utilize an ISDN point-to-point access connection. The associated change of your telephone number takes place from one day to the next. Use the »extended call distribution« function to make sure your business partners can still reach you at your old number. This function allows you to use your old and your new number simultaneously at your point-to-point access. However, this feature is not supported by all network operators.

Extended call distribution permits you to use your old (existing) extensions of a connection (analog, point-to-multipoint, or point-to-point) through additional point-to-point extensions (direct dial-in numbers). These extensions are switched in the exchange to your ISDN access and the PABX signals calls to the extensions to the assigned terminal devices.

9_1_0_1 Entering and assigning extended telephone numbers

— Enter the additional numbers for your Point-to-Point access into the »MSN« list.

— Under »Call assignment«, select a team or an internal extension number to be assigned to this additional number.

Note:
»Extended call distribution« is only possible in certain countries. This feature is not available in Germany. Please ask your service provider whether this feature is supported.^

— The extensions are entered into the »extended call allocation« table regardless of the external ISDN connection of the PABX.

— The number for the point-to-point access with dial-in must not be entered here, as otherwise dial-in would not be possible. The call would only be signaled at the assigned terminal device.

- **Configuration**
  During PABX configuration you can enter the telephone number for the extended call allocation. These numbers are then assigned to individual subscribers or teams.

10 Door_terminal__Alarm_call__Switching_order

10_0_1 Door terminal/Alarm call/Switching order

10_0_1_1 Door intercom device (»Door terminal bell«) (»General signaling features «)

Your doorbell is ringing. You are working on a project or you are in a meeting and do not want to leave the room just now. Maybe you are not even at home and the call is received by your mobile telephone but you still would like to know who is ringing the doorbell. A call from the entrance access telephone is signaled at your internal or external telephone. You establish the connection with the entrance telephone and can then talk to the visitor. Use an internal telephone to activate the door opener and the visitor can enter. Several entrance access phones separated spatially can be operated by the same PABX. Up to three bell buttons can be located at each entrance access telephone and a different call target can be defined for each button. Main entrance as well as side and delivery entrances are thus easily monitored. Just press a key on the system telephone to activate the door opener of the front door. Even without prior door intercom or entrance telephone call because, for example, you could see the person at the front door. The entrance area lights can be controlled by pressing a key on the system telephone as well. Entrance access telephone calls can be directly transferred to you home after business hours, for example (pharmacies, doctors, emergency services).

The door lock release/intercom is connected via the door intercom module or the »contact module«. Four bell buttons can be assigned to each door terminal. »Day« and »Night« modes can be assigned to each bell button. When the doorbell button of the door intercom terminal is pressed, all terminal devices assigned to that particular call mode start ringing. If the doorbell is assigned to a switching contact this contact is actuated with the timing and cadence of the doorbell rining tone. The door intercom device, however, can only be used by those terminal devices (for example for opening the door) to which the corresponding door terminal rights have been assigned (see configuration). You can set the door intercom call duration separately for each bell button via configuration. With analog phones, a waiting call will be signaled if that analog phone is busy. You can also program an outside number for the door terminal call mode. When the door bell button is pressed, the call will be routed to the programmed outside number. The communication costs for routing the call to the outside number are assigned to the internal door intercom number. In the configuration, you can specify whether ringing should be »simultaneous, »linear«, »rotating«, »connect« or »simultaneous on no response«. The subscriber at which a door entry phone call is signaled can configure call forwarding..

10_0_1_2 Time monitoring for outside door terminal phone calls

You have programmed your PABX to route a doorline phone call to an outside telephone number once the door bell button is pressed. In PC configuration you can limit the time for these external calls. The time period can be deactivated, or set to between 1 to 5 minutes. This prevents external calls being maintained over extended periods if forgotten or unnoticed. The default setting is 3 minutes.

See also:

Set timing for an external call to the door terminal»General«.

Note:
If a door entry phone call is signaled at a different telephone or if you hear the door bell ring, you can dial the door intercom phone number and pick up the door entry phone call yourself, provided you have the corresponding rights to do so. For more information on usable door intercom modules please refer to the assembly instructions.

You can use 3 bell buttons and an alarm input with the FTZ123D12 or 4-wire door intercom. If you configure these door intercom modules as door intercom* under »Additional Module«, it is possible to use the signal input as a fourth bell button.

- **Configuration**
  Use the PABX configuration program to specify the call distribution to internal and external subscribers, the type of signaling (group calls), linkage with a calendar, and the duration of a door terminal phone call. The numeric codes to operate the door opener can be customized in the configuration programme.

10_0_1_3 »Alarm call«

Alarm input makes it possible to use the PABX to monitor a variety of different functions (for example the water level in your aquarium). The corresponding sensors are connected to the PABX as needed. Alarms can be signaled internally or externally. You have the option of selecting an acoustic (voice announcement) or a text message (UUS) and set a PABX switching contact to be activated, for example, to turn on a light

10_0_1_4 Alarm call«

Ports at the door terminal module and the analog ports of the PABX unit's base module are available as alarm inputs. Up to max. 8 alarm inputs (10 with an »extension«), depending on PABX unit, can be configured. Alarm inputs of the analog ports are short-circuit protected and are switched with inputs a and b to trigger the signal. If the initiating alarm input is activated again during an ongoing alarm call, this signal is ignored. The internal extension of the analog port is assigned to the alarm input in the configuration program. If the alarm call is initiated from a different alarm input, a further alarm call is made. Every door terminal module has an alarm input. A display message can be specified in the configuration program for alarm calls to system phones. This requires setting up a virtual subscriber as an internal subscriber. This subscriber can be named, for example aquarium. A signaled alarm call is then displayed with the internal extension and name of the virtual subscriber. You can assign different virtual subscribers to all alarm inputs or one or several to the same name.

10_0_1_5 Signaling of the alarm input

- **If this alarm input is connected, a signal will be transferred:**
  - — to a switching contact on the door terminal module.
  - — to the internal extension numbers entered in the alarm call list and to the switching contact (if configured).
  - — to one of the two possible outside telephones and (if configured) to the switching contact.
  - — with a preconfigured text message in addition to the alarm call.

10_0_1_6 Signaling of an alarm call at a switching contact

If a switching contact of the door terminal modules is configured as an alarm output, this contact is then closed for a user-defined period of time (default setting is 3 seconds).

10_0_1_7 Signaling of an alarm call at an internal telephone

Internal analog telephones are called for a time specified in the configuration with the alarm call timing and ringing tone pattern. The alarm call for ISDN telephones must be set in accordance with MSN signaling for these phones. When the user that is called lifts up the handset he/she will then hear the signal tone. An additionally set up answering machine or voice application results in a message of the answering machine or the voice application. The alarm input number configured during configuration is then shown in the display of ISDN telephones and of analog telephones equipped with the CLIP function. If a telephone is busy, the call waiting function is initiated, provided this feature has been configured. A maximum of 8 subscribers can be programmed per alarm call. If an alarm call cannot be put through immediately (e. g. called party is busy and call waiting is not possible), the call is repeated after the programmed alarm calling time has expired.

10_0_1_8 Signaling of an alarm call at an external telephone

The alarm call is signaled for a set time at the first telephone entered in the list. If the user does not answer, or if the phone is busy, the second telephone entered in the list is called. If the second user does not answer, or if the phone is busy, the first user is called again. This procedure can be repeated up to 3 times. When the user that is called lifts up the handset he/she will then hear the signal tone. If an answering machine or other voice application has been set up additionally, the receiver of the call hears the prerecorded message from that answering machine or the voice application. If an alarm call cannot be put through immediately (e. g. no outgoing ISDN line available), the call is repeated up to 6 times when a pre-programmed alarm calling period has expired.

10_0_1_9 Answering machine:

The answering machine may be an analog device, an ISDN device, or a PC having ISDN access. If you wish to activate an answering machine for an alarm call you must allocate an internal phone number to the answering machine in PC configuration.

10_0_1_10 Alarm call with text message

A text message with up to 16 characters can be sent together with the alarm call to terminal devices configured for this purpose. This text has to be defined and saved first and can then be sent with every alarm call. The UUS1 feature is used in this case. Messages to be sent to an external target require that the UUS1 feature has been activated by the network service provider.

Note:
The alarm call always has priority! If an alarm call is to be signaled at an external phone, but all of the external ISDN connections are busy, one of these connections will then be terminated and the alarm call signaled via this connection.

Only the analog ports of the base modules are available as alarm inputs. Module inputs cannot be used. Up to max. 10 alarm inputs (0... 9), depending on PABX unit, can be configured. A maximum of 2 external receiving parties can be programmed per alarm call.

- **Configuration**
  The configuration program features input Me4 of the entrance access phone module as the alarm call port. An analog port used as alarm input is no longer available for telephony functions.

- **You can configure the following for an alarm input:**
  — Alarm call »Off« or transferred to an internal or external telephone.
  — The number to be displayed.
  — The physical location of the alarm input.
  — Utilization of answering machine or voice announcement.
  — The signaling duration.
  — A text message of up to 16 characters.
  — 8 internal or 2 external targets.

10_0_1_11 Switchingorder

You would like to activate your exterior lights or the garage door using your internal or your mobile telephone. Switching contacts make this possible. You dial a numeric code and the garage door starts moving. If you are utilizing functions from an external location, a PIN is required as well for security reasons.

Each of the PABX's door terminal modules is fitted with two switching contacts (Ma1-Ma2 and Zw1-Zw2). Switching contacts can be programmed as on/off switches or as buttons. When programmed as a button, the switching time can be set to between 1 and 999 seconds. A specific code allows you to trigger the corresponding function either internally or externally (remote action). When installing, please be sure to not exceed the maximum load for the switching contacts and adhere to possible safety regulations. You can also use switching contacts for actuating second and central bells and for alarm calls.

10_0_1_12 Triggering switching contacts from an external location

This feature enables you to trigger a switching contact from an external phone. You can trigger contacts by means of the service access. In order to trigger the contact, dial the service number (internal virtual subscriber) of your ISDN access on your external phone. The PABX uses the 6-digit PIN2 to check the authorization for switching contact activation from an external location.

Note:
In the event of a loss of power and after a reset the switching contacts of a door terminal module are idle. For more information on usable switching contacts please refer to the assembly instructions. Please that you must first assign the service number to an MSN during configuration and enable your system for remote access to »Trigger switching contacts from an external location«. The factory setting of the 6-digit authorization PIN 2 is »000000«. You must change this PIN, as otherwise you will not be allowed access to the PABX system.

10_0_2 Call signaling (group ringing)

The group call function is also called the team function. Different signaling options can be defined individually for each team. In an order processing department, for example, it can be useful when the next available employee is always able to take the call. In the Service team, all telephones are called simultaneously, for examplec. Various setting options, such as the calendar function, deflection to a different team, etc., make this system extremely flexible and ensure that calls are quickly answered. During peak times, other team members can simply log in at the push of a button.

You can place a call to the members of a team or of the door terminal list using the group call feature. A distinction is made between the following types of call signaling:

- **Simultaneous signaling:**
  All assigned terminal devices are called simultaneously. If a telephone is busy call waiting can be initiated.

- **Linear signaling:**
  All assigned terminal devices are called one after the other, as entered in the configuration. If one terminal device is busy, the next available one is called. The call is signaled for around 15 seconds at each subscriber. You can set this time to between 1 and 99 seconds during configuration (for each team). There is no call forwarding time involved for users that are currently making phone calls or are logged out. The call is then no longer made »simultaneously on No Answer«. The caller will then hear the busy signal.

- **Rotating signaling:**
  This type of call is a special variant of the linear team call. After all of the terminal devices of a team have been called the call is signaled again at the first terminal device. The call is signaled until either the caller hangs up, or until the call is terminated by the exchange (after around 2 minutes).

- **Adding signaling:**
  The terminal devices are called in the order that they have been entered in the subscriber list in configuration. Each terminal device that has already been called will continue to be called until all of the devices that are entered have been called. In configuration you can define when the next terminal device is to be called each time.

- **Simultaneous signaling on no response:**
  You have configured your system for rotating or linear team calls. You can configure your system such that when the set time expires, all team members are called in parallel (simultaneously). A prerequisite for this is that the sum of the forwarding times never exceeds the »Simultaneous on no response« time. There are 4 subscribers in a team. The forwarding time for each subscriber is 10 seconds (amounting to a total of 40 seconds for all subscribers). The »Simultaneous on No Answer« time is set to 38 seconds. Each subscriber is called. If a subscriber logs out of the team, or is busy, only 30 seconds forwarding time remains. no »Simultaneous on no response« call occurs anymore.

- **Even distribution:**
  You can configure this feature for a maximum of 10 teams, 16 subscribers each. »Rotating ringing« distributes calls evenly, thus ensuring all members of a team receive the same number of calls. A »Post-processing period« (0...999 seconds) for parties who have just completed a call can be configured centrally for all teams / extensions. During that period no further calls will be received. Calls that the subscriber receives via his/her own number, and not via the team, and calls which he/she initiates, are not included in the »even distribution« function. Even distribution starts with the party who has not received a call for the longest period, or, on restart, with the first subscriber on the list. Any subscriber who logs out of the team

(code or function key) is no longer included in »even distribution«. The existing calculation for »even distribution« is deleted and the process begun from the beginning in the event of a loss of power to the PABX, or after (re)configuring the PABX. If all subscribers are in the »post-processing period« an external call will then be switched to the configured return targets; internal callers will hear a busy signal. If the same time is calculated for several extensions on completion of their last call, the order is determined by the order of entries in the »Internal assignment«.

Note:
When setting the »Forwarding time« for the individual team members entered in the »Internal assignment list« please remember that this time period must not exceed the time interval for parallel calling of all team members. Otherwise, those team members that are outside of this time frame will not be called at all.

- **Configuration**
  The type of call signaling is configured separately for each call mode during team building and door intercom setting.

10_0_3 Answering machine

The answering machine may be an analog device, an ISDN device, or a PC via an ISDN connection. If you wish to activate an answering machine for an alarm call you must allocate an internal phone number to the answering machine in PC configuration.

10_0_4 Text message

A text message with up to 16 characters can be sent together with the alarm call to terminal devices configured for this purpose. This text has to be defined and saved first and can then be sent with every alarm call. The UUS1 feature is used in this case. Messages to be sent to an external target require that the UUS1 feature has been activated by the network service provider.

10_1 Door_terminal_»General«_tab

10_1_1 Door terminal bell

You can link up to four bell buttons (see settings under »System type«, »Special slots«) to each TFE module. The possible number of bell buttons depends on the used door intercom and the configuration of the PABX.

— You can define for each bell button where signaling is to be carried out when a doorline button is pressed.

— Calls can be signaled at internal or external telephones.

— A door terminal call mode »Day« or »Night« is assigned to each of the bell buttons. Selection is made via Door terminal Ring Day or Door terminal ring Night.

— You can also program an outside number for the door terminal call mode. When the door bell button is pressed, the call will be routed to the programmed outside number External assignment.

— The communication cost accrued for door entry calls forwarded to external parties will be charged to the internal door terminal number.

See also:

»Door terminal General« tab,

»Variant« tab

10_1_2 General

10_1_2_1 Call assignment door terminal bell

Settings under the »General« tab: »Day/night calendar« (»Calendar«) In the »Day/Night/Calendar« field you can set the changeover times/dates for the Day/Night call modes.

- **The following settings are possible:**
- **None:**
  switching can be done manually from a terminal device.
- **Calendar 1:**
  switching is carried out using calendar 1.
- **Calendar 2:**
  switching is carried out using calendar 2.
- **Day or Night::**
  this setting can be defined after transfer of the configuration into the PABX system.

10_1_2_2 Signaling duration

— You can set the duration for the door entry phone call for each doorline button individually. A door entry phone call is signaled at the party being called during this time.

10_1_2_3 Collective call functions

Here, enter the time that must expire before a call is forwarded to a different terminal device if it is not taken at the first device called, and the time that must expire before a call that is not taken is to be signaled in parallel at all the configured terminal devices.

See also:

»Variant« tab

The door intercom device, however, can only be used by those terminal devices (for example for unlatching the door) that have the corresponding door terminal call privileges assigned.

10_1_3 Variant

10_1_3_1 Assignment

In the »Assignment« field you can define whether pressing of a doorbell button rings an internal or external telephone set.

- **Internal:**
- **External:**

10_1_3_2 »Signaling«

Ringing tones to be used at the target subscribers for the door entry call can be defined in the »Signaling« field.

A distinction is made between the following signaling types:

— Simultaneous

— Linear

— Rotating

— Accumulating

— Linear, simultaneous on No response

— Rotating, parallel per time

10_1_3_3 Internal assignment

- **Subscriber list:**
  In the field the internal parties can be selected at which the door entry phone call is to be signaled. You can select up to 8 internal extension numbers here.

10_2 Alarm_call

10_2_1 Alarm call

Alarm input makes it possible to use the PABX to monitor a variety of different functions (for example the water level in your aquarium). Alarm calls can also be used in the nursing home sector. The corresponding sensors are connected to the PABX as needed. Alarms can be signaled internally or externally. You can also configure acknowledgement of an alarm call at an assigned phone by the person being called.You have the option of selecting an acoustic (voice announcement) or a text message (UUS) and set a PABX switching contact to be activated, for example, to turn on a light. If the PABX system is equipped with a Smart-Media Card you can also define a protocol for the alarm call in the configuration.

Ports at the door terminal module, the contacts module and the analog ports of the PABX unit's base module are available as alarm inputs.

The following alarm inputs and switching contacts, depending on PABX unit, can be configured:

PABX	Base module Alarm inputs	contacts	Door intercom moduleAlarm inputs	Max. number for each PABX				
				contacts	Alarm inputs	contacts	Alarm inputs	contacts
elemg ICT 46	6	—	1	2	6	3	12	3
elmeg ICT 88	8	—	2x1	2x2	2x6	2x3	20	6
elmg ICT 880 /880-rack	8	—	2x1	2x2	2x6	2x3	20	6
elmeg ICT 880 /880-rack with xt-extension / xt-rack	8+4	—	4x1	4x2	4x6	4x3	36	12

— Alarm inputs of the analog ports are short-circuit protected and are switched with inputs a and b to trigger the signal.

— The alarm input of the door intercom module is short-circuit protected and is triggered when the inputs Me4 and +24V are being connected.

— The alarm inputs of the switching contact module are short-circuit protected and are triggered when the inputs M and M6...M6 are energized. Be sure to connect 4.7 kOhm to all unused alarm inputs to prevent any unnecessary fault messages.

If the initiating alarm input is activated again during an ongoing alarm call, this signal is ignored. The internal extension of the analog port is assigned to the alarm input in the configuration program. If the alarm call is initiated from a different alarm input, a further alarm call is made. A display message can be specified in the configuration program for alarm calls to system phones. This requires setting up a virtual subscriber as an internal subscriber. This subscri-

ber can be named, for example aquarium. A signaled alarm call is then displayed with the internal extension and name of the virtual subscriber. You can assign different virtual subscribers to all alarm inputs or one or several to the same name.

Note:
The alarm call always has priority! If an alarm call is to be signaled at an external phone, but all of the external ISDN connections are busy, one of these connections will then be terminated and the alarm call signaled via this connection.

In addition to the alarm inputs on the door intercom module and the switching contact modules, only the analog ports of the base module are available as alarm inputs. The modules' analog ports cannot be used for this. Up to max. 36 alarm inputs, depending on PABX unit, can be configured. A maximum of 2 external receiving parties can be programmed per alarm call.

An analog port used as alarm input is no longer available for telephony functions.

10_2_1_1 Signaling of the alarm input

- **If this alarm input is connected, a signal will be transferred:**
  - — to a switching contact on the door terminal module.
  - — to a switching contact on the door terminal module
  - — to the internal extension numbers entered in the alarm call list and to the switching contact (if configured).
  - — to one of the two possible outside telephones and (if configured) to the switching contact.
  - — Signaling of an alarm call at a switching contact
  - — If a switching contact of the door terminal modules is configured as an alarm output, this contact is then closed for a user-defined period of time (default setting is 3 seconds).

- **Configuration**
  Define where the alarm call is to be signaled.

  You can configure the following for an alarm call:

- **Off**

- **internal**

- **external:**

- **Position of the alarm input.**
  Enter a »Position« for the desired alarm input.

- **Signaling duration.**
  Enter the signaling duration.

- **Acknowledgement / Logging:**
  Use this option to specify whether the alarm call is to be acknowledged via DTMF or if a protocol on the smart media card is to be used.

- **Redial:**
  Setting the number of alarm call redials.

- **Alarm call ringing:**
  Enter the internal extension number to be presented at the called terminal devices.

- **Answering machine:**
  If a voice announcement is to be made to the party being called enter the internal extension number for the appropriate answering machine.

- **Text message:**
  If a set text message is to be shown in the display of the party being called enter this text in the Text message field. This text is restricted to 16 characters including spaces.

- **Internal assignment:**
  In the »Internal assignment« field under »Subscriber list« you can select the internal extension to whom the alarm call is to be signaled. You can select up to 8 internal extension numbers here.

- **External assignment:**
  In the »External assignment« field you can enter two external numbers to which the alarm call is to be signaled.

10_2_2 02_Internal variant

— Internal analog telephones are called for a time specified in the configuration with the alarm call timing and ringing tone pattern.

— The alarm call for ISDN telephones must be set in accordance with MSN signaling for these phones.

— When the user that is called lifts up the handset he/she will then hear the signal tone.

— If an answering machine has also been configured, the user will also hear the announcement by the answering machine.

— The alarm input number configured during configuration is then shown in the display of ISDN telephones and of analog telephones equipped with the CLIP function.

— If a telephone is busy, the call waiting function is initiated, provided this feature has been configured.

— A maximum of 8 subscribers can be programmed per alarm call.

— If an alarm call cannot be put through immediately (e. g. user is busy and call waiting is not possible), it will be repeated as configured.

10_2_3 External variant

Two external subscribers can be entered for an alarm call. The alarm call is signaled for a set time at the first telephone entered in the list. If the user does not answer, or if the phone is busy, the second telephone entered in the list is called. If the second user does not answer, or if the phone is busy, the first user is called again. This procedure can be repeated up to 6 times. When the user that is called lifts up the handset he/she will then hear the signal tone. If an answering machine has also been configured, the user will also hear the announcement by the answering machine. If an alarm call cannot be put through immediately , the call is repeated when a pre-programmed alarm calling period has expired.

10_2_3_1 Settings

In the default state, the alarm call feature is not active.

— To have the alarm call propagated to external subscribers open the alarm call configuration by double clicking and make the following configuration settings.

— »Signaling« defines which number will be shown in the display of the target subscriber for the alarm call.

— The signaling duration is set to 60 seconds. When the alarm input is activated an alarm call is signaled for 60 seconds at the subscribers entered in the internal assignment list (subscriber list), or, if »external« has been selected, the call will be forwarded to the external number that has been entered.

— When accepting an alarm call the user hears the alarm call tone or the voice announcement from an answering machine.

— To make internal assignments in the subscriber list. Under »Location of alarm input« you can define the analog connection, door terminal or contact module to which this alarm input is to be assigned.

— Under »Answering machine« select the internal extension number for the answering machine or the announcement message.

— »External assignment« - »Subscriber list«. Select the number for the subscriber to whom the alarm call should be signaled.

Note:
The alarm call always has priority! If an alarm call is to be signaled at an external phone, but all of the external ISDN connections are busy, one of these connections will then be terminated and the alarm call signaled via this connection.

The modules' analog ports cannot be used for this. An analog port used as alarm input is no longer available for telephony functions. Up to max. 36 alarm inputs, depending on PABX unit, can be configured. A maximum of 2 external receiving parties can be programmed per alarm call.

Configuration

You can configure the following for an alarm input:

— Alarm call »Off« or transferred to an internal or external telephone.

— The number to be displayed.

— The physical location of the alarm input.

— Answering machine operation.

— The signaling duration.

— 8 internal or 2 external targets.

— Redial

10_2_4 Alarm call logging

10_2_4_1 Logging of alarm calls

You can define for all alarm inputs whether a record is to be prepared for the function sequences for that input. A Smart-Media Card must be plugged into the system for this.

- **The alarm call data record contains the following information:**

  — Internal extension number of the alarm call connection, date, time

  — Extension number of the phones which accepted the alarm call

  — Alarm call status:
  Time, when the alarm call was placed
  Time, when the alarm call was acknowledged
  Acknowledgement by the target subscriber
  Local alarm call acknowledgement

  — If all target subscribers are busy, only the time at which the alarm call was initiated is recorded.

You can view the records using the »ELMEG WEB-Interface« program.

10_2_5 Alarm call acknowledgement

10_2_5_1 Acknowledging alarm calls

- **»DTMF« has been configured.**
  The called subscriber accepts the alarm call and acknowledges it by entering any four digits. The call is then terminated by the PABX.

- **»DTMF« has not been configured.**
  - The alarm call is terminated for internal signaling when the handset of any of the subscribers being called is lifted, or when the set number of »Repeats« expires.
  - For an external subscriber the alarm call is terminated when the handset of any of the subscribers being called is lifted, or when the time set for »External alarm call« expires. The call is terminated after this time even if not all of the repeat attempts have been made.
  - Alarm calls can be acknowledged by internal and external subscribers. You can configure the subscriber at which an alarm call is to be signaled. The target phone must, however, have tone dialing (dtmf) capabilities and the »DTMF« function must be configured. If a subscriber lifts the handset to accept an alarm call and does not acknowledge the call the alarm call will then be put through again to all subscribers after the defined repeat period. You can also enter the destination for »Local acknowledgement«.
  - The »DTMF acknowledgement« time is set under »General«
  - The signaling duration and the number of redials can be set up during configuration.

- **Local alarm call acknowledgement**
  One subscriber can be entered for alarm call signaling. Local acknowledgement can be made at this telephone using the code *537.

10_2_6 Alarm call signaling

Signaling of the alarm input

- **If this alarm input is connected, a signal will be transferred:**
  - to a switching contact on the door terminal module.
  - to a switching contact on the door terminal module
  - to the internal extension numbers entered in the alarm call list and to the switching contact (if configured).
  - to one of the two possible outside telephones and (if configured) to the switching contact.
  - with a preconfigured text message in addition to the alarm call.

10_2_6_1 Signaling of an alarm call at a switching contact

If a switching contact of the door terminal modules is configured as an alarm output, this contact is then closed for a user-defined period of time (default setting is 3 seconds).

10_2_6_2 Signaling of an alarm call at an internal telephone

Internal analog telephones are called for a time specified in the configuration with the alarm call timing and ringing tone pattern. The alarm call for ISDN telephones must be set in accordance with MSN signaling for these phones. When the user that is called lifts up the handset he/she will then hear the signal tone. An additionally set up answering machine or voice application results in a message of the answering machine or the voice application. The alarm input number configured during configuration is then shown in the display of ISDN telephones and of analog tele-

phones equipped with the CLIP function. If a telephone is busy, the call waiting function is initiated, provided this feature has been configured. A maximum of 8 subscribers can be programmed per alarm call. If an alarm call cannot be put through immediately (e. g. user is busy and call waiting is not possible), it will be repeated as configured.

10_2_6_3 Signaling of an alarm call at an external telephone

Two external subscribers can be entered for an alarm call. The alarm call is signaled for a set time at the first telephone entered in the list. If the user does not answer, or if the phone is busy, the second telephone entered in the list is called. If the second user does not answer, or if the phone is busy, the first user is called again. This procedure can be times repeated up to 10 times. When the user that is called lifts up the handset he/she will then hear the signal tone. If an answering machine or other voice application has been set up additionally, the receiver of the call hears the prerecorded message from that answering machine or the voice application. If an alarm call cannot be put through immediately , the call is repeated when a pre-programmed alarm calling period has expired.

10_3 Swichting_order

10_3_1 Swichting order

You would like to activate your exterior lights or the garage door using your internal or your mobile telephone. Switching contacts make this possible. You dial a numeric code and the garage door starts moving. If you are utilizing functions from an external location, a PIN is required as well for security reasons.

- Each of the PABX's door terminal modules is fitted with two NO switching contacts (Ma1-Ma2 and Zw1-Zw2).
- The contract module has three switching contacts C1...C3 per module to be used as changeover switches.

The switches on the Contacts module are designed as changeover contacts, and as make contacts on the TFE module. Contact K1 on the Contacts module is provided with »spark suppression«. The switching time can be set to between 1 and 999 seconds. A specific code allows you to trigger the corresponding function either internally or externally (remote action). When installing, please be sure to not exceed the maximum load for the switching contacts and adhere to possible safety regulations. You can also use switching contacts for actuating second and central bells and for alarm calls.

10_3_1_1 Switching contacts from external location

This feature enables you to trigger a switching contact from an external phone. You can trigger contacts by means of the service access. In order to trigger a contact remotely from an external telephone set, dial the subscriber number of your ISDN access that has the internal service number (internal virtual subscriber) assigned as per your configuration. The PABX uses the 6-digit PIN2 to check the authorization for switching contact activation from an external location 2.

Note:
In the event of a loss of power and after a reset the switching contacts of the door intercom module and the switching contact modules are idle. For more information on usable switching contacts please refer to the assembly instructions.

- **Configuration**
  Please that you must first assign the service number to an MSN in the configuration setup and enable remote access to your system to trigger the switching contacts from an external location. The factory setting of the 6-digit authorization PIN 2 is »000000«. You must change this PIN, as otherwise you will not be allowed access to the PABX system.

  You must assign the function »Switch / Button« and the »Location of switching contact« (module on which the desired contact is located) to a »Switching order . These contacts can be located either on the Contacts module (3 each), or on the TFE module (2 each).

10_3_1_2 Assignment

- **In the »Assignment« field you can assign the switching contact to the following functions:**
  — Shipping configuration of PABX
  — »Switch / Button «.
  — »Alarm output«.
  — »Voice announcement«.
  — »Second bell«.
  — »Central bell«.
  — »Door terminal bell«.

10_3_1_3 Location of switching contact

Select the appropriate door intercom or switching contact module And the desired contacts.

- **Ringing tone length::**
  Enter for how long you want to have the switching contact energized.

- **Alarm call:**
  Select the party who should receive the alarm call.

- **Internal assignment:**
  Select the internal party for whom you want to set up the second bell.

- **External number:**
  If the alarm call should be signaled to an external party, use ths option to specify the subscriber number.

- **Door terminal bell:**
  Together with the doorbell button, you can have a a relay contact energized.
  Please select the desired doorbell. The switching contact entered under switching contact location is energized with the timing of the ringing tone.

10_3_2 On / Off switch / Button

A switching contact can be activated or de-activated, or be closed for a signaling period set in the configuration program, by dialing a set code. You can set this signaling period to between 0 and 999 seconds as required by your particular needs. The factory setting is 3 seconds. A switching contact can also be configured as a key. After a disruption in the 230 V~ power system, the switching contacts will be in idle (sleep).

See also:

»Swichting order«

»Signaling«

Note:
Refer to the operator's manual for instructions on using the switching contacts with the telephone. When installing, please be sure to not exceed the maximum load for the switching contacts and adhere to possible safety regulations.

10_3_3 External subscriber (central bell)

You cannot hear your telephone because you are frequently outside the office or in the shop? A central bell may be useful here. This bell rings together with your phone or with incoming calls only. You can then pick up the call yourself on your phone or have any authorized subscriber who hears the central bell ring accept the call.

10_3_3_1 Central bell

In the configuration you can program one of the door terminal's or switching contact module's contacts to be actuated within the ringing cycle when a preprogrammed terminal is called. If a bell is connected to this switching contact, it will always ring when the corresponding MSN extension is called from an external number. This setup is designated central bell.

Note:
The PABX provides only the switching contact. The bells must be supplied by an external power source. For more information please refer to the assembly instructions.

The second bell can be assigned to a team number.

- **Configuration**
  During PABX configuration you can program the various paramaters for the switching contacts.

10_3_4 Location of switching contacts

You can choose between the alarm inputs for the door terminal or the Switching Contacts module.

Location of switching contacts:

Professional Configurator designation	Contact designation Module	Codes for the swichting order
TFE-1: No. 1	Ma / Ma1	01
TFE-1: No.2	Zw1 / Zw2	02
Contacts module-1: K1	K1	01
Contacts module-1: K2	K2	02
Contacts module-1: K3	K3	03

The count is incremented by one for each module plugged in. Example for two door terminal modules:

Professional Configurator designation	Contact naming on module	Codes for the swichting order
TFE-1: No. 1	Ma / Ma1	01
TFE-1: No.2	Zw1 / Zw2	02
Door terminal-2: No. 1	Ma / Ma1	01
Door terminal-2: No.2	Zw1 / Zw2	02

10_3_5 Internal subscriber (second bell)

You cannot hear your telephone because you are frequently outside the office or in the shop? A central bell may be useful here. This bell rings together with your phone or with incoming calls only. You can then pick up the call yourself on your phone or have any authorized subscriber who hears the central bell ring accept the call.

10_3_5_1 Second bell

As defined in the configuration, a switching contact is actuated in the ringing cycle when a specific terminal is called. If a bell is connected to this switching contact, it will ring when this terminal is called. This setup is designated second bell.

Note:
The PABX provides only the switching contact. The bells must be supplied by an external power source. For more information please refer to the assembly instructions.

The second bell can be assigned to a team number.

- **Configuration**
  During PABX configuration you can program the various paramaters for the switching contacts.

11 Calendar

11_0_1 Calendar

Every company has fixed business hours. These hours can be saved in an internal calendar of the PABX. For example, you can signal all calls after business hours at an operator set or an answering machine. Your employees can now work without being constantly interrupted by telephone calls. The calendar automatically switches the individual call modes of a team.

For example, let's say you wish to change the authorization privileges for a certain user for after business hours. When configuring your PABX you can specify separately for each user whether that user's authorization for external calls is to be changed over automatically. Changeover is performed in accordance with the data in the assigned calendar.

You can set up distinct calendars in the PABX. It is also possible to change over have changeover between a day and night call mode performed automatically at a time you specify. Different day/night changeover times can be selected for each day of the week. A calendar consists of several switching times, which, in turn, can be specifically assigned to the individual days of the week.

All features with several possible call modes (for example teams) can be assigned a calendar when configuring. Switching between different call modes then takes place at the switching times of the assigned calendar.

A »calendar controlled router inhibition« can also be set up. This defines the time of day an Internet connection can be established via the router. Calendars 1 or 2 can be selected for this.

Note:
An assigned calendar replaces manual switching between individual call modes. When call modes have been switched manually, the system resumes automatic call mode switching under calendar control when the next scheduled event on the calendar occurs.

See also:

»Internal subscriber: Switching functions« tab.

»Team building: Switching functions« tab.

»Switchable exchange line access«.

11_0_2 Setting up a calendar

You can organize two completely independent calendars in the configuration of the PABX system.

The general view of the calendars shows the individual days of the week.

- **The active switching times are also displayed next to each weekday.**
  - — Select a calendar entry.
  - — Double clicking the selected list field displays an input dialog.
  - — The switching points are displayed with the associated times (hours, minutes) in the dialog window.
  - — Enter the time for a switching point using the keyboard, or select the time using the arrow keys next to the input panel.
  - — Then select the desired switching function from the list.
  - — Continue configuring the further switching points or weekdays.

Note:
After you have confirmed input for a weekday by clicking »OK« the active switching points will be sorted by their set

times (in ascending order).

11_0_3 Example for a calendar

- **Example for calendar 1**
  The example shows the calendar of a company. Office hours start at 7 a. m. Mondays through Fridays. Lunch break is from 12: 15 to 12: 45. Office hours end at 6 p. m. On Fridays, the fixed lunch break is omitted but quitting time is at 2 p. m. An emergency service is available on Saturdays from 9 a. m. to 12 noon. Sunday is not a business day.

Week day	Switching point 1	Time	Switching point 2	Time	Switching point 3	Time	Switching point 4	Time
Monday	Activate day mode	7:00	Activate night mode	12:15	Activate day mode	12:45	Activate night mode	18:00
Tuesday	Activate day mode	7:00	Activate night mode	12:15	Activate day mode	12:45	Activate night mode	18:00
Wednesday	Activate day mode	7:00	Activate night mode	12:15	Activate day mode	12:45	Activate night mode	18:00
Thursday	Activate day mode	7:00	Activate night mode	12:15	Activate day mode	12:45	Activate night mode	18:00
Friday	Activate day mode	7:00	Inactive		Inactive		Activate night mode	14:00
Saturday	Activate day mode	9:00	Inactive		Inactive		Activate night mode	12:00
Sunday	Inactive		Inactive		Inactive		Inactive	

12 Dial_ranges

12_1 Dialing control

You want to prevent the dialing of certain telephone numbers in the PABX, for example telephone numbers of expensive added value services. Enter these telephones numbers or partial numbers into the inhibit filter list of the call control feature. All subscribers subject to call control are no longer able to dial these telephones numbers. If some inhibited telephone numbers have to be dialed frequently after all, release these numbers using the enabled call control feature.

The dial filter distinguishes between restricted numbers (10) and unrestricted numbers (60). Restricted numbers can either be telephone numbers or area codes. You can use unrestricted numbers for allowing specific telephone numbers or area codes to be dialed by a subscriber. If an unrestricted number is longer than a restricted number, you can dial this number. When you dial a number, dialing is discontinued after dialing a restricted digit and you will hear the busy signal.

You can assign restricted and unrestricted numbers to each terminal device individually.

- **Example:**
  Inhibited list entry 01, all external telephone numbers starting with 01 are inhibited. Unrestricted number: 012345 (this number can be dialed). All external telephone numbers starting with 012345 can be dialed.

  If two identical telephone numbers (same series of digits and same number of digits, e. g. 01234 and 01234) are entered both as restricted and unrestricted numbers, the numbers cannot be dialed.

See also:

Restricted number

Unrestricted number

Note:
Unrestricted numbers are used to authorize subscribers with local only or incoming- receive only authorizations to dial the external released telephone number. The settings for »Regional numbers« are regulated by the dial filter.

— The number for the system telephone firmware update server has already been entered in the default settings.

— Numbers that are dialed via the »outgoing service call« are not subject to dialing control.

— Make sure the area code is entered into the configuration or the restricted number can be circumvented by dialing the area code first.

— Assign the inhibit and enabled lists to individual internal subscribers.

12_2 Dialing control

The call control function contains various settings which can have an effect on external and internal calling of a subscriber.

- **Restricted number**
- **Dialer protection**
- **Unrestricted numbers**
- **Emergency calls**
- **Regional numbers**

12_2_0_1 Line access authorization

Here, enter the codes for international and domestic dialing and the code for local calls.

12_2_0_2 »Area code«

Here, enter the »local area code« for the location where your PABX is installed. It is imperative that this local area code is given for point-to-point connections, as otherwise automatic call-back to external, for example, would not be possible.

12_2_0_3 Country code

Here, please enter the number for the country code. This entry is required when you wish to have an international number generated automatically, for example, under »SIP Provider«. Dial as always the national prefix code, for example 05151 909999, and the PABX then automatically dials +495151 909999. If you fail to enter the country code the system may dial the wrong number; the PABX system would then dial +5151 909999. You must always dial the complete number, including country code if no entries have been defined for »Dial international numbers« and »Country code« for SIP providers.

Note:
Nicht all SIP providers support the settings discussed above.

12_3 Restricted numbers

You can program up to 10 restricted telephone numbers.

12_3_1 Adding a restricted telephone number

— Click to select one of the table cells.

— Double clicking the selected list field displays an input window.

— In the input dialog window you can enter the required prefix, partial number or the complete number (without line access digits). Finally confirm your entries by clicking »OK«.

This number will then be present in the inhibit filter number list.

12_4 Unrestricted numbers

12_4_1 You can program up to 60 unrestricted telephone numbers.

— Click to select one of the table cells.

— Double clicking the selected list field displays an input window.

— In the input dialog window you can enter the required prefix, partial number or the complete number (without line access digits). Finally confirm your entries by clicking »OK«.

The number will then be available as an enabled number entry.

12_5 Dialer protection (unrestricted data)

Dialer protection monitors all external "data links" of internal subscribers. This function provides protection against inadvertent dialing of extra pay numbers, in Germany so-called "190" numbers. In the initial state dialer protection is deactivated. When dialer protection is active the numbers assigned for »outgoing service connection« and LCR download through »Win Tools« are enabled as well. The number must already be entered in dialer protection when LCR download is made via the PC (with ISDN card on the internal ISDN bus) (firmware version up to 1.3).

You can define dialing for set destinations (up to 30) in configuration. Only these numbers can be reached for data communication links (64kBit/s). These numbers can also be used for making telephone calls.

Please that all data communication links made via an ISDN PC card are monitored.

The following are monitored:

— Analog extensions configured for »modem« operation.

— ISDN ports whose connections are made via a PC card for »Data«.

See also:

Setting up a dialer protection

Note:
You must enter the enabled numbers in "Dialer protection" for all applications that use data services via enabled number dialing.

The ISP numbers (Internet Service Provider) that have been stored during the configuration of Internet connections for the router or the VoIP-VPN-gateway do not have to be included into the unrestricted data filter. These numbers are enabled automatically for data links.

12_6 Setting up a dialer protection

Enter the telephone number into the unrestricted number filter and enable the dialing protection to configure this particular dialing function. The factory settings of the PABX has the telephone number of the download server for elmeg phones / system phones entered and dialing protecting enabled.

— Safe Data Dial-in Number:

— Click to select one of the table cells.

— Double clicking the selected list field displays an input window.

— In the input dialog window you can enter the desired data communication number (without line access digit). Finally confirm your entries by clicking »OK«.

— The number is now stored as an entry in the unrestricted number filter.

— Enable / disable Dialer protection:
Select whether dialing protection is enabled or disabled in the field next to the phone number entry.

12_7 Emergency numbers

In an emergency the »emergency call feature« may help. Let's assume that an emergency occurs and you must urgently call the police, fire department or another important number. And to make matters worse, all external B channels of the ISDN connection are busy.

Note:
Emergency calls can only be initiated via an ISDN or POTS interface. Priority can only be assigned to emergency calls via ISDN interfaces. Priority for emergency calls at an ISDN interface:

12_7_1 Priority for emergency calls:

You have, however, "informed" your PABX of emergency numbers that must always be reachable in the event of emergencies. If you dial one of these numbers, the number is recognized by the PABX and a B channel "freed" automatically by the PABX for an emergency call.

See also:

»Emergency call numbers«

12_7_2 Emergency call telephone

You can also define telephones with emergency operation functions within the PABX system. If you dial an external number from one of these telephones, the PABX automatically "frees" a B channel for your emergency call.

- **If all external ISDN connections are busy, when you lift the handset, you will hear:**
  - — the continuous dial tone when »Dialing without prefix code«.
  - — the internal dial tone when »Dialing with prefix code«.
    When you enter the code number for seizing the external ISDN connection you will hear the continuous dial tone.

With this feature,only the external ISDN connections are released. If two calls are progressing on an internal ISDN bus, an emergency call will thus not be possible. Therefore, use an individually connected analog telephone as the »Emergency phone«.

12_8 Emergency calls

In an emergency the »emergency call feature« may help. Let's assume that an emergency occurs and you must urgently call the police, fire department or another important number. And to make matters worse, all external B channels of the ISDN connection are busy. You have, however, »informed« your PABX of emergency numbers that must always be reachable in the event of emergencies. If you dial one of these numbers, the number is recognized by the PABX and a B channel "freed" automatically by the PABX for an emergency call.

Note:
Emergency calls can only be initiated via an ISDN or POTS interface. Priority can only be assigned to emergency calls via ISDN interfaces. Priority for emergency calls at an ISDN interface:

- **Priority for emergency calls**
  You can enter up to six (6) emergency numbers during configuration. Each number can have up to 20 digits. Emergency numbers can be dialed, even if all B-channels of the PABX are busy. An external B-channel is then freed for this emergency connection. An emergency call already in progress is not interrupted.

Note:
Emergency numbers are not affected by any call authorization and routing discrimination parameters or call con-

trol that are configured.

When you are »Making calls with direct exchange line access« the external ISDN connection will be taken and you can call right away. If the external B channels are busy, a B channel is freed (released) and the parties conducting their call on that channel will hear a busy signal.

When »Making calls with prefix«, the line access digit to seize the external ISDN port has to be dialed first, for example »0«.

12_8_1 Telephone with emergency call function

You can configure a telephone connected to your PABX system as a »Telephone with emergency call function«. You can then begin dialing the external number immediately, whether the external ISDN connection is available or busy. If the external B channels are busy, a B channel is freed (released) and the parties conducting their call on that channel will hear a busy signal. An emergency call already in progress is not interrupted. You can utilize this feature independently of the »Emergency call priority« feature.

- **If all external ISDN connections are busy, when you lift the handset, you will hear:**
  - — the continuous dial tone when »Dialing without prefix code«
  - — the internal dial tone when »Dialing with prefix code«. When you enter the code number for seizing the external ISDN connection you will hear the continuous dial tone.
  - — With this feature,only the external ISDN connections are released. If two calls are in progress on an internal ISDN bus, an emergency call will not be possible. Therefore, use an individually connected analog telephone as the »Emergency phone«.
  - — Each terminal device can be configured as emergency telephone.
  - — In the event of emergency calls, the features LCR Professional, Call by Call, dialing control and call costs account are suppressed!
  - — No emergency calls can be placed via the POTS module!

- **Configuration**
  Emergency call priority: You can configure six emergency numbers in your PABX. Telephone with emergency call function: Internal subscribers can be configured as emergency telephone.

12_9 Regional numbers

The users cannot make any domestic long-distance or international calls. Regional numbers can be configured for these calling privileges; these numbers can be used to make domestic long-distance or international calls. A regional number can consist of a complete phone number or parts of a number (for example the first few digits).

12_9_1 Entering regional numbers

To add a regional number to the table use the mouse to click (select) one of the fields in the table. Double clicking the selected list field displays an input window.

In the input dialog window you can enter the required prefix, partial number or the complete number (without line access digits). Finally confirm your entries by clicking »OK«.

Note:
The regional numbers you enter here will not be affected by the restricted number filter.

- **Entering regional numbers**
  - — Click to select one of the table cells.
  - — Double clicking the selected list field displays an input window.
  - — In the input dialog window you can enter the required prefix, partial number or the complete number (without line access digits). Finally confirm your entries by clicking »OK«.
  - — This number will then be available as a regional number in the table.

See also:

Switchable exchange line access

13 changeable_access_numbers

13_1 Changeable access codes

You want to continue using the numeric codes assigned to specific features previously set up for your everyday business activities. The factory setting of the new PABX, however, has different numeric codes for these features. This is not really a problem. You can customize the numeric codes for individual features. You can continue to use these features with the previously set numeric codes.

The PABX has an integrated numeric code plan used to customize or set up individual features. Some of these numeric codes are customizable. Customizing the default PABX numeric code adds an extension from the internal telephone number plan of the system. You can then use either the codes described in the operating instructions or the customized codes for operating the system features.

- **You can change the code numbers for the following features:**
  - — Service number
  - — Speed dialing (from the telephone directory)
  - — Line Access
  - — Pick up (Pick-up of the call)
  - — Project number
  - — Pick-up, specific
  - — »Specific trunk bundle selection« (max.. 8 digits)
  - — »System parked Inquiry (max. 10 digits)
  - — Activation of a »door opener« (max. 4 digits)

Note:
A modified numeric code consists only of the corresponding internal extension even if the original numeric code was initiated with the * key or rhombus key.

It is not possible to set up codes with a different number of digits but starting with the same digits. For example, if the digit 9 has already been used for a code you cannot set up additional codes or internal extensions that also start with a 9 (as for example 99, 9911).

Only the telephone numbers set up in the configuration program are valid for the service telephone number and the line access digit. Telephone numbers of the factory setting are replaced.

see also:

Changing access codes (service number, pick-up, speed dial, project numbers, call authorizations, line access)

Programming numeric codes for system-parked inquiries

Changing numeric codes for trunk group reservation

Changing numeric codes for door opener activation

13_2 Changing numeric codes for trunk group reservation

You can change the specific trunk group selection codes for each of the trunk groups (0 ... 7) separately.

13_2_1 Programming numeric codes

— Click to select one of the table cells.

— Double clicking the selected table field opens up a selection window.

— In this window, select a trunk group selection code number from the list with internal extension numbers.

— Finally confirm your entries by clicking »OK«.

Note:
To select a specific trunk group, you can use the internal extension numbers that you have set here or the numeric codes described in the operating instructions.

See also:

Specific trunk group seizure

13_3 open queries

13_3_1 Programming numeric codes for open queries

You are talking on the telephone and would like to route this call to a colleague. However, you are unsure about your colleague's current location. Use the »system parked Inquiry« feature to keep the caller within the PABX waiting loop. You can now use your telephone for an announcement or message signaling to your colleague that he or she has a waiting Inquiry call. The numeric code of the system parked Inquiry allows the colleague to accept the call from any telephone.

This procedure is possible from analog, ISDN, and system telephones. The system parked Inquiry is initiated with the Inquiry call feature. The called party uses the inquiry call feature to dial the default numeric code (*596) or any of 4 configurable numeric codes from the internal telephone number plan. If the dialed extension is not already being used for a different system parked Inquiry, the subscriber will hear a positive acknowledgement signal and hangs up the telephone. If the negative acknowledgement signal is heard, the subscriber cancels the enquiry call and repeats the process for another internal extension released for the system parked enquiry. The external caller is switched to the internal waiting loop of the system during this system parked enquiry and will hear music (Music on Hold) or an announcement, depending on the programming. The telephone is now available for other uses, for example an announcement or message. If the call within the waiting loop is not accepted by an extension within a preprogrammed period of time , the calling party receives a call-back or a call-waiting signal. An internal subscriber can accept the call by picking up the handset and dialing the corresponding numeric code or internal extension for the call within the waiting loop.

You can specify up to 10 customized numeric codes for the system parked Inquiry feature in addition to the default code.

13_3_2 Programming numeric codes

— Click to select one of the table cells.

— Double clicking the selected table field opens up a selection window.

— In this window, select a system parked Inquiry code number from the list with internal extension numbers.

— Finally confirm your entries by clicking »OK«.

Note:
For a system parked Inquiry call, you can use the internal extension numbers that you have set here or the numeric codes described in the operating instructions.

See also:

»System parked enquiry«

13_3_3 System telephones

13_3_3_1 Function keys for waiting calls (hold buttons)

The system parked inquiry feature has been extended to include support for function keys on system telephones. This allows calls to be parked or unparked just by pressing the corresponding function keys.

- **Configuration**
  The individual codes for the »System parked inquiry« feature (max. 4) must be preset in the configuration for the PABX system. You then have to program the corresponding function keys at each system telephone that is to use this feature. In this case, one function key must be programmed for each code for system parked inquiry. »System parked inquiry« function keys can only be programmed on the first level.

- **Operation**

- **Button »System parked inquiry«**
  You only have to press the function key »System parked inquiry« to put a call in the system parked inquiry queue. After this, the corresponding LED on all the system telephones at which a function key has been programmed for this same code will start flashing. You then only have to press the corresponding key at any of these system telephones to retrieve the call from the system parked inquiry queue. The call is then taken at that phone and the LED stops flashing.

  The called subscriber uses the system-parked inquiry call feature to dial the default numeric code. The telephone is now available for other uses, for example an announcement or message. A different subscriber can accept the call when he/she lifts the handset and dials the corresponding number for the call on hold. The code numbers given by the PABX system can also be entered in the function keys for one or several system telephones. If a call is placed in the Parked inquiry queue by pressing a function key, this is indicated by the LEDs of the function keys flashing at the system telephones configured for this feature. The call can be picked up by pressing the corresponding function key. This performance feature is possible when only one call is on hold. This performance feature is also available with multiple calls on hold.

13_4 Editing the door opener codes

With a »Door terminal« module plugged into your PABX and a connected door intercom device, you can open the door using a specific code number. Individual door opener codes can be specified for each of the door terminal modules.

Programming numeric codes

— Click to select one of the table cells.

— Double clicking the selected table field opens up a selection window.

— In this window, select a door opener code number from the list with internal extension numbers.

— Finally confirm your entries by clicking »OK«.

Note:
To open the door, you can use the internal extension numbers that you have set here or the numeric codes described in the operating instructions.

See also:

Door terminal/Alarm call/Switching order

14 Hotline__Direct_calls

14_1 Direct dial-in

You would like to set up a telephone so that a specific extension number is dialed and the connection is established without having to input the extension number (for examle an emergency telephone). Say you are away from home. However, somebody at home should be able to reach you quickly and easily by telephone if needed (for example children or elderly relative). Since you have already configured the function »Direct call« for one or more of your phones, you only need to lift the handset of one of these phones. After a preconfigured time interval without any numbers being dialed the PABX will automatically dial the defined direct call number.

The PABX automatically dials a direct call number previously specified if this feature is set up for a terminal device. If you do not begin dialing a number within the specified time after lifting up the handset, dialing is begun automatically.

Direct calls can be programmed manually or by PC configuration.

- **Programming a direct dial-in**
  - — Click to select one of the table cells.
  - — Double clicking the selected list field displays an input window.
  - — Click »Use direct dial-in« if you want to activate the direct dial-in feature right after having uploaded the configuration data into the PABX.
  - — Enter the internal extension number for which you would like to configure a direct call.
  - — Enter the target telephone number for the direct call in the field »Direct dial-in number« (without line access digit.
  - — Finally confirm your entries by clicking »OK«.
  - — Direct dialing is now activated.

Note:
The PABX system recognizes by the length of the number whether you have entered an internal or external number. You therefore do not need to input a prefix code for external numbers. To change an already entered direct call number, just enter the new one without deleting the old number.

A special dial tone indicates that the direct call feature has been activated.

Keep in mind the following restriction for direct exchange line access If the waiting time for a direct call is too long (for example 30 seconds) it will not be possible to execute external dialing, as call monitoring by the exchange is then discontinued (after approx. 30 seconds).

15 Serial_interfaces

15_1 Serial interface

Use the PC interfaces of the PABX to configure the calling rhythms or use various applications.

- **The following applications can be set for a PC-port:**
  - — Standard (e.g. WIN-Tools programs, CAPI, TAPI)
  - — Communication costs printer
    Connecting a serial printer to continuously print connection records
  - — DECT300 - CLIP
    The DEC300 is a DECT-system designed for being connected to the analog port of a PABX-system. Use a serial connection between the base station and the RS232 (V.24) interface of the PABX to transfer CLIP information to the DECT system and depict this information on the display of connected handsets. This requires the CLIP cable set available as an additional accessory.

The PABX is fitted with a USB and an RS232(V.24)- interface. The expansion (xt) is equipped with a RS232 (V.24) port as well. You have to configure the used application for the serial port (RS232/V.24).

Serial interface setup

- — Select the desired interface by clicking onto the corresponding field.
- — Double clicking the selected list field displays an input window.
- — Select the application to be used with this port from the list by clicking with the mouse.
- — Confirm your selection by clicking »OK«.

Note:
Please install the USB driver from the supplied CD-ROM.

You require a PC with a USB port and the Windows 98, ME, 2000 or XP operating system.

The PABX system is a full-speed USB terminal device. A fast device of this kind supports a data transfer rate of up to 12 Mbit per second.

Power supply to the USB port of the PABX is provided through the 230 V AC mains plug, or by means of a plug-in power supply unit. You can thus connect the PABX to passive hubs or to terminal devices with an integrated hub (such as a keyboard). If you use a hub please ensure that the hub is compatible with the system in accordance with the USB Specification 1. 1.

The PABX system is a self-powered, full-speed terminal device.

Use the USB cable supplied with the system for connecting the PABX to your PC. If you have a different USB cord, please that the distance between the PABX and the PC may not be greater than five meters, depending on the type of USB cord that is used.

16 Internal_CF

16_1 Internal call forwarding

You can read or delete call forwardings configured in the pabx.

— Reading internal call forwarding data:
Click »Read« if you wish to read the data of all configured call forwardings.

The following data are displayed for each programmed call forwarding:

— Internal subscriber, whose calls are forwarded.

— Call forwarding type
(permanent
on busy
on no answer (delayed).

— Services, for which call forwarding applies.

— Call forwarding status (active).

— Telephone numbers to which incoming calls for the specified services are forwarded (target telephone numbers).

— Deleting internal call forwardings:
To delete a call forwarding, select the one you want to remove Then click the »Canceling call forwarding« button.

Note:
Depending on the specific configuration and load conditions of the pabx, call forwardings to extrnal numbers can be executed as internal or external call forwardings. This is why external call forwardings can also be displayed unter the item Internal call forwarding.

»Call forwarding by the exchange« do not show here.

17 External_CF

17_1 External call forwarding

You can export or delete call forwarding functions that have been configured at the exchange.

- **The following data are displayed for each programmed call forwarding:**
  - Running number of the external call forwarding on the list.
  - External number of the pabx which is forwarded.
  - Call forwarding type (continuous, on busy or on no reply).
  - Call forwarding service and number.

17_1_1 Reading external call forwarding data

- **Reading::**
  Click this button first to have the outgoing numbers displayed for which call forwardings have been programmed in the exchange.
- **Reading call forwarding data for selected MSN extension number:**
  Then select one of the numbers from the displayed list and click this button. The call forwarding data is then read. The outgoing number list is updated and the corresponding button is activated.

  Click the active button to display the call forwarding services and target numbers.
- **Fixed**
- **on busy**
- **Delayed:**

17_1_2 Deleting external call forwardings

You can delete each of the call forwarding services separately. For this purpose, click the button next to the line indicating the particular service and target number.

Note:
With external call forwarding functions that have been configured with the code 00 (all services), not all details about the individual services will be available after export.

18 DT_adapter

18_1 Door terminal adapter

You can also connect a door intercom unit as a TFE adapter to an analog port of your PABX system. The function module DoorLine M06 from Deutsche Telekom AG is an example of such a door intercom/door lock release device.

For example, if you have a TFE module DoorLine T01...T04 connected to your PABX system via the DoorLine M06 module you can speak with a visitor at the door from any authorized telephone in the system. You can assign certain telephones to each DoorLine bell button which will then ring when the DoorLine button is pressed. Signaling at an analog phone is made in the rhythm of the door entry call. You can also configure an external telephone, instead of an internal phone, as the call destination when the DoorLine bell button is pressed. Your door intercom can be equipped with up to four bell buttons.

The door lock release can be activated while talking through the intercom. Actuation without a door intercom call is not possible.

- **Configuration**
  The analog port that is used must be configured as a TFE adapter in the configuration for the PABX system.

  The numbers / codes that the TFE adapter dials after a bell button is pressed, and the numbers / codes for accepting a call from the TFE module must concur with the corresponding data in the PABX system.

  Use the PABX configuration program to specify the call distribution to internal and external subscribers, the type of signaling (group calls), linkage with a calendar, and the duration of an entrance access phone call.

See also:

»Internal subscribers: Analog settings« tab.

The door terminal adapter must be configured. The door terminal adapter settings must match the PABX settings. The call distribution list for the individual doorbell buttons of the door terminal adapter must be configured.

See also:

Door terminal/Bell

Note:
Please that the door lock release has to be configured after connecting to the PABX. Please consult the door intercom instruction manual for configuration information.

18_2 Door terminal configuration

After an analog port has been configured as a door intercom adapter, the corresponding entry is depicted in the door intercom adapter list. To be able to use the door intercom adapter, its settings have to match those specified in the PABX.

Select a corresponding door intercom adapter by clicking on it with the mouse in order to configure it. Double clicking the selected list field displays an input window.

In this dialog, enter the code / phone number used by the door intercom adapter.

18_2_1 Settings

- **Bell 1 .. 4:**
  Pressing a bell button on the door intercom triggers a call in the PABX. The PABX automatically recognizes the activated bell button based on the selected telephone number and forwards the call as specified. Under Bell 1 through 4 enter the telephone number you want the door terminal dial when a bell button is pressed.

- **Accepting a call:**
  Pressing a bell button on the door intercom triggers a call in the PABX. In order to establish a call connection between a called subscriber and the door intercom adapter, this subscriber has to pick up the receiver and dial the code needed to accept the call. In this dialog, enter the code / phone number used by the door intercom adapter into the corresponding field. The PABX automatically dials the numeric code to establish the call connection if a subscriber accepts a call from the door intercom adapter. Additional subscriber input is then not required.

Make other settings as described for »TFE / Alarm call / Switching order« under the tabs »General« and »Other modes».

19 Call_data—SMDR

19_1 Call data records

You would like to know who makes the most telephone calls in your company or which ISDN connection is used most. Collecting call data records provides you with an overview of the telephony behaviors within your company.

The PABX can store all external calls in the form of call data records. These records supply important information about individual calls. To comply with data privacy laws, you can specify whether to save an external extension in its entirety or in an abbreviated form.

The collected call data records can be printed with a printer connected to the PABX's serial interface. The charge program also allows you to transfer the call data records to and further process them with a connected PC. Different filters can be used to generate individual charge data printouts (for example for individual internal extensions or external ISDN access ports).

The PABX generates a call data record for every external call. The call data records contain detailed information about the call: Date and time, duration of the call, number of the called party, number of the calling party, type of connection, communication costs and possible project numbers.

In the default state, all external calls that you initiate are stored. Incoming calls can be logged in two different ways.

— Only incoming calls with a certain project numer are stored.

— All incoming calls are stored.

— Data records for coupled calls

19_1_0_1 Data records for coupled calls

A coupled call exists when an internal subscriber has configured call forwarding via the second B channel of the PABX system to an external subscriber. This can apply when »Call Deflection« or »Partial Rerouting« are not possible, or when the internal subscriber is called via a team. When logging of call data records has been configured for incoming calls two connection data records can be created for this call. One data record is generated for the incoming call and one for the call that has been forwarded to an external number. Association of the two data records is apparent from the identical date and time.

19_1_0_2 Call data record overflow

The memory for your call data records is limited. If the PABX memory has already stored a certain number of communication data sets, a communication data overflow can be indicated by system telephones. Depending on the system telephone type used, the caller list either displays the service number together with a message or the service number only. The system telephone is specified when configuring the PABX.

19_1_0_3 Output of call data records

You have two options to output the stored call data records.

- **For example:**

  — printer, PC or laptop via the RS232 interface or the USB port

  — Internal ISDN connection

  — LAN-port

19_1_0_4 Transmission of communication costs by the network service provider

There are two ways to transfer the cost of calls:

— Tariff information in units. These units are then converted to a currency value using a defined factor. The currency must be specified previously in the PABX however.

— Currency value. No conversion required in the PABX.

Ask your network provider which method is used to transmit your charge rate data. Make sure your connected terminal devices support the method that is used. The PABX system supports both transmission methods.

19_1_0_5 Output call data records again after port error

During a printing process there is no paper in the printer, or the printer is switched off. Some communication data records may thus not be printed. Using this feature, you can print out the stored call data records again in their entirety.

See also:

Programming call data records

19_2 Programming call data records

19_2_1 Call data sets for incoming calls

- **All:**
  You specify whether a record should be created for »All« connections.

- **Only with project number:**
  You can specify whether data acquisition shall start for all connections or only upon entry of a »project number«t.

19_2_2 Privacy: number truncation

If only part of the number is to be displayed for data security reasons, you can specify the number of positions that are not to be displayed. You can enter the number of hidden positions for »Outgoing calls« and for »Incoming calls« separately. The positions (numbers) are concealed from right to left (i. e. from the end of the number).

- **Outgoing connection**

- **Incoming call**

19_2_3 Call data memory overflow signal

- **Internal MSN extension number:**
  Use this option to specify at which internal telephone set the charge counter overflow shall be signaled.

19_2_4 Charge rate factor

Here, indicate the factor for the call costs.

You can enter values between 000000 and 999999 as well as factors from 1/1000 to 1000.

- **Example:**
  Let's say you wish to configure a charge factor of 0. 062 EURO for the communication cost units. First, enter the value 62. Then, select the divisor factor, in the example here 1/1000. Multiply these two values for

an amount of EUR 0.062. For example, enter 2 and 1 (for 2 euros) if you want to set up a rate unit factor of 2 euros.

19_2_5 Currency

Behind the name enter the currency (three places maximum). This entry is only a name that is not used when calculating the charge factor.

19_2_6 Charge rate pulse frequency

Select the frequency for the »Charge rate pulse«:

- **16kHz**
- **12 kHz**

19_2_7 Charge info internal S0 bus

You have three options here:

- **Keypad protocol:**
  Charge data is transferred such that it can be displayed directly by the terminal device.
- **Functional protocol:**
  Charge data is transferred with binary encoding and must be decoded by the terminal device.
- **Both:**
  Both of these protocols are recognized (default settings for the PABX system).

See also:

You want to limit costs for individual internal terminal devices since calls from these devices are excessive.

»Charge limitation«

19_3 Communication cost display and charge counter

You would like to know the cost of a call during the call or after hanging up. If your network service provider has made this rate information available on your ISDN connection then the PABX terminal devices can display this information.

19_3_0_1 Transmission of communication costs by the network service provider

- **There are two ways to transfer the cost of calls:**
  - Transfer of rate information in units. These units are then converted to a currency value using a defined factor. The currency must be specified previously in the PABX however.
  - Transfer of the currency value. No conversion required in the PABX.

Ask your network provider which method is used to transmit your charge rate data. Make sure your connected terminal devices support the method that is used. The PABX supports both these transmission types.

19_3_0_2 ISDN terminals

The communication / call charges can be displayed at ISDN terminal devices that support this feature.

19_3_0_3 Analog terminal devices

With your PABX system it is possible to transmit the charge rate information as metering pulses via the analog ports with appropriately equipped terminal devices. In the initial state transmission of the 12 or 16 kHz charge pulse is deactivated. On account of the technology used in ISDN for the connection/call cost transfer, connection/call costs may continue to be transferred even after the connection has been terminated. With all of the analog terminal devices available on the market, it may not always be possible for the charge pulse transmitted by your PABX system at the conclusion of a connection to be received properly by the terminal device you are using. Please observe the instructions in the operating manual for your terminal device.

19_3_0_4 Charge counter

The PABX manages a charge counter for each internal user on the basis of the transmitted charge rate intormation. The counter logs the costs of all calls. If your network service provider has made this rate information available on your ISDN connection then the PABX terminal devices can display this information. You can also reset the counters.

19_3_0_5 System telephones

System phones can use the PABX system menu (PIN protected) to view and delete the charge counters of the individual terminal devices.

Note:
To display call/connection costs at internal terminal devices of the PABX either during or at the end of the call and to manage the charge counter you have to apply for the rate information transfer to be activated by your network service provider.

If your network service provider has made this rate information display during calls available on your ISDN connection then the PABX terminal devices can display this information.

Please that only the network service provider is authorized for binding connection/call cost logging.

19_4 Example for a call data record

19_4_1 Example for a typical call data record

14/02/02 11: 52 00: 04: 03 1234 RBEYY ZZ 123456 01234567890 1234. 678 EUR

Description of the communication data printout

14/02/02	Day / Month / Year
11:52	Time when the communication / conversation started
00:04:03	Duration of the call (hours, minutes, seconds).
1234	Internal extension number (max. 4 digits)
R	Direction code I : Incoming (incoming calls) O : Outgoing (outgoing calls)
B	Call identifier (private or business call) B : Business (business calls) P : Private (private calls)
E	External ISDN connection (1... 9) used for this connection.
YY	Index of the transmitted external telephone number.
ZZ	Type of connection / type of call (see table 1)
123456	Project number
01234567890	Number of the external party (max. 20 characters). If for data privacy reasons one, several or all digits are suppressed for external phone numbers through configuration, these digits are replaced on the printouts by the symbol #.
1234.678	Communication cost in EURO.

Table 1

Designation	Type of connection / call
00	Connection type unknown
01	Normal outgoing call
02	Room Inquiry call
03	Forwarding a call with prior notice
05	Forwarding a call without prior notice (special call transfer)
06	Recall
07	Call forwarding
08	External call forwarded to an external number.
09	Incoming call

20 Hotel

20_1 Hotel

The integrated hotel application was specifically developed for small hotels and B&Bs. The software of the PABX already contains such features as wake-up call, »Check-in« authorization switching.

This feature allows you to determine and print out the costs for calling from a telephone in a guest's room from the time the guest arrives, up until the guest departs. This function also includes check ins/check outs used to release the room telephone when the guest arrives and to block the telephone once the guest has departed. A wake-up call for telephones in hotel rooms can be programmed either by the guest or from the reception desk.

A system telephone is required to utilize this feature, e. g. as a »reception desk phone«. You can configure up to two desired system telephones as »reception phones«.

Using the 1 to 4 digit number allocation, you can assign the hotel rooms internal phone numbers to match the room numbers.

20_1_1 Front desk numbers

- **Internal numbers:**
  Here you can select two inhouse system phones as »Reception phones«.
- **Wake-up announcement/MoH is selectable:**
- **Ok:**
  You can allow the front desk telephone to prepare a personalized wake-up message or music on hold for each new wake-up call.
- **No:**
  Alternatively you can also specify that the front desk telephone makes new wake-up calls using the standard settings.

20_1_2 Wake-up call

- **Duration:**
  The time period that a wake-up call is to be signaled at the guest's.
- **Repeat after:**
  Here, you can set the time period after which a wake-up call is signaled again at a guest's room (the wake-up call is not signaled again if the guest takes the first call).
- **Numberof redials:**
  The »Number of repetitions« for a wake-up call.

20_1_3 »Wake-up announcement«

Select the default settings of the wake-up call / music on hold for configured wake-up calls.

— Configured wake-up message/MoH« ((»Melody download«)

- **Internal melody 1**
- **Internal melody 2**

20_1_4 Hotel-specific header for printouts on a serial printer

Here you can enter 78 characters of free text. This text is printed in a header of communication cost invoices.

20_1_5 Cost conversion factor

Here you can enter a factor the call charges of each outgoing call should be multiplied with. For example, if there is a 3 in the left field and a 10 in the right field, the cost rate transferred by the network service provider will be multiplied by 3/10.

Each wake-up call is signaled for the preprogrammed duration and, if the first call is not answered, repeated a preprogrammed number of times.

Note:
Ensure that you deactivate all features via the PC configuration tools that are not to be available to a hotel guest. If the PABX configuration program has been changed or reset via a serial interface, please check to make sure the printer is reconnected to the serial interface. If guests have checked in, do not make any changes to the internal extension numbers for these rooms. Because if you do, all information regarding »Check-In / Check-Out« and any programmed morning call will be deleted for these extension numbers. If changing the information can not be avoided, you should check out the guests concerned, then reconfigure your PABX system, check the guests back in andre-program the morning call.

20_2 Check-in

When a guest arrives for »Check-in« you can set up their room phone for »Unrestricted privileges« from the »Reception desk phone«. This deletes all specific features previously configured for that particular phone, as for example charge counter, direct dial number or morning call. The »Check-In« (time and date) are stored in the PABX. The data stored will be deleted after the next »check-in« following a »check-out«.

20_3 Check-out

20_3_1 Check-out

When the guests depart, the phone in their room is then switched to »Incoming privileges« through the »Reception desk phone« during »Check-out«. If desired, the charge data records accrued since the »Check in can then be printed via the serial PABX port. A 4-line header (e.g. with the name and adress) can be included on the print-out. The length of a line is limited to 80 characters. This header appears at the beginning of each print-out.

The output format for the call data records is preconfigured. When all of the charge data records have been printed out, acknowledgement can be made from the system telephone. The accrued units and the amount due for calls are then shown in the display. »Check out« can be repeated any number of times (e. g. in the event of a paper jam in the printer) until new »Check in« is performed.

20_4 Hotel room status

Dialing a numeric code from the room telephone makes it possible to register the current status of the room. This data collection can be analyzed and displayed only in connection with hotel application software.

- **Three different identifiers can be entered:**
  - — Room not clean
  - — Room clean
  - — Room clean and inspected

20_5 Wake-up call

Use the appointment reminder or wake-up call to be reminded of an appointment or if you want to be woken at a specific time while staying at a hotel. A system telephone is set up as the reception desk telephone to utilize this feature at B&Bs and hotels. This telephone can be programmed for a one-time wake-up call for the room telephone or for several consecutive days. Of course, you can also set up the telephone of your company's secretary as a reception telephone. Your appointments calls can then be input at this telephone. It is also possible to program a one-time wake-up call yourself (one a day) using any room telephone. The appointment or wake-up call can also be configured from a PC using special hotel PC software. Appointment reminder calls can be programmed in your system telephone as well.

Each internal PABX subscriber can receive an individual, automatic wake-up or appointment reminder call configured in the PABX. A wake-up call signaling can be up to 99 seconds. Up to 3 repetitions in increments up to 5 minutes can be issued if the wake-up call is not accepted by picking up the handset within this time. If the repetitions of the wake-up call are also not accepted the defined wake-up call is deleted in the PABX. When the called subscriber accepts the wake-up call (for example by picking up the handset), he or she will hear music or an announcement depending on the settings. The wake-up call can be programmed or deleted by the subscriber using a numeric code. In this case, the setting of the wake-up call is only for one call and has to be set up again for each day. The hotel application also features the option of setting up or deleting a wake-up call from the reception telephone.

20_5_1 Selecting the music on hold melody or wake-up call message

The PABX system can store user-specific voice and music files as part of the voice applications. Among others, you can store additional music on hold or voice files to be used for wake-up calls. Use the PABX configuration program to set globally whether to use music or a message for a wake-up call. A wake-up call set up by an internal subscriber him- or herself, either plays music or a message depending on the global PABX setting. The music or message to be played for a wake-up call can be configured for each subscriber individually when setting up the wake-up call via a reception telephone.

Note:
The old wake-up call is deleted if a new wake-up call is configured and a wake-up call is already set up but not yet executed. At the set wake-up time, analog telephones are called by the » Wake-up call«. Individual calls can be set for ISDN telephones, as described in their operating instructions.

Wake-up calls are not signaled during ongoing calls. Only when the existing call is completed is a wake-up call signaled. If an internal subscriber is called while a wake-up call is signaled the caller hears the busy signal.

- **Configuration**
- **The following PABX configuration settings are possible:**
  - — Duration of wake-up call: 1 to 99 seconds.
  - — Number of repeats: 0 to 3.
  - — Time delay between repeats: 1 to 5 minutes.

You can also specify whether a subscriber will hear music of the PABX system or a wake-up message of the voice application when accepting a wake-up call.

20_5_2 Programming or deleting a morning call from the reception desk telephone

The reception telephone is a system telephone. Use the PABX system menu to set up a wake-up call for a checked in subscriber. The wake-up call can be signaled once or daily. You can individualize the wake-up message or music to be played after accepting the wake-up call for each subscriber.

21 X-31__D-channel

21_1 Data packet transfer (X. 31)

You own a small business. To improve service for your customers you would like to accept cashless payments via EC-card or credit card or collect sales data for a customer card. To accomplish this, you connect a data terminal to the PABX transmitting customer/credit card data to a central office.

You can connect a data terminal that operates in compliance with the X. 31 transmission standard (data transfer in D channel) to the internal ISDN port of your PABX. These are, for example, cash register terminals, customer cards, or ATMs.

Your network service provider supplies you with TEI's (Terminal Endpoint Identifier), which you assign to individual ports in the PABX configuration program. These TEI's are also used to address these terminal devices.

- **Configuration**
  You can set the TEI values provided by your network service provider in the PABX configuration program. These TEI values are then assigned to an internal ISDN port.

Note:
You can only use this feature if the »X.31« feature has been applied for at your network service provider and is supported by the terminal device being used. Please refer to the operating instructions for the terminal devices involved.

22 Dynamik_ISDN

22_1 Dynamic ISDN (firmware version 1.4 or later)

Higher data transfer rates can also be achieved for Internet access via the ISDN connection by bundling the two B channels for the connection. If an Internet connection with channel bundling is active and a B channel is needed for telephony or fax messages, one B channel is disconnected from the Internet connection. On completion of the voice connection the B channel reverts automatically to use for the Internet connection. This function is supported as long as you have only one external ISDN point-to-mulitpoint access configured.

Note:
This performance feature may only be used with a single, external point-to-multipoint connection.

22_1_1 Settings

The router module or T-Online's ISDN Speedmanager are required for these settings

22_1_2 Completion of calls on no answer

- **Rejecting a call:**
  The caller will then hear the busy signal. The second B-channel remains available.

- **Internal MSN extension number:**
  The caller is forwarded to the specified internal subscriber. The second B-channel remains busy.
  Internal MSN extension number:
  Here, enter the internal number to which the call is to be forwarded.

- **Call Deflection to an external telephone number:**
  The caller is forwarded to the specified external subscriber. Depending on the call forwarding settings (exchange or PABX), the second B-channel is used or remains open.

- **External number:**
  Here, enter the external number to which the call is to be forwarded

- **Normal call assignment:**
  The caller is forwarded as specified by the call assignment sequence.

22_1_3 Dynamic ISDN for outgoing connections

Use OK or NO to specify whether a subscriber dialed call may use the second B-channel or not.

- **Ok**

- **No:**

23 Mobile subsciber

You can also have a call that you are making signaled simultaneously at a further phone. Signaling can be performed either at internal phones or externally via analog (POTS), ISDN GSM, or DSL ports. Up to 10 different parallel calls can be configured.

It is irrelevant here whether the phone is called directly, in a team or from an inquiry call. The internal phone is called first with the team settings »linear«, »rotating« or »adding«, followed by, based on the time setting, the »Mobile subsciber«. Parallel calling is only possible with »simultaneous« signaling. Parallel calling of »Mobile subsciber« within a team can be deactivated or inhibited using »Call forwarding permitted«. In the default setting for the system »Call forwarding permitted« is configured. If »Call forwarding permitted« is deactivated, the allocated »Mobile subsciber« is called only when the internal phone is called directly using its number and not the team number.

A DTMF device in the PABX system is connected as soon as a »Mobile subsciber« takes the call. An inquiry call can then be initiated with the »Mobile subsciber« using the * key, and calls can be transferred within the telephone system and to external parties. The functions for use with inquiry call connections are then executed via the internal subscriber assigned to the »Mobile subsciber«. The »Mobile subsciber« is then treated as an internal subscriber in the PABX system.

Note:
Inquiry calls are not possible when the DTMF device being called cannot be connected.

- **A DTMF device being called cannot be connected:**
  - — when busy signal detection is deactivated when using an external analog connection (POTS)
  - — when no PCM channel has been linked for direct IP-to-IP connections with an SIP provider.
  - — when calls are not made using the G.711 Codec for IP connections, or when DTMF signaling is carried out as outband (DTMF detection may not function properly with other Codecs!).

23_0_0_1 * key functions for »Mobile subsciber«

The * key is interpreted as an R (Flash) key by »Mobile subsciber« and can execute the following functions, depending on the existing connection:

- **During a call:**
  - — Initiate inquiry call/hold
- **In the inquiry call dialing status:**
  - — Call terminated -> Busy signal
- **In the inquiry call in progress status:**
  - — Discontinue ongoing call, back to call on hold
- **In the ongoing inquiry call status:**
  - — Discontinue active call, back to call on hold
- **In the inquiry call busy status:**
  - — Return to call on hold

Internal calls

— The internal PABX system dial tone is signaled to the »Mobile subsciber« when the * key is pressed. The »Mobile subsciber« can then dial the desired internal number and will hear the ringing signal.

External calls

— The internal PABX system dial tone is signaled to the »Mobile subsciber« when the * key is pressed. The external dial tone is signaled to the »Mobile subsciber« after dialing 0; calls can then be placed to external destinations (via the PABX system). If the call being made by the »Mobile subsciber« is terminated during an inquiry call, or if the call is ended, explicit call transfer, or call transfer (with advance notice) takes place.

Misdial feature

— Misdialing, busy subscribers or other reasons for a call not being able to be established is signaled by the PABX system internal busy signal for »Mobile subsciber« (or by the special dial tone with POTS!). Pressing the * key when this occurs returns you to the party on hold. A »Mobile subsciber« can also be logged in / out using a code procedure from an internal phone, or by external »Mobile subsciber«.

Note:
The following prerequisites must be fulfilled for logging in/out:

- **The »Mobile subsciber« must be assigned to an internal subscriber.**

  — Remote access to the PABX system must be enabled.

  — PIN 2 may not be 000000.

  — Call allocation to internal service numbers must be configured. The CLIP data for the »Mobile subsciber« must be signaled via the remote access.

  — Login/Logout is not possible using hidden numbers.

23_0_0_2 Configuration

Double click on a number between 00 and 09.

- **Active:**

  — Place a check next to »Active« to log in the terminal device.

- **Internal number:**

  — Select one of the numbers that is displayed. Any name already assigned to that number is also displayed. The »Mobile subsciber« is called in parallel to this number.

- **Target number:**

  — Enter the number to which the call is to be switched. The PABX system will automatically detect whether this is an internal or external number.

Performance features that cannot be used by a »Mobile subsciber«!

— If a »Mobile subsciber« is connected via the external analog port (POTS), the special dial tone will be signaled instead of the PABX system busy signal when an error occurs.

— If a »Mobile subsciber« is connected via an SIP provider, one DSP channel (Codec) will always be occupied for the inquiry call connection.

— Inquiry calls from a »Mobile subsciber« cannot be picked up within the PABX system.

— "Transfer to busy subscriber" is not possible from a »Mobile subsciber«. The busy signal is transmitted in this case.

— Broker's calls are not possible from a »Mobile subsciber«.

— 3-party conference calls are not possible from a »Mobile subsciber«.

— A call waiting signal is not transmitted to a »Mobile subsciber« for inquiry calls; the busy signal is transmitted, or CFB is executed.

— Calls via GSM gateways to internal analog ports are not supported.

— It is not possible to connect a DTMF device being called for direct IP-to-IP connections (SIP phone calls the »Mobile subsciber« via SIP provider).

— Fallback to the next available line in the trunk, or LCR fallback is not possible for a »Mobile subsciber«.

— A recall will not be made to a »Mobile subsciber«.

— Several data records are created for calls transferred from »Mobile subsciber«. The service number (55) may also be included as an internal number in one of these call data records.

24 General

24_1 General

Use this tab to configure your PABX system.

24_1_1 Presentation

- **Chose from the following three displays:**
  - »Info«
  - »System«
  - »Timer«

24_2 Info

System software version:

- This display is for Service and shows the current software version (firmware version).

Router software version:

- This display is for Service and shows the current software version for the VoIP-VPN Gateway module (firmware version).

Date and time:

- The time that is displayed is the time from your PC. When you transfer data to the PABX system, this time is used until the time from the exchange is taken when the first external call is placed. If you do not wish to have the time from the exchange used, delete “Use time from exchange”.

24_2_1 Date and time

The displayed time can be taken from the Internet (from Time Server) via the PC, or from the ISDN network (from exchange).

24_2_1_1 Accept time

In ISDN networks it may occur that no time, or an inaccurate time is transferred. In this case, the date and time for the system will be taken from the PC connected to the network.

From public exchange

The current time is accepted by the PABX system on each external call and the internal PABX system clock corrected to this time.

Off

The time accepting function can be deactivated if the time is not transmitted within the ISDN network, or if a different time is to be used in the PABX system. You then have the option of setting the time manually via a phone.

Accepting time via the VoIP-VPN Gateway module

The time to be used by the system can also be defined via a »Time Servers«.

See also:

»Time server«

Note:
After resetting the PABX, the current time is imported during the next external call.
The time is set manually when configuring the PABX by telephone. When you have loaded the configuration into the PABX system the PABX uses the time given by the PC, until the clock is reset, or until the first outgoing external call has been made.

24_2_2 Setting winter and summer time (not in the UK)

The system clock and calendar are changed over automatically. Change-over at the specified time is made by the internal clock, regardless of the time received from the exchange. The time displayed at the system telephones connected within the PABX system is changed automatically by the PABX system for all subscribers.

— Standard time is set on the last Sunday in March from 2:00 to 3:00 AM. Any calendar-related changes in the PABX system to be made in the missing hour are then carried out.

— The change to daylight savings time is set on the last Sunday in October from 3:00 to 2:00 AM. Any calendar-related changes in the PABX system to be made in the additional hour are then carried out. Any changes already in progress are carried out again when the set time is reached.

— If an external call is in progress during the change-over time the PABX system then compares the time supplied by the exchange with the system-internal time. The PABX system prevents any switching back and forth between times during the change-over period.

24_3 DTMF acknowledgement

24_3_1 Acknowledging alarm calls

Alarm calls can be acknowledged by internal and external subscribers. You can configure the subscriber which can acknowledge an alarm call. The target phone must, however, have tone dialing (dtmf) capabilities and the »DTMF« function must be configured. If a subscriber lifts the handset to accept an alarm call and does not acknowledge the call the alarm call will then be put through again to all subscribers after the defined repeat period.

The signaling duration and the number of redials can be set up under Call distribution configuration »Alarm call«.

The time for dtmf-acknowledgement (5...59 sec.),

- **DTMF has been configured:**
  The called subscriber accepts the alarm call and acknowledges it by entering any four digits. The call is then terminated by the PABX.

- **»DTMF« has not been configured:**
  The alarm call is terminated for internal signaling when the handset of any of the subscribers being called is lifted, or when the set number of »Repeats« expires.

For an external subscriber the alarm call is terminated when the handset of any of the subscribers being called is lifted, or when the time set for »External alarm call« expires. The call is terminated after this time even if not all of the repeat attempts have been made.

24_4 Country settings / country variants

Your company is focused on international trade and has branches in several countries. You want to use the same PABX system at every branch in spite of the different ISDN implementation in various countries. Setting the country option adjusts the PABX to the special requirements of the ISDN network in the selected country.

Since the requirements for the PABX differ from country to country, the functionality of some features have to be changed. Basic settings for different country options are already stored in the PABX. The desired country option is set by one of the programs of the WIN-Tools software.

24_5 PIN (password)

You can prevent misuse of your PABX by other parties by implementing various security functions. Your PABX settings can be protected using your 4-digit PIN1 (code number). Access by external parties (remote access) is protected using your 6-digit PIN2.

PIN1 is a 4-digit code number that is required when you wish to protect your system settings against unauthorized access. PIN 2 is a 6-digit code number that protects your PABX system against unauthorized access by external parties. Only after you enter this 6-digit PIN2 are you allowed to utilize these functions.

Various settings are protected by PIN1 in the PABX. In the default state, this PIN 1 is set to »0000«. After you begin configuration you can set the features for your system using the codes described here. The telephone being used for programming can not be reached while the system is being configured. You will hear the positive acknowledgement signal once you successfully conclude configuration for a setting. You can then move on to configure the next setting. If you wait for more than 40 seconds between one entry and another, the PABX will terminate configuration and you will hear the busy signal. All input made up to that point which was concluded with a positive acknowledgement signal will be saved when you hang up the handset. Saving is performed for 10 seconds after you hang up the handset. During this period it is important that you do not begin a new configuration of the system, and that power is not interrupted to the system.

- **The following features are configured using PIN 1:**
  - Clearing the charge counter for all subscribers
  - Changing PIN 1 or PIN 2
  - Enable remote access
  - Resetting the PABX to factory default (reset)
  - Resetting charge data logging
  - Switching LCR procedures (simple call-by-call, Teledata or off)
  - Setting up call accounts (pocket money account)
  - Configuring or deleting a »service-specific call forwarding by the exchange«

- **The following features are protected by PIN 2:**
  - Remote access for external activation / deactivation of Follow me, room monitoring and switching contacts

Note:
Remote access using this 6-digit PIN2 is only possible when this PIN 2 has been changed individually, i. e. it is no longer in its default setting of »000000«.

See also:

Changing PIN 2

24_6 Changing PIN 2

If you wish to change PIN 2, enter the new PIN under »General« - »Remote switching/remote control«.

The PIN 2 is restricted to six digits.

Note:
If you do forget your PIN 2, call the service centre of your dealer. They can reset your PIN 2 to its initial setting.

See also:

PABX PIN

Delete PIN 2

24_7 AC ringing voltage for analog connections

Calls are signaled at analog terminal devices by setting up an AC ringing voltage at the called analog connections. This AC ringing voltage is converted by the analog terminal device into its own ringing tone.

You can use the PABX configuration program to set an AC ringing voltage with a frequency of either 25 Hz or 50 Hz. This setting is established centrally for all analog connections.

Configuration

The PABX is configured for a global AC ringing voltage that applies to all analogue connections.

24_8 System

24_8_1 SMS server telephone number

— Enter up to three server numbers for your SMS service provider.

See also:

»SMS«

24_8_2 »Country settings«

Select the country where you want to use your PABX. This, however, does not involve switching the menu language for the Professional Configurator or for the texts in the system menu of the system telephones.

24_8_3 External connections

- **Connect:**
  You can define whether, during a broker's call, two external subscribers are to be connected after you hang up the handset.

See also:

Switching external calls

24_8_4 Send diagnosis data

If a system telephone (currently only the CS 410) is disconnected from the ISDN connection, a UUS1 message “Systel failed 00/01" is issued at the target phone for diagnosis messages. (In this example, the system phone was connected to the internal ISDN port S01 on the pabx motherboard).

- **Internal MSN extension number:**
  Select the system phone where you want the message to be signalled.

24_8_5 »Transfer to busy extension«

Caller hears the ringing signal or music on hold from the pabx.

- **Transfer allowed:**
  You can specify here, whether calls can be transferred to a busy subscriber or not.
- **with:**
  Use this option to specify whether the caller put on hold hears the ringing tone or music on hold from the pabx.

24_8_6 »AC ringing voltage«

Set the AC ringing voltage for all analog connections of your PABX.

- **50Hz**
- **25Hz**

24_8_7 Delete PIN

Various settings and operations are protected by PIN 1 or PIN 2. Use these settings to have the PINs reset to factory default state the next time the configuration data are transmitted to the PABX system.

- **Delete PIN1:**
- **Delte PIN2:**
-

See also:

PIN

24_8_8 Global number Settings

- **Music on Hold (MoH)**
- **Select a music on hold melody you wish to use for all internal subscribers. You can program a different setting for individual subscribers:**

  — Not active

— Configured MoH (See also:»Melody download«:
— Internal music 1
— Internal music 2
— External connection

24_8_9 Call cost logging

- **active:**
  Here you can activate or de-activate call cost logging for all subscribers. You can program a different setting for individual subscribers.

See also:

»Call cost logging« tab

24_8_10 »Remote access / remote control«

- **enable:**
  Here you can specify, whether room monitoring, switching of contacts and Follow me are permitted or not. You have to enter PIN 2 here for enabling a remote access to your PABX. Remote access using this 6-digit PIN2 is only possible when this PIN 2 has been changed individually, i. e. it is no longer in its default setting of »000000«.

24_8_11 DECT log-on

- **enable:**
  After activating this feature you have 5 minutes, from the time the data has been transferred, for logging on handsets. This time is extended by a further 5 minutes each time a log-on is made.

24_8_12 LCR configuration

- **no LCR:**
  This option lets you specify that you do not wish to use LCR.
- **LCR Professional:**
  This option lets you specify that you do wish to use LCR.

See also:

LCR-Professional

24_9 Timer

24_9_1 »System timer (in seconds)«

You can set the following times:

- **»Call forwarding«:**
  The time is the time interval after which a »Call forwarding on no answer« will be executed.

- **»Direct call«:**
  For a drect dial-in, this is the time after which the preconfigured number is dialed after lifting the handset.

- **»External alarm call«:**
  You can set times for an external door terminal call as well. If you have entered an external number into the door terminal call mode, an ongoing conversation between the subscriber and the door terminal is automatically terminated when the set time interval expires.

- **Return on no answer:**
  Time after which an available called subscriber is transferred according to the set return options.

- **»DTMF acknowledgement«:**
  Used by the final subscriber of the alarm call to acknowledge the received alarm call with a code number or any four-digit extension number.

- **Post-processing time:**
  This setting applies to the even call distribution among the team members. If all subscribers are in the »post-processing period« an external call will then be switched to the configured return targets; internal callers will hear a busy signal. (more)..

- **Dialing pause with GSM gateway:**
  Here you can set the pause time before the GSM-gateway starts dialing an external number.

- **External door terminal conversation:**
  Here you can set the compulsory disconnect time for door terminal calls picked up from an external telephone.

24_9_2 Line authorization switching

— Enter the line authorization switching modes for all subscribers connected to the PABX. Switching modes can be deactivated or controlled by calendars 1 and 2.

- **No calendar**

- **Calendar 1**

  Use this option to specify the active pabx setting after a data transmission.

- **Day**

- **Night**

See also:

Switchable exchange line access

24_9_3 Recall timer (in seconds) after

The recall time is the time interval, after which an incoming call that was transferred to another telephone is again signaled at the first subscriber.

If you have transferred a caller to another subscriber who does not answer the phone call, your phone will be recalled when the set time expires.

— Explicit call transfer

— »Transfer to busy subscriber«.

— System parked Inquiry

See also:

Transfer

Recall

24_9_4 ETSI timer (303/312)

This setting is only applicable for registering certain terminal devices at the internal ISDN bus. These terminal devices require more time for registering. By activating this feature you extend the PABX's internal timeout monitoring period for registering.

24_10 Transferring calls to a busy subscriber

The operator wants to transfer a call to a specific employee. However, this employee is currently on the phone. In this case, the call can be switched to the queue for that particular subscriber. The operator receives the call again if the subscriber has not picked up the call within a specific time period.

Use the PABX configuration program to specify whether transferring a call to a busy subscriber is possible or not. A caller on hold can be transferred with »forwarding call without prior notice« or »explicit call transfer (ECT)«. The caller on hold is transferred to the specified final subscriber. Since the specified final subscriber is busy, the caller on hold will hear music or an announcement if the system has been programmed to do so. If the specified final subscriber replaces the handset, the caller on hold will hear the ringing signal. The specified final subscriber is called and can accept the call on hold.

— The call is rerouted and signaled at the first subscriber if the queue time programmed for the subscriber is exceeded.

— If the call on hold cannot be transferred to the queue of the final subscriber the call is rerouted and signaled at the first subscriber.

— If the caller on hold cannot be routed to any of the two subscribers (First or specified final subscriber), the call is terminated by the PABX and the caller hears the busy signal.

24_11 Recall (up to firmware version 1.2)

You have transferred or rerouted a caller to another subscriber. This subscriber can not be reached or is busy. However, you do not want the subscriber to terminate the call, or the call to be canceled after a defined time by the PABX system. You can accomplish this using an automatic recall at your telephone.

— Recalls are made during open enquiry calls after a set time of up to 600 seconds.

— For calls that are forwarded without any prior notice (explicit call transfer) after a preset time of up to 180 seconds and

— when you transfer a caller to a busy subscriber after a set time of up to 120 seconds.

- **Configuration**
- **When configuring the }recall function you must observe the preset timing, as otherwise recalling will not be possible:**
  - For transfer to a busy subscriber the time must be <600 seconds.
  - For explicit call transfer the time must be < 179 seconds.
  - For an open inquiry, the time may not exceed 600 seconds.

24_12 Info

- PABX software version:
  This display is designed for service purposes only. It shows the current software release (firmware version).
- »Date and time«:
  The time displayed is the system time of your PC. The PC time is accepted by the PABX when you upload data into the PABX. With the first external call, the PABX will accept the time from the exchange instead. If you do not want to accept the time from the exchange uncheck Take from Public Exchange.
- Access PIN for log-in:
  You can specify here, whether a user name and a PIN are required for starting the Professional Configurator software. The user that is logged on can then only make or change settings for which he/she has the corresponding privileges.

Note:
This setting corresponds to the feature identified by the text: “Save data for next Log-on” when launching the Configurator.

See also:

Configuration access to the PABX

- **Routersoftware**
  This display is designed for service purposes only. It shows the current software version for the VoIP-VPN Gateway (firmeware version).

25 Remote__access

25_1 Service access

The settings of your PABX need to be changed because new authorizations are assigned to a connected telephone. Or the settings of the internal calendar have to be changed because your business hours have changed. Your service technician could make this adjustment »on site«. However, it is much easier to issue your technician the authorization for remote access to your PABX from an external location. The technician then uses an ISDN connection from his or her office to dial into the system and configure settings. In addition to remote configuration, the technician can also perform remote maintenance or remote loading of the PABX system software.

This feature enables you to have the PABX configured by your dealer's service centre or download the current software. The service department or the authorized dealer uses remote access to dial into the PABX. You can trigger this function from an internal phone of your PABX or release your PABX for access by an external PC (for example your specialized dealer). To provide service access to the PABX you can establish a connection to the service center yourself or the service center dials into the PABX after the system has been released for remote access.

The service centre (for example your authorized dealer) can view and change the data of the PABX. The service centre cannot view or change the PABX PIN 1. Reset to factory defaults is possible, though.

25_1_1 A distinction is made between the following types of service calls:

- **Incoming service call«**
- **»Outgoing service call« (solution with 2 B-channels)**
- **»Outgoing service call« (solution with 1 B-channel)**

25_1_2 External numbers

- **Call number 1**
- **Call number 2**
- **Call number 3**
  Use this field to enter the numbers of the external party or parties who is/are authorized to use the service access to your PABX.
- **always active:**
  This option allows access from an external location.

25_1_3 Permit Service Access

- **Service:**
  Choose either All services or No Access.
- **All services:**
  Service Access from an external location is allowed.
- **No Access:**
  Service Access from an external location is inhibited.

- **Time:**
  As of the selected date and time, the Service Access is open for 30 minutes.
  If Service Access has been allowed from the keyboard of a telephone set, this field displays the exact time when Service Access enters into force.

25_1_4 Last Access

- **Date and time:**
  The PABX stores the date and time of the last configuration access (service access or other type of PC configuration).

25_2 Outgoing service connection (solution with 1 B-channel)

You call the service center and tell the operator that you want a remote configuration of your system. The service centre informs you about the remote access procedure and tells you the service number you have to dial for data communication. When you have terminated the call, you can launch the remote access configuration from any authorized phone. When the data link has been established successfully you will hear the music on hold of your PABX. Please that this type of remote access involves a connection to the service centre for which you will be charged. When you hang up the handset, the data communication link to the service centre is terminated.

Note:
A subscriber can only initiate an outgoing service connection when the »Authorization for remote access activation« option has been activated in the »Internal subscriber« configuration under »Features - Authorizations«.

See also:

»Features« tab

25_3 Outgoing service connection (solution with 2 B-channels)

You call the service center through your PABX from a phone that is authorized for launching a remote access connection. The service centre informs you about the remote access procedure and tells you the service number you have to dial for data communication. Switch over to Inquiry call, enter a specific code sequence followed by the telephone number for the service center. You will hear the acknowledgement signal when the data communication has been established. Press the R key. You are again connected with the service center and can tell them how you wish to have your system configured. Please that this type of remote access involves two connections to the service centre for which you will be charged. When you hang up the handset, both connections to the service centre are terminated.

Note:
A subscriber can only initiate an outgoing service connection when the »Authorization for remote access activation« option has been activated in the »Internal subscriber« configuration under »Features - Authorizations«.

See also:

»Features« tab

25_4 Incoming service call

The service centre (for example your dealer) can log into the PABX, if it has been released for remote access.

- **To enable your PABX for a service access, you have several options:**
  - — A code number releases the PABX system for incoming service links. Release for remote access is effected for 30 minutes. During this period no further incoming data links are possible (for example data transfers via ISDN).
  - — You authorize three specific external telephone numbers for dialing in. Service access for these telephones numbers can be permanent or starting at a defined time for 30 minutes. When an external subscriber tries to log into the PABX, the system verifies the access authorization by comparing the number transferred by the service centre with the number you have entered.
  - — You can determine the time from which the PABX system is to be released for service access for 30 minutes.

The service center can dial any telephone number of the PABX to dial into the system. The charges for this connection are on the service centre.

25_4_1 Settings for incoming service links

Enter any external numbers which are authorized for dial-in to the PABX in the fields under »External number«. The PABX system will then check the access privileges using the number that is transmitted.

After you have entered a number you can select the »always active« option. Service access is then possible at all times for the number entered here (based on the service providing authorization).

Under »Remote access enable« you can specify the service that is to be executed by the service center during an incoming service connection.

- **Chose from the following services:**
  - — Configuration (customized PABX configuration)
  - — Download (downloading a new firmware into the PABX)
  - — Charge processing (reading the call data records)
  - — LCR (reading and writing LCR data)

You can specify the time at which service access to the PABX is possible. The PABX is then accessible for 30 minutes starting at the specified time.

26 Network

26_0_1 Network

Here you can select the help functions for the router module or the VoIP-VPN-gateway module.

- **Router module**
- **VoIP-VPN Gateway- module**

26_0_2 ControlCenter

The Control Center monitors the activities of the router for establishing and severing a connection. The program is launched automatically after being installed every time the system is started. It indicates for instance: The provider, the duration of the existing connection, the port (ISDN or DSL), the external IP-address assigned by the provider (if applicable), and the volume of the transferred data for upload and download. An Internet connection can also be established or severed via the Control Center. You have the option of selecting to establish Internet access manually or automatically.

— If the connection is established automatically (»Deactivate automatic connection establishment with Internet Service Provider« is disabled), opening the Internet browser automatically establishes an Internet connection via the router. The factory setting has the automatic establishing of the connection enabled. Additional costs may be incurred if the Internet connection is established unintentionally or not disconnected when desired.

— If the connection is established manually (»Deactivate automatic connection establishment with Internet Service Provider« is enabled), a connection to the Internet is only established with the »connect« button in the Control Center. The connection is severed with the »disconnect« button.

— The router can be blocked with the Control Center for both settings. The Internet is then no longer accessible. The block has to be removed in order to access the Internet.

Note:
If the router is blocked with the »automatic connection establishment« setting, this block is in effect until removed or a PABX reset is carried out (e.g. due to a new configuration or a power outage). The router always remains blocked with the »manual connection establishment« setting. We recommend using the »manual connection establishment« setting for your PABX.

26_0_3 Cost limitation

The router is able to establish connections automatically with desired points and sever them after data transmission is complete. This provides easy and cost-efficient access to the Internet. However, if the router is incorrectly configured or long Internet sessions (e.g., you forgot you have an open Internet connection), Internet access via fee-based lines can result in high costs. The configuration option offers the opportunity to limit these costs.

- **The following can be specified for each computer connected with your LAN:**

  — the available online minutes,

  — the available ISDN connection fees,

  — the available ISDN connections in minutes,

  — the data transfer volume message

26_1 Network_Router _LAN

26_1_1 What is a router?

A router allows LAN clients (computers, PC within a network) of one network (LAN) to obtain access to a different network, for example the Internet. Access to the Internet is made available by various Internet service providers (ISP).

In the process, the router searches for a path on which data can be exchanged between the LAN clients in the local network and the Internet. Linking to the Internet can be carried out via an xDSL and / or an ISDN connection.

The router module is equipped with a WAN/xDSL and a LAN port. The router is connected to another network, for example the Internet, via the WAN/xDSL port. You can hook up a DSL or cable model for connection to the Internet. The WAN-connection is an Ethernet-based port (10BaseT, 10MBit/s, half- duplex).

The LAN port is for your local network. Here, you can directly connect up a PC equipped with built-in network card. If you wish to network several PCs you can accomplish this using an additional Hub / Switch, or the USB port. The LAN-connection is an Autosensing Fast Ethernet port. It sets itself automatically (from 10 Mbit/s half-duplex up to 100 Mbit/s full duplex) to the maximum data transfer rate of the remote location (PC).

These PCs are also part of your local network and can, for example, exchange files or take advantage of the Internet connections via the router. All LAN clients that are linked are integrated into the local network via the TCP/IP protocol.

Further PCs can be linked to your network via RAS.

See also:

»Router Features«

»ControlCenter«

26_1_2 Router functions

You have several PCs in your office that you wish to link together to form a network. You can set up a network with these PCs using the Router module. All of these PC can then exchange data with one another and utilize a common Internet connection via an xDSL or ISDN connection. In addition, you can also access the PABX system from any PC within the network (e.g. for configuration) and use special PC applications via the LAN TAPI or LAN CAPI ports.

The router module provides features for linking a PC to a LAN (Local area network) and enables high speed internet access using xDSL or ISDN. Required safety is provided by an implemented firewall in conjunction with NAT (network adress translation). The functions DHCP server and DNS proxy ensure that the scope of configuration, both for your PABX system and your PC, is kept to a minimum . Internet access for all of the PCs connected to the router is provided via one single connection (SUA - single user account).

Note:
In the default setting of the PABX the router has the IP-address 192.168.1.250 and the netmask 255.255.255.0. Normally, the last 2 bytes of the IP-address and the last byte of the netmask could be changed. On ICT-systems from release 5 on, all bytes of the IP-address and the netmask can be changed using the authorization level »Service«.

In case an updated firmware is available for the ICT router module, you can download this updated version usind the »Module download« tool of the »WIN-Tool Launcher« in the »Professional Configurator«.

Firmware version

The router module ICT is an active module of ICT systems and has separate firmware. With a router module installed in your ICT pabx, the router firmware version is displayed after reading the configuration data under »General«« - »Info« - » »Router software version«.

Ports (WAN, LAN)

You can link the PABX system router with another network, for example the Internet, via the WAN port. You can connect a DSL modem with an Ethernet (10BaseT) port at a DSL port.

You can connect PCs to the PABX for the local network (LAN) via Ethernet or Fast Ethernet. You can connect devices to the LAN port of the Router module via Ethernet or Fast Ethernet, regardless of the operating system platform you are using (Linux, Mac OS, MS Windows, Palm-OST, etc.) or the device type (PC, Mac, PDA, Webpad). PCs connected in this manner form a network (LAN - Local Area Network). If you wish to connect several PCs you will need a hub or switch.

After you connect a PC IP-addresses must be assigned. When doing this you must ensure that the IP-addresses assigned to the PCs and the PABX systems are in the same IP network. This also applies if you wish to utilize common resources among several PCs in a LAN (for example released directories, network drives, network printers). All PCs located within the network require an IP-address.

Automatic access to the Internet, Fallback

Several ISPs (ISP – Internet Service Provider) can be set up in the PABX. Connectivity to the Internet is provided via the WAN port (e.g. DSL port), or via an ISDN port. If required, connection to the Internet can be set up automatically. If your selected ISP is not available, the next ISP in the list will be selected automatically.

Short Hold

Short Hold means that the router terminates the Internet connection automatically after a configurable time period when there is no exchange of data from/to the Internet (inactivity). You can set this time separately for each ISP that you have configured. This can result in increased connection costs with frequent, short excursions into the Internet, for example for picking up e-mails, as the connection is always maintained for the duration of the set holding time.

Dynamic ISDN

Higher data transfer rates can also be achieved for Internet access via the ISDN connection by bundling the two B channels for the connection. If an Internet connection with channel bundling is active and a B channel is needed for telephony or fax messages, one B channel is disconnected from the Internet connection. On completion of the voice connection the B channel reverts automatically to use for the Internet connection. This function is supported as long as you have only one external ISDN access configured.

Dialer protection

Dialer protection monitors all external “Data links” for the PABX system. This function provides protection against inadvertent dialing of extra pay numbers, in Germany so-called “190" numbers. Data links are set up only to enabled numbers. The ISP numbers are enabled automatically and do not have to be entered in the list of unrestricted data numbers.

DHCP server

PCs can be provided with a major portion of the configuration required for LAN and Internet access via the DHCP (Dynamic Host Configuration Protocol). The DHCP server integrated into the PABX is capable of supplying corresponding configurations to severla PCs (LAN-clients. IP-addresses are dynamically allocated to the clients. This mode is recommended to dispense with the complicated, manual configuration of the IP-addresses for the PC that would otherwise be required.

DNS server

The DNS server (Domain Name Server) has the task of establishing names within a network. In this process the IP-addresses of the PCs (e.g. LAN clients) are transformed into names. You must therefore know the name, and not the IP-address, of a PC that you wish to access, or are searching for. The DNS server can also establish names that are not included in the local network.

DNS-Proxy

A proxy assumes a surrogate function for the local network (LAN) in a different / external network. Here, the DNS proxy accepts the name queries from the LAN client and submits them to the external network,

e.g. Internet, as its own queries. The proxy then takes the response from the external network and forwards it to the LAN client that placed the original query. In addition, the result from the query is stored for a defined time (configurable) to answer any subsequent queries of the same type.

Dynamic DNS

Using Dynamic DNS you can also offer your own Internet services (e.g. WEB, FTP or e-mail servers). Usually you must have a fixed line or a set IP-address for this so that you can always be reached at the same URL (for example www.elmeg.de). You are assigned a new IP-address by the ISP each time you dial in to the Internet however. Using Dynamic DNS you can link this automatic (dynamic) IP-address with a set name. The router will then inform your Dynamic DNS service provider (e.g. www.dyndns.org) automatically of the new IP-address. Internet enquiries for your Web services are then automatically forwarded to your dynamic IP-address via your service provider.

NAT

NAT (Network Adress Translation) protects the connected LAN-clients against attacks from the Internet. Here, the internal IP-addresses are not passed on to the Internet. The router carries out the transfer to the Internet and distributes the incoming data packets in the internal system. This only requires one external IP-address. The internal IP-addresses are protected from attacks from outside. The internal IP-addresses can not be targeted by hackers, as these IP-addresses are non-accessible.

Packet Filter Firewall

The integrated filter firewall packet also provides you with enhanced security against attacks from the Internet. A firewall acts as a logical wall for data packets between the Internet and the LAN which has »holes« for certain packets (firewall rules, also known as filters), allowing these packets to pass through the wall. The filters are described by rules whose configuration requires expert knowledge about the TCP/IP protocol family. The firewall of the router can be easily configured using a Filter Wizard in which you need to indicate (in plain text) whether you wish to allow defined applications access to the Internet.

Portmapping

You wish to access your PC from an external location via Internet. Normally, access via the firewall should be prohibited. When you use port mapping, access to a router port that you have enabled is permitted from an external location. The router then forwards the access request to the preprogrammed port of the PC in the network. A fixed IP-address must be assigned to this PC. When the PC returns data packets the IP-address and port number of the PC are replaced by the router with the number for the port mapping port and the router IP. For “outsiders” on the Internet it then appears as though there is only one connection to the router.

RAS-Server

Using the Remote Access Server (RAS) a field representative, for example, can call into the local network from an external location and then via the local network access the Internet. Access from an external location is only possible via an ISDN connection. External access is provided with user-name and password protection. If the call is made from an external location only, the phone number can also be monitored as an added protection feature. Access can be enabled for several users. A Windows enable (access to computer, files or printers) and Internet enable can also be configured for each user. That this access portal is not protected by a firewall! A PC that dials into the local network via RAS is automatically assigned an IP-address by the integrated DHCP server.

LAN-CAPI

The package includes a program called »CAPI for LANs« for use in your network. This software can be installed on any PC in the network. This gives you the possibility of running your CAPI application from a central location via a common interface, that is, the PABX system. There is no ISDN card required for the PCs. Please that software used for the CAPI application may require certain license agreements with the software manufacturer. The program »CAPI in LAN« does not require a license to run.

LAN-TAPI

The package includes a program called »TAPI for LANs« for use in your network. This software can be installed on any PC in the network. This gives you the possibility of running your TAPI application from a central location via an interface, i. e. the PABX system. There is no ISDN card required for the PCs. Please

that software used for the TAPI application may require certain license agreements with the software manufacturer. The program »TAPI in LAN« does not require a license to run.

Cache time:

Permanent checking of User IDs and passwords at the server would inappropriately increase the traffic on the network. This is why authorization requests are stored in a cache memory. Here you can specify the time interval used for checking with the server.

System telephones

You can configure a function key on the elmeg CS410 system telephone for monitoring router functions (using the corresponding firmware). The LED for the function key then indicates the status of the router connection (none, connection via ISDN, connection via WAN/xDSL). A new Internet connection can then be set up, or an existing connection terminated, just by pressing the function key. Authorization for setting up or terminating router connections is managed by the PABX system.

Note:
Refer to the "Appendix" for further information and details about router functions, configuration of the router and setting up of a local network.

"Short Hold" for Internet connections will only function with the appropriate firewall configuration settings. Terminating a router connection using the function key on the telephone, or the WIN Tools program Control Center, will terminate the external router connection for the entire network. You can inhibit the router for external router connections via the ControlCenter. This function is not reset-proof. External router connections are again possible after restarting the PABX system, even without explicit canceling of the inhibit filter for these connections. You can not use the Router module together with the VoIP VPN Gateway module. The Router module will no longer be operable then.

- **Configuration**
- **You can define various settings for the router in the PABX system configuration. For example:**
  - Defining and configuring Internet access (including Fallback and Short Hold)
  - IP-address and network dialog mask for the PABX system in your local network
  - Activating/De-activating the DHCP server (defining the start address and number of possible DHCP clients)
  - Activating/De-activating the DNS server and DNS proxy
  - Configurating the Packet Filter Firewall
  - Configuring users for the RAS server

26_1_3 Router Configuration

Here, you can start configuring the router.

26_1_3_1 PABX parameters

- **IP-address:**
  Enter the »IP-address« for the router under System parameters. The default IP-address is 192.168.1.250. You only need to change the IP-address if you are already operating a LAN with set IP-address and this address does not fit in with your address allocations. You do not need to make any changes here if you have not implemented a LAN up to now, or have been distributing addresses via DHCP.
  Each component (LAN client, router, printer…) in a network requires an IP-address. The PABX comes with a built-in router and needs an IP-address as well.

Make sure that the assigned IP-address does not interfere with the connection range of the DHCP clients when DHCP is active. A sufficiently dimensioned address range also has to be specified with the subnet mask for the local network.
The address assignment option allows you to configure the PABX as a DHCP server. There, you define an address range used by the server to assign addresses for the LAN clients of your network.
Why does the address range specified with the subnet mask for the local network has to be sufficiently dimensioned? The number of LAN clients using Internet services simultaneously is defined and limited by the number of available LAN IP-addresses.

- **netmask:**
  The network mask, also called subnet mask, defines a set address range that is available to your network for assigning IP-addresses. The default network mask setting for your router is 255.255.255.0. The number 255 designates the address range identical and unchangeable for all of the LAN computers – this is the network ID number. The 0 in the fourth octet, on the other hand, defines the freely assignable address range. This means that you can freely assign addresses from 1 to 254. 0 and 255 are not used. This means that you have a possible 254 host addresses available.

See also:

IP-addresses and network masks

26_1_3_2 DNS Proxy Parameter

— Use PABX as DNS-Proxy:
Here you can specify, whether you want to use your router as DNS-Proxy. Indicating the cache time in seconds specifies how long already resolved name queries are to be stored in the cache. If the router is not to be configured as DNS proxy, the IP-addresses of the DNS server of the ISP has to be configured on the LAN clients. Configuration may be carried out per DHCP from your PABX or each value has to be entered manually on each LAN client. A domain name system (DNS) converts the domain names of Internet addresses into IP-addresses and vice versa. The DNS proxy is used to cache the assignment of the IP-address to the Internet name.

- **Cache time (in sec)**

See also:

Router functions

26_1_3_3 Other parameters

Press the »Extended« button

26_1_3_4 Calendar-controlled router inhibition

Here you can specify whether the path through your router should be free or blocked for a period of time scheduled in the »calendar « (Calendar 1 or 2).

26_1_4 Network

By using the Router or VoIP-VPN Gateway module, the PABX can automatically provide all of the functions required for a powerful Internet access to a single PC or an entire LAN via xDSL or ISDN. Here the firewall integrated into the router, together with the NAT (network address translation) function, provides the necessary security; the DHCP server and DNS proxy functions ensure that the scope of configuration, both for your router and your PC, is kept to a minimum. Internet access for all of the PCs connected to the router is provided via one single connection (SUA - sing-

le user account); only one set of access data is required from your Internet service provider (ISP). You can configure more than one ISP.

You can either operate the Router or VoIP-VPN Gateway module in the PABX. Both module cannot be used in parallel.

See also:

»Router Description«

26_2 Network_VoIP-VPN_Gateway

26_2_1 VoIP-VPN Gateway

The VoIP VPN Gateway module is the ideal complement to your elmeg ICT systems. This module combines modern Internet telephony through Voice over IP with secure data exchange via VPN. There are two slots integrated into this module for the M 4 DSP or M 8 DSP expansion modules. Use this module for simultaneous operation of IP telephones and standard phones (analog, S0, Up0) with a PABX system for gradual (i.e. reasonably priced) migration to VoIP. Connection to SIP providers is also supported. The VoIP VPN Gateway module can also be used in existing elmeg ICT installations.

26_2_1_1 Submodules M 2 DSP, M 4 DSP and M 30 DSP

These modules are installed as submodules on the VoIP-VPN Gateway module. The modules are designed as plug-in modules for mini-PCI slots and do not have any further connecting points. Operational readiness of the DSP modules is also signaled by an LED. An Infineon, 4-channel Vinetic DSP module is used for the required voice compression.

See also:

»Router_LAN_VoIP-VPN«

»ControlCenter«

26_2_2 Router_LAN (VoIP-VPN)

As the VoIP VPN Gateway is, technically speaking, a VPN router, configuration of all the supported features is very involved and complex. For this reason, only those settings that are necessary for basic operation of the gateway are included in the Professional Configurator.

26_2_2_1 PABX parameters

- **IP-address:**
  Enter the »IP-address« for the router under System parameters. The default IP-address is 192.168.1.250. You only need to change the IP-address if you are already operating a LAN with set IP-address and this address does not fit in with your address allocations. You do not need to make any changes here if you have not implemented a LAN up to now, or have been distributing addresses via DHCP.

- **netmask:**
  The network mask, also called subnet mask, defines a set address range that is available to your network for assigning IP-addresses. The default network mask setting for your router is 255.255.255.0. The num-

ber 255 designates the address range identical and unchangeable for all of the LAN computers – this is the network ID number. The 0 in the fourth octet, on the other hand, defines the freely assignable address range. This means that you can freely assign addresses from 1 to 254. 0 and 255 are not used. This means that you have a possible 254 host addresses available.

26_2_2_2 Time server

- **ntp Timeserver**
  The parameter »Time Server« is used for announcing the IP-addresses for the »Time leasee«. It is useful to configure a timer server in your network so that your system remains synchronized within the network. The timeserver can be installed externally on the Internet as a so-called public timeserver or within the internal network. [If you have configured a computer within your network as the Time Server, enter the IP-address of that computer here.

- **Time zone:**
  Here, enter the time difference between the standard time »Greenwich (Mean) Time« and your own location. For Central Europe calculate this time as follows: time (GMT) + one hour. Also observe the difference between standard and daylight savings time.

26_2_2_3 Extended

- **System name:**
  You can assign each system its own name for identification, for example elmeg ICT VoIP VPN Gateway.

- **Place:**
  Here, enter the location at which the system is sited, for example A-town

- **Contact:**
  Here, you can input an entry that is not required for system configuration, for example your own e-mail address.

- **Access to service shell:**
  You can also conduct Service configuration using »Telnet«. Here, enter the authorization password.

- **Password:**
  Here, enter the authorization password.

- **Password confirmation:**
  Confirm your password.

26_2_3 03_Adressassignment_VoIP-VPN

26_2_3_1 Parameter for dynamic allocation of IP-addresses

- **Start address:**
  Enter the starting address for the automatically assigned IP-addresses. The next available IP-address is displayed under the starting address. This IP-address depends on the DHCP settings (DHCP activated, number of addresses) and the number of IP-addresses reserved for RAS clients.

- **The next available IP-address is:**
  The next available IP-address is displayed under the starting address. This IP-address depends on the DHCP settings.

26_2_3_2 DHCP-parameter

- **DHCP-server active:**
  Each LAN client must have its own IP-address so that the router knows from which LAN client information can be requested from the Internet and to where the data packets are to be returned.
  You do not, however, have to assign any set IP-addresses to the LAN clients in the network configuration, but can have this task performed by the router, which assigns these address dynamically.
  For this, the router must be activated as a DHCP server and a starting address defined. The quantity of reserved addresses (between 1 and 100) can also be configured. You should define the number of addresses in line with the number of LAN clients
  The DHCP server is activated in the router. You can de-activate the DHCP server in the configuration »Address allocation«.

Note:
You may not use the router as a DHCP server if another DHCP server is already active in the LAN. You may also have to enter the IP-address of the router as an internal DNS server in an existing DHCP server. The DHCP executes automatic IP-address allocation and configuration of the requisite parameters for the LAN clients integrated into the LAN. The default starting address is 192.168.1.50. As a result, the address range for 20 addresses would extend from 192.168.1.50 to 192.168.1.69. The address range that is used is defined by the starting address, the IP network mask for the router and the total number of addresses

- **Number of addresses:**
  The number of addresses can be between 1 and 100.

26_2_3_3 DNS server

- **Use pabx als DNS Proxy:**
  DNS queries from computers in the LAN are normally forwarded to one or more external DNS servers by the DNS proxy. The addresses for the external DNS servers can be obtained dynamically, or can be permanently configured in the router. In addition to using the DNS proxy in the router, the LAN clients can also be configured via DHCP such that they query other DNS servers.

Note:
You should only configure the parameters »Domain Names« and »DNS server« when you are operating a DNS server within the LAN.
Also configure the router as a DNS proxy. (xxx=jp) This reduces the DNS queries to external DNS computers, thus enhancing the performance (bandwidth) for your Internet access.
DNS server addresses are provided by Internet service providers. Shown here is an example of a T-Online DNS server: 194.25.2.129 = dns00.btx.dtag.de

- **DNS server in the LAN:**
  Using Dynamic DNS you can also offer your own Internet services (e.g. WEB, FTP or e-mail servers). Usually you must have a fixed line or a set IP-address for this so that you can always be reached at the same URL (for example www.t-com.de). You are assigned a new IP-address by the ISP each time you dial in to the Internet however. Using Dynamic DNS you can link this automatic (dynamic) IP-address with a set name. The router will then inform your Dynamic DNS service provider (e.g. www.dyndns.org) automatically of the new IP-address. Internet inquiries for your Web services are then automatically forwarded to your dynamic IP-address via your service provider.

- **No DNS settings:**
  In this case, the addresses are taken from the existing WAN settings.

26_2_3_4 Extended

- **DNS server:**
  Enter the IP-address for the DNS server.

- **Domain name:**
  Enter the domain name.

26_2_3_5 WINS server

- **Netbios Name Servers**
  NetBios name servers carry out transformation of name queries into IP-addresses. The »Netbios Nameserver« parameter is used for the name definition for Windows PCs when you use a WINS server in the LAN. This parameter should only be configured when you operate a WINS server in the LAN

- **WINS Server in the LAN:**
  Enable the WINS server.

- **IP-address of the WINS server:**
  Enter the IP-address for the WINS server.

26_2_4 Internet connection_VoIP-VPN

26_2_4_1 Internet connection set up via:

- **Connection type**

- **No Internet access:**
  Internet access is not possible.

- **ISDN (PPP):**
  Via ISDN dial-up connections (using the PPP protocol with an ISDN B channel, i.e. at 64 kbit/s). For this type of connection you need the number to be dialed, the user name, the password and any other necessary information, such as the IP-address for the name server and information about the data compression method that is used (VJH) as access data.

- **xDSL (PPPoE):**
  Using xDSL (for example ADSL - T-DSL) in conjunction with a DSL modem that is compatible with your ISP via PPPoE. These connections require your user name and password as access data.

- **TDRC:**
  Bandwidth restriction for receiving end.

- **xDSL (PPTP):**
  Using xDSL (for example ADSL - T-DSL) in conjunction with a DSL modem that is compatible with your ISP via PPPoE. These connections require your user name and password and the IP-address as access data.

- **Fixed (DHCP):**
  Connection through cable modem.

- **other LAN-gateway**
  If a further gateway is located within the same LAN the corresponding IP-address for the gateway and for the DNS server must be input under »IP-addresses«.

26_2_4_2 Select predefined provider (ISDN and xDSL PPPoE only)

All pre-defined providers, or only call-by-call providers can be displayed. Select and accept a provider.

26_2_4_3 General information: (only for ISDN)

- **Telephone number:**
  Here, enter the number for the provider.

- **Outgoing MSN:**
  Here, enter the internal router number that is to be transmitted to outside parties.

Note:
If you happen to be surfing the Internet and are using all the B channels for downloading, you can not be reached by external phone calls, nor can you make an emergency call. As signaling for any further call is made via the D channel, your phone system is equipped with the option of de-activating a specific B channel, depending on your fixed settings, allowing you to then accept a call (see also »Dynamic ISDN«).

26_2_4_4 Connection parameters: (only ISDN, xDSL PPPoE and xDSL PPTP)

- **PPP Encryption (MPP 128):**
  Microsoft Point-to-Point Encryption. An encryption algorithm with 128-bit-key. MPPE ensures that packets remain intact between the clients and the servers, or tunnel servers. This encryption is useful when IP security (IPSec) is not available.

26_2_4_5 Disconnecting: (only ISDN, xDSL PPPoE and xDSL PPTP)

- **Immediate restoration on disruption of connection:**
  If existing Internet connections are disrupted, the system attempts to re-establish the connection immediately (for example following time-controlled termination by the provider).

- **Connection Hold (Keep alive):**
  The connection is also maintained even if no further data packets are being transmitted. The system then conducts polling at regular intervals.

- **No autom. disconnect with inactivity:**
  The connection to the Internet is maintained, even when no further data packets are transmitted, preferably with only one available flatrate.

- **Automatic termination when idle:**
  The connection is terminated after a defined time »after« if there is no active link to the Internet, i.e. there is no further exchange of data packets.

- **after:**
  This entry can be between 35 and 3600 seconds.

26_2_4_6 Automatic disconnection of the WAN-link

This option lets you specify when the WAN-connection is to be interrupted. Specify a timing of your own, to avoid a compulsory disconnect, which some providers use for WAN-connections every 24 hours. This disconnect is effective for several minutes starting at the preset time.

26_2_4_7 Log-on parameter

- **User name:**
  Here, enter the user name specified for you by your provider.

- **Password:**
  Here, enter the password specified for you by your provider.

- **Password confirmation:**
  Confirm your password.

26_2_4_8 Bandwidth management (Traffic Shaping)

Traffic shaping allows the bandwidth of applications to be used more efficiently within the network. It is essential to manage bandwidth and to set priorities for applications to ensure optimal communication via the Internet, such as Voice over IP (VoIP).

- **Traffic Shaping:**
  Here you can set the upload bandwidth. In order to not delay the data traffic this bandwidth should not exceed the bandwidth of the DSL modem. During operation, the bandwidth may be lower than specified for your DSL-access. Please be sure to consider this setting when selecting the maximum number fo simultaneous VoIP-connections (SIP-provider Settings).

- **TCP Download Rate Control:**
  Here you can enter the bandwidth to be reserved for TCP data transfers.

- **Dynamic bandwidth reservation:**
  The entire unused bandwidth is made available for TCP-applications.

- **Static Bandwidth Reservation:**
  Here you can enter the bandwidth to be reserved for TCP-applications.

26_2_4_9 IP-addresses (only xDSL PPTP)

- **WAN port:**
  Enter the IP-address for the WAN port.

- **Router/Modem:**
  IP-address for the router or modem used for connecting to the Internet.

26_2_5 Dynamic DNS_VoIP-VPN

- **Activate Dynamic DNS:**
  Check this box if you wish to use Dynamic DNS.

26_2_5_1 Parameters for dynamic DNS

Using Dynamic DNS you can also offer your own Internet services (e.g. WEB, FTP or e-mail servers). Usually you must have a fixed line or a set IP-address for this so that you can always be reached at the same URL (for example www.t-com.de). You are assigned a new IP-address by the ISP each time you dial in to the Internet however. Using Dynamic DNS you can link this automatic (dynamic) IP-address with a set name. The router will then inform your Dynamic DNS service provider (e.g. www.dyndns.org) automatically of the new IP-address. Internet enquiries for your Web services are then automatically forwarded to your dynamic IP-address via your service provider.

- **DynDns provider:**
  Some of the major DynDNS providers have already been configured in the selection menu. If your service provider is not included in this list find out to which DynDNS provider your service provider is compatible, or specify a new provider.

- **Service providers that are currently supported:**
  — dyndns
  — stat. dyndns
  — ods
  — hn
  — dyns
  — orgdns

26_2_5_2 You define the hostname, user name and password yourself when you register with your DynDNS provider.

- **Host name:**
  Enter the hostname (for example: my-homepage.dyndns.org).

- **User name:**
  The user name identifies you at your DynDNS provider.

- **Password:**
  The password is used to authenticate you at your DynDNS provider.

- **Password confirmation:**
  Confirm your password.

- **Wildcard log-on:**
  In this case, a dummy (shortcut) is enabled that facilitates selection of an Internet site. You then no longer have to enter »http://www. bintec-elmeg.com«, but only »bintec-elmeg.com«.

26_2_6 06_Filter

26_2_6_1 NetBios Filter

The following options can be applied for configuring IP filter rules for filtering NetBIOS and CAPI/TAPI IP data packets. These filters react to IP data packets that are received and either permit or deny reception of the NetBIOS or CAPI/TAPI IP data packets.

- **activate:**
  Activating the NetBios filter. : Incorrectly configured PCs within the LAN can result in erroneous Internet or WAN connections. Therefore, this option is recommended only when you can ensure that configuration of the PCs within the LAN is correct.

- **Simple NetBios Filter:**
  This filter inhibits all NetBIOS-to-DNS-queries (udp, sourceport: 137 destination port: 53). This filter makes sense if you use Windows PCs with the TCP/IP-setting NetBIOS over TCP activated in your LAN.

- **Complex NetBios Filter:**
  This filter will block all NetBIOS IP data packets. This setting is recommended when there are no ISDN WAN or RAS partners present that access your Windows network via your gateway.

26_2_6_2 Statefull Inspection Firewall

- **activate:**
  If not activated, there are no restrictions for the firewall provided. If you configure this performance feature the corresponding filters will be selected using the SIF Filter menu and individual filters from this group subsequently inhibited.

26_2_7 Filter Wizard

26_2_7_1 Internet access

- **Web:**
  Enables outgoing connections for essential services required for surfing the Internet (such as HTTP, FTP and DNS).

- **Email:**
  Enables outgoing connections for all essential e-mail services (such as POP3, IMAP).

- **Files:**
  Enables outgoing connections for the most important file transfer services (such as FTP).

- **News:**
  Enables outgoing connections for using Internet newsgroups (NNTP).

- **Internet applications:**
  Enables outgoing connections for several crucial applications that utilize proprietary protocols (for example IRC, REAL Media).

26_2_7_2 Extended Applications

- **Microsoft FileSharing:**
  Enables services required for proprietary data exchange in MS Windows for the LAN (NETBIOS).

- **Remote Desktop:**
  Enables outgoing connections to a remote desktop.

26_2_7_3 VPN-connections

- **VPN-Lan to LAN:**
  Enables the connections necessary for IPSec VPN for the LAN. As this is a LAN to LAN connection, the associated incoming and outgoing calls are permitted.

26_2_7_4 Service and Configuration Services

- **Service / Configuration Services:**
  Enables essential services for the LAN (for example, SSH, TELNET, HTTP, TFTP) for administration and configuration.

26_2_8 VPN (IPSec)

26_2_8_1 Actions

- **New IpSec...:**
  Here you can create a new IPSec-connection.

- **Edit:**
  Mark the corresponding entry and click the button »Edit«, the entry will then be displayed at the bottom of the screen dialog where it can be edited.

- **Remove:**
  Mark the corresponding entry and then click the button »Remove«; the entry is then canceled.

See also:

»L2L-IPSec« tab

»Traffic« tab

26_2_9 11_»Traffic« tab

Note:
:

Note:
Local IP-address: Source network or source host IP-address. Target IP-address: Target network or target host IP-address

26_2_9_1 Example of connection of complete IP networks:

Local IP-address: 192.168.10.0

Local subnet mask: 255.255.255.0

Target IP-address: 192.168.20.0

Target subnet mask: 255.255.255.0

26_2_9_2 Example of a link between two hosts:

Local IP-address: 192.168.10.1

Local subnet mask: : 255.255.255.0

Target IP-address: 192.168.20.100

Target subnet mask: 255.255.255.

26_2_9_3 Edit traffic

Local network

- **IP-address:**
  Local IP-address: Source network or source host IP-address

- **netmask:**
  The network mask that is part of the source network or source host

26_2_9_4 Remote network

- **IP-address:**
  The destination network address or the destination host address

- **netmask:**
  The network mask that is part of the destination network or destination host

26_2_9_5 Actions

- **Edit:**
  Mark the corresponding entry and click the button »Edit«, the entry will then be displayed at the bottom of the screen dialog where it can be edited.

- **Remove:**
  Mark the corresponding entry and then click the button »Remove«; the entry is then canceled.

26_2_10 »L2L-IPSec« tab

26_2_10_1 VPN connection name

- **Name:**
  You can enter one of your own names here.

26_2_10_2 VPN connection scenario

— Gateway

26_2_10_3 IP-address or DynDns-name:

- **Dyn Dns (static):**
  Your specific network address is known by DynDNS.

- **Dyn Dns (dynamic):**
  You must know your partner’s address.

- **dynamic:**
  No DynDns address has been specified at your partner’s location.

- **static:**
  No DynDns address has been entered for your own Gateway.

26_2_10_4 Partner

IP-address or DynDns-name:

- **none:**
  Only dial-in by IP clients is possible.

- **Dyn Dns:**
  You must know your partner’s address.

- **dynamic:**
  No DynDns address has been specified at your partner’s location.

- **static:**
  No DynDns address has been entered for your own Gateway.

26_2_10_5 VPN connection parameters

In this scenario identification is made using the ID of the other connection party; this ID must be unique for each party. Each party at the end of the connection must be familiar with the ID of the other connection party to establish the IPSec link. Therefore, both IDs must be configured at the IPSec Gateways involved. This ID can be any name. For practical purposes this is usually a designation that uniquely indicates the connection location.

- **Local IPSec ID:**
  Here, enter the local IPSec ID for your own IPSec Gateway

- **Partner IPSec ID:**
  Partner IPSec-ID: ID of the IPSec-Gateway at the opposite terminal of the connection

- **Shared Secret:**
  A shared secret, which must be configured identically at both ends, is used for authentication purposes. The shared secret should be as long and complex as possible to ensure maximum security. We recommend using a combination of letters, numbers and special characters. You should change the shared secret regularly to provide a maximum of security.

- **Shared Secret confirmation:**
  Confirm your entry of the shared secret

26_2_11 »ISDN Routes« tab

- **Default Router:**
  The factory default route.

26_2_11_1 Edit traffic

- **Local network**

- **IP-address:**
  Enter the IP-address for your local network here.

- **netmask:**
  Here, enter the network mask for your local network.

- **Add:**
  Entries are accepted using the button »Add«.

26_2_11_2 Actions

- **Edit:**
  Mark the desired entry and click the button »Edit«; the entry will then be shown again under »Edit traffic«

- **Remove:**
  You can delete a marked entry using the button »Remove«.

26_2_12 15_»L2L-ISDN« tab

- **Name:**
  The name of the selected RAS-connection is shown here.

26_2_12_1 Parameter

- **PPP-ID:**
  The PPP protocol (point-to-point) is used for transmitting data via the ISDN LAN-LAN link. The Gateways must identify and authenticate themselves to the opposite party to permit a PPP connection to be established between parties. In a PPP connection identification is made using the PPP – ID of the other connection party. Both connection parties must therefore know the PPP – ID of the other party. The PPP – ID may be any name. For practical purposes this name is frequently the name that uniquely describes the location. Local PPP- ID: PPP -ID of your gateway Partner PPP -ID: PPP -ID of the Gateway at the opposite terminal of the connection

- **Name:**
  You must enter a name here.

- **PIN:**
  A common password, which must be configured identically at both ends, is used for authentication purposes. The shared secret should be as long and complex as possible to ensure maximum security. We recommend using a combination of letters, numbers and special characters. You should change your password regularly to provide a maximum of security.

- **PIN confirmation:**
  Please enter your PIN again to confirm

- **Partner number:**

  — Enter the ISDN number for the partner gateway at the remote location. Please note that a line access digit (e.g. 0) may be required here, as defined by the configured PABX system settings. This number is required, for example, for setting up a connection via call-back.

- **Own number:**

  — Here, enter the number for the remote location (e.g. for your home office). In conjunction with »Call-through only from specified number«, access authorization for this call is already checked for external calls. This number must be assigned to one of the router numbers under »Call allocation«,»02_Assign external number to internal subscriber«.

26_2_12_2 Call setup

- **No completion of call on busy:**
  Select this option if you do not wish to use the callback mechanism.

- **Waiting for completion of call on busy (passive):**
  Select this option when your Gateway is to use the passive mode. What this means is that your Gateway will call the partner Gateway to initiate a call-back.

- **Completion of call on busy (active):**
  Select this option when your Gateway is to use the active mode. What this means is that your Gateway will call back when requested to do so by the partner Gateway.

- **Dial-in permitted only from the specified number:**
  Select this option when the incoming call is to be identified using the caller number transmitted in the D channel.

26_2_12_3 Connection parameters

- **VJ Header Compression:**
  You should activate this option if it is supported by your provider. VJ Header compression is one method for compressing the IP protocol header.

- **PPP Encryption:**
  Select this option when you want to encrypt all data traffic, i.e. the information being transmitted will not be visible in plain text for unauthorized users.

- **Activate channel bundling:**
  The Gateway monitors the data throughput rate and opens a second ISDN channel if required.

- **Connection established after:**
  This parameter controls the termination of a connection when it is idle (no exchange of data via the connection). The standard setting is 20 seconds. Possible values: -1, 0, 1..3600 seconds. about the special time values 0 and -1:0: The mechanism for terminating the connection is de-activated, i.e. a connection that has been set up will not be terminated automatically by the Gateway.-1: The mechanism for terminating the connection is de-activated and the connection is re-established automatically by the Gateway if it has been interrupted.

26_2_13 16_Dial-in into the LAN (RAS)_VoIP-VPN

26_2_13_1 Actions

- **New ISDN...:**
  Here you can create a new RAS-connection.

- **Edit:**
  Mark the corresponding entry and click the button »Edit«, the entry will then be displayed at the bottom of the screen dialog where it can be edited.

- **Remove:**
  Mark the corresponding entry and then click the button »Remove«; the entry is then canceled.

See also:

»L2L-ISDN« tab

»ISDN Routes« tab

26_3 Address_assignment

26_3_1 Address assignment

Each LAN client must have its own IP-address so that the router knows from which LAN client information can be requested from the Internet and to where the data packets are to be returned.

You do not, however, have to assign any set IP-addresses to the LAN clients in the network configuration, but can have this task performed by the router, which assigns these address dynamically.

For this, the router must be activated as a DHCP server and a starting address defined. The quantity of reserved addresses (between 1 and 100) can also be configured. You should define the number of addresses in line with the number of LAN clients

In the default state, the router's DHCP server is ON (active). You can de-activate the DHCP server in the configuration »Address allocation«.

Note:
Do not use the router as a DHCP server if another DHCP server is already active within the system. You may also have to enter the IP-address of the router as an internal DNS server in an existing DHCP server. The DHCP executes automatic IP-address allocation and configuration of the requisite parameters for the LAN clients integrated into the LAN. The default starting address is 192.168.1.50. As a result, the address range for 20 addresses would extend from 192.168.1.50 to 192.168.1.69. The used address range is specified with a starting address, the IP subnet mask of the router and the number of addresses.

See also:

Address assignment configuration

»IP-addresses in the factory default setting« of the router

26_3_2 Address assignment configuration (Router)

26_3_2_1 Parameter for dynamic allocation of IP-addresses

- **Start address:**
  — Enter the starting address for the automatically assigned IP-addresses. The next available IP-address is displayed under the starting address. This IP-address depends on the DHCP settings (DHCP activated, number of addresses) and the number of IP-addresses reserved for RAS clients.

- **DHCP-server:**
  Specify whether the router is to assume the functions of a DHCP server.

- **Number of addresses:**
  Enter the number of LAN-clients which can connect to the network using DHCP.

- **»Advanced parameters for DHCP«:**
  Detailed parameters transferred by DHCP can be configured as advanced parameters. The values entered as the basic settings should be changed only by experienced users.

Note:
The IP-address is always assigned by DHCP when logging into the LAN (RAS) even when the DHCP server is deactivated. The max. number of simultaneous logins into the LAN depends on the number of reserved IP-addresses.

- **DHCP server active:**
  The IP-addresses following the specified DHCP address range are used.

- **DHCP server not active:**
  The IP-addresses following the set DHCP start address are used for RAS-clients. Hence, when the DHCP server is down, the addresses between the specified start address and the next unused IP-address are used for RAS clients.

26_3_3 DHCP (Dynamic Host Configuration Protocol)

PCs can be provided with a major portion of the configuration required for LAN and Internet access via the DHCP (Dynamic Host Configuration Protocol). The DHCP server integrated into the PABX is capable of supplying corresponding configurations to up to 252 PCs (clients). IP-addresses are dynamically allocated to the clients. The DHCP server service of the PABX system is activated at the factory.

You can configure the first IP-address assigned by the DHCP server. The required number of IP-addresses is assigned to the PCs (DHCP clients) in ascending order.-

If you select a configuration in which some computers receive their IP-addresses via DHCP, while others use set (manually configured) IP-addresses, the following criteria must be fulfilled:

All IP-addresses must belong to the same IP network. meaning that the network part of the IP-address (and with it, the netmask) must be identical.

26_3_4 Extended parameters for DHCP

Detailed parameters transferred by DHCP can be configured as advanced parameters. The values entered as the basic settings should be changed only by experienced users.

26_3_4_1 Subnet Parameters

- **Default TTL:**
  TTL means Time to Live and describes the time in which a data packet travels between the individual servers before being discarded. TTL is not indicated in seconds or milliseconds but is a measure for how many jumps from one server to the next a data packet is subjected to before it is discarded as undeliverable. The number of available addresses can be configured between 1 and 255 with 64 being a commonly used value. If you cannot reach certain sites in the Internet (a »ping« is answered with the message »destination unreachable«) it may be meaningful to increase the »TTL« parameter (default is 64) and specify that all PCs configured via DHCP have their configuration refreshed from the DHCP server. (The easiest way is to simply restart your PCs.)

- **MTU (Maximum Transmission Unit):**
  The »MTU« parameter is used for defining the data packet size used in the LAN. Only packets with a maximum »payload« of 1452 bytes can be transported via a DSL Internet portal (when the PPPoE protocol is used, for example with T-Online). Packets in the router should not be split up first; and reply packets should not be re-assembled. It is therefore expedient to use an »MTU« of 1452 bytes to achieve the greatest possible data throughput rate for the DSL connection. This may, however, result in the data transfer rate in the LAN being reduced slightly.

Enter a MTU value greater than 1492 and an Internet connection via DSL can no longer be guaranteed.

- **lease time (in sec):**
  The lease time is the time (in seconds) for which a LAN client receives an assigned IP-address before that address is fetched and returned to the DHCP server address pool. A LAN client can extend the lease time automatically.

- **Default Gateway:**
  You should enter 0. 0. 0. 0 (place holder for the router IP-address) as the »Default Gateway« if Internet access it to be provided via the PABX system.

- **Only change this IP-address if absolutely necessary.**

- **Domain names:**
  The name of a computer on the Internet is comprised of the host name and the domain name, resulting in a »Full Qualified Domain Name« (FQDN).

Example: xyz.example.de. xyz is the computer name and example.de is the domain name (example = domain and de = toplevel domain).
If you are using the router in certain VPN scenarios, it might be best to enter the corresponding data into your VPN.

- **If the router is used exclusively for Internet access, the entry »home.local« should not be changed.**

- **Netbios Name Servers:**
  NetBios name servers carry out transformation of name queries into IP-addresses. The »Netbios Nameserver« parameter is used for the name definition for Windows PCs when you use a WINS server in the LAN. This parameter should only be configured when you operate a WINS server in the LAN.

- **Time Servers:**
  The parameter »Time Servers« is used for announcing the IP-address for the »Time leasee« when your PCs direct (Windows XP, Linux) the NTP (Network Time Protocol). (LAN-clients must support the use of timer servers.)
  It is best to setup a timeserver to ensure all PCs within the network are working synchronously. This server can be installed at an external location in the Internet as a so-called Public Time Server or in your own network. A timeserver has a DCF77 receiver (radio-controlled clock) or is connected with a “true” timeserver via the Internet.
  If you have configured a computer within your network as the Time Server, enter the IP-address of that computer here.
  DCF77 is a time signal generated by an atomic timepiece, encoded, and broadcast on the standard frequency of 77.5 kHz. This time signal distributes “legal time” as defined by German time laws (ZeitG). See also: http://www.dcf77.de

- **DNS Servers:**
  DNS queries from computers in the LAN are normally forwarded to one or more external DNS servers by the DNS proxy. The addresses for the external DNS servers can be obtained dynamically, or can be permanently configured in the router. In addition to using the DNS proxy in the router, the LAN clients can also be configured via DHCP such that they query other DNS servers.

Note:
You should only configure the parameters »Domain Names« and »DNS server« when you are operating a DNS server within the LAN.

Also configure the router as a DNS proxy. (xxx=jp) This reduces the DNS queries to external DNS computers, thus enhancing the performance (bandwidth) for your Internet access.

DNS server addresses are provided by Internet service providers. Shown here is an example of a T-Online DNS server: 194.25.2.129 = dns00.btx.dtag.de

26_3_5 IP-addresses in the default setting

The factory settings are already sufficient for using the router to access the Internet from your local network. You have to define (when configuring the router) the Internet service provider that you wish to use.

- **The IP-addresses for your local area network are then distributed as follows:**
  - 192.168.1.1 through 192.168.1.49
    Freely assignable IP-addresses as for example for LAN clients with a fixed IP-address
  - 192.168.1.50 through 192.168.1.69
    IP-addresses that are allocated to corresponding LAN clients by the PABX system. (Number of DHCP clients: 20)
  - 192.168.1.70 through 192.168.1.73
    IP-addresses reserved for LAN-access (RAS). These addresses must always remain reserved and may not be assigned as set IP-addresses.

— 192.168.1.74 through 192.168.1.249
Freely assignable IP-addresses as for example for LAN clients with a fixed IP-address

— 192.168.1.250
IP-address of the routers

— 192.168.1.251 through 192.168.1.254
Freely assignable IP-addresses as for example for LAN clients with a fixed IP-address

Please that each IP-address can only be assigned once. The first and last IP-address for a network may not be assigned to LAN clients. In this example: 192.168.1.0 and 192.168.1.255.

- **Example for the hint:**

  — 255.255.255.0
  Subnet mask for all components on the network (Router, LAN clients, etc.)

  — 192.168.1.250
  Gateway IP-address (Router)

  — 192.168.1.250
  IP-address for the DNS server (router). The PABX system also acts as a DNS proxy in place of the ISP's DNS server.

Note:
An IP-address may not be used by more than one client at any one time; with regard to the example given above this means that the IP-addresses 192.168.1.2 to 192.168.1.49 and 192.168.1.70 to 192.169.1.249 can be used for PCs which have manually configured IP-addresses.

The reserved IP-addresses for Bluetooth and RAS may not be used for other purposes such as static IP-addresses. Here, the IP-address is always assigned through DHCP, even when the DHCP server is de-activated. Under »Address assignment« in the configuration program you can de-activate the DHCP server and input the starting address for Bluetooth or RAS. The following 11 addresses are then automatically reserved for RAS and Bluetooth.

26_3_6 IP-address classes (ip V4)

26_3_6_1 IP-address classes

The portion of a network address and the portion of the host address in an IP-address may differ. Depending on how large the portion of the network address and host address is in an IP-address, different address classes apply.

- **Class A**
  In Class A networks, the network component of an IP-address is 1 byte long. The other 3 bytes represent the host component of the IP-address.

  0.x.x.x through 126.x.x.x

  This results in 127 class A networks. The maximum number of hosts (clients) in a network is 16,777,214. The network mask for a Class A network is normally 255.0.0.0. .

- **Class B**
  In Class A networks, the network component of an IP-address is 2 bytes long. The other 2 bytes represent the host component of the IP-address.

  128.0.x.x through 191.255.x.x

This results in 16,384 class B networks. The maximum number of hosts (clients) in a network is 65,534. The network mask for a Class B network is normally 255.255.0.0. .

- **Class C**
  In Class C networks, the network component of an IP-address is 3 bytes long. The fourth byte represents the host component of the IP-address.

  192.0.0.x through 223.255.255.x

  This results in 2,097,152 class C networks. The maximum number of hosts (clients) in a network is 254. The network mask for a Class C network is normally 255.255.255.0. .

Note:
The first and the last address of a network cannot be used for hosts (clients). The first address is the network address and the last address is the broadcast address (see example for the router).

The address 127.0.0.1 has special significance. This address always addresses the local / one’s own PC and is thus defined as “localhost” (IP V4 standard definition). The network address 127.x.x.x is not admitted ("An address 127.x.x.x should never be seen on a network!"). This address can be used to verify the network installation of the local computer.

26_3_7 IP-addresses and network masks (IP V4)

Each component (LAN client, router, printer…) in a network requires an IP-address. Clients and router use these IP-addresses to determine the location of a client and the optimal path (routing) for sending the data packet.

An IP-address is comprised of a network and a host address. The network address defines the network in which a host is located (comparable with name and ZIP of a city). All hosts of a network use the same network address. The host address identifies an individual node within a network (comparable with street name and house number).

The subnet mask is used by a PC to assign network and host portion of an IP-address. The subnet mask of the router is also used to specify the address range for the local network (LAN) and with that the max. number of LAN clients.

IP-addresses and network masks are each 4 bytes long and can be specified as a decimal (255.255.255.255) or a binary value (11111111.11111111.11111111.11111111). The dots between the individual bytes are only used to facilitate reading these addresses.

- **Example for the router**
  - IP-address of the routers: 192.168.1.250
  - IP netmask for the router: 255.255.255.0
  - Network part of the IP-addresses: 192.168.1.xxx
  - Host part of the address: x.x.x.250
  - First usable IP-address: 192.168.1.1 (netmask: 255.255.255.0)
  - Last usable IP-address: 192.168.1.254 (netmask: 255.255.255.0)
  - Network address (must not be used for clients): 192.168.1.0
  - Broadcast address of the networks (must not be used for clients): 192.168.1.255

You can assign the available IP-addresses to the individual LAN clients manually, or have them assigned by the router through DHCP. No IP-address may be used simultaneously by more than one client however. With regard to the example given above this means that the address 192.168.1.250 may not be allocated again, as it is already being used by the router.

The network part of the IP-address may not be changed, as otherwise the LAN clients would not all be located within the same IP network. A PC with the IP-address 192. 168. 2. 1 is located in a different network. A PC from the router

network would not be able to locate this other PC if it is not within its own network. In addition, the same subnetwork mask must also be entered at all LAN clients located within the same network.

See also:

Categorizing IP-addresses as different address classes »IP-address classes«

»Reserved address ranges« for use in private networks

26_3_8 Reserved address ranges (IP V4)

26_3_9 Reserved address ranges

The following address ranges are reserved for use by private networks:

- **Class A**
  A Class A network is reserved for private use:
  10. 0. 0. 0

  Example: 10.0.0.1 through 10.255.255.254

- **Class B**
  Sixteen Class B networks are reserved for private use:
  172.16.0.0 through 172.31.0.0

  Example: 172.17.0.1 through 172.17.255.254

- **Class C**
  256 Class C networks are reserved for private use:
  192. 168. 0. 0 through 192. 168. 255. 0

  Example: 192.168.1.1 through 192.168.1.254

  IP-addresses from the specified areas are not Internet routed. Users can select the address range for their own, private network from these areas. Assignment of these addresses does not require coordination with an organization responsible for allocating addresses.

- **Example for the router**

- **IP-address:**
  192.168.1.250

- **Network mask:**
  255.255.255.0

The IP-address is an address reserved for private local networks (determined by the first two value: 192.168).

The network mask defines that this is a Class C network in which up to 254 LAN clients can be linked. Using the network mask an IP-address can be divided into the network address and the host address (address of the PC).

26_4 Internet_access

26_4_1 Internet access

If an ISP has not been entered yet when you open the »Internet« configuration window, the «Select Predefined Provider« tab opens automatically: You can then select ISPs from this list.

If providers have already been entered, you can edit these entries directly. The list displays the providers sorted in the »Fallback order« with a consecutive number, the logo (if available), the ISP, and the type of connection (ISDN or DSL).

26_4_1_1 General Internet access settings

- **Activate automatic connection withe the ISP:**
  Connection to the Internet is always set up automatically by the PABX system when a data packet is to be sent to the Internet. This occurs automatically when you enter http: //www.bintec-elmeg.com in your browser for example. The router attempts to establish a connection via the first entered Internet access. If the selected Internet access cannot be reached, the router is able to dial the next configured Internet access.

- **Activate fallback:**
  Internet access is selected in the order prestored in the system, starting with the entry number 1. The buttons »Move up« and »Move down« are used change the order of the listed Internet providers as desired.

- **Fallback example**
  Adding new or predefined providers / Internet connections:
  Click the corresponding buttons to add a new individual or predefined Internet access.

- **Set Up New Internet Access**
  Editing or removing providers / Internet connections:
  To edit or delete an Internet access entry, click the corresponding button.

26_4_2 Fallback example

Let's assume you have a DSL connection with the Deutsche Telekom AG (German Telecom) and have selected T-Online as your ISP.

- **You have configured three ISPs:**
  - 1. Internet access through T-DSL (T-online). The router will use the PPPoE protocol at the WAN port. Enter your access data (mark the ISP in the list, field »Edit«, field »Access data for T-Online«)
  - 2. Internet access via ISDN (T-Online). The router uses an ISDN dial-up connection (and the PPP protocol). Enter the same access data (mark the ISP in the list, field »Edit«, field »Access data for T-Online«).
  - 3. Internet access using an Internet-by-call provider. The router uses an ISDN dial-up connection (and the PPP protocol). When you select an Internet-by-call provider from the defined list, the corresponding parameters are already configured (»Access data«, »Number«).

If there is a disturbance with the DSL connection, the router will, after a configured time period keep attempting to set up the Internet connection for the number of times configured in the field »Number of connection attempts. You can activate/de-activate this function in the configuration program. You can set the intervals between the attempts using the parameter »Time between attempts« in the configuration item Network Internet. You can set the number of attempts and the interval between these attempts separately for each ISP that has been configured.

After that, the router will use the next ISP configured in the list for attempting to set up a connection.

If the connection is disrupted and an attempt is to be made later to re-establish the connection, this cycle is restarted beginning with the first entry in the list.

26_4_3 DSL- and ISDN-connections

- **You can set up a connection to the Internet with your router as follows:**
  - Dial-up connections via ISDN (using PPP protocol, with one or two ISDN B channels, i.e. at 64 kBit/s or 128 kBit/s). These types of connections require access data with the number to be dialed, the user name and password and, in some cases, other information such as the IP-address of the name server and any information about the data compression method that is used (VJH).
  - Using xDSL (for example ADSL - T-DSL) in conjunction with a DSL modem that is compatible with your ISP via PPPoE. These connections require your user name and password as access data.
  - Using xDSL (for example: B: SDSL) in conjunction with a DSL modem that is compatible with your ISP with a set, public IP-address. These connections require the public IP-address that you have been assigned, the IP-address of the next gateway (next hop) and the IP-address for the name server of your provider.

26_4_4 Settings for an Internet access

The following is a description of the different settings for configuring Internet access. Not all of the settings are possible or necessary depending on the type of access.

26_4_4_1 »General information

Product designation:

Enter here the name of the provider. A neutral »ISP« logo is displayed for a user-configured provider.

26_4_4_2 Connection established through:

There are three different Internet access options: Setting up Internet access requires knowledge of the necessary data. This data is provided by the respective provider. The list of enclosed call-by-call Internet providers already includes user name and password.

- **ISDN (PPP):**
  You must specify here a user name, a telephone number and a password.
- **xDSL (PPPoE):**
  Access is here provided via DSL and you have to enter user name and password.
- **Direct connection (fixed IP-address):**
  Here you have to enter the IP-addresses of the gateway, the next-hop, and the DSN sever. Additional settings are specified with the »Advanced settings for an Internet access«button.

26_4_4_3 Dial-in parameter

- **Telephone number:**
  Dial-in requires entering the number of the ISP. Example: T-Online has the number 0191011.
  The factory settings require that the line access number is entered as well. Automatic line access in the configuration Subscriber -> Line Access -> Connection Type is not active for router subscribers.
  Do not enter an additional 0 in front of the number if automatic line access is active.

- **Structure of max:**
  You can also specify whether the connection should use one or two B-channels.
  The transfer rate via a B-channel is 64 kilobytes/second. Utilizing two B-channels yields a transfer rate of 2 x 64 kbit/s = 128 kbits/second. This results in higher connection costs.
  When accessing the Internet via both ISDNN B-channels, one B-channel is automatically disconnected in case of an incoming or outgoing telephone connection.

- **Disconnect after inactivity (automatic disconnect of the Internet connection [short-hold]):**
  You have the option of activating a so-called short-hold. This is used to specify a time after which an existing connection is severed if data is no longer transferred. Factory setting is 300 seconds. Short-hold is deactivated when entering 0 as the time value. If you set the parameter »Terminate on inactivity« too high, this may result in considerable costs for time-based charges.
  This function is useful, e.g., if you forget to disconnect your Internet connection.

See also:

Automatic disconnection from the Internet

26_4_4_4 Log-on parameter

- **User name:**
  Here, you enter the user name assigned to you by the respective ISP.

- **Password:**
  Here, you enter the access password assigned to you by the respective ISP. The password corresponds with the password entered in Microsoft Windows as the dial-up networking password.

- **Outgoing MSN:**
  Select a MSN to be transferred to an external location. This MSN will be responsible for any incurred connection costs.

26_4_4_5 Connection attempts

The number of connection attempts and intervals between attempts can be set individually for each ISP.

- **Quantity:**
  You can specify the number of connection attempts to an ISP. If the set number for an ISP is exceeded, the next provider in the list of available providers is used. This process is called fallback (fallback to the next provider). If all providers were dialed unsuccessfully, it takes a restart (reload) of the browser, e.g., with the “Refresh” button (Microsoft Internet Explorer) or the “Reload” button (Netscape Navigator) to attempt reconnecting.

- **Time interval:**
  The delay between each attempt is set with the time interval parameter. The factory setting is 30 seconds.

26_4_4_6 IP-addresses

IP-addresses for a direct connection can only be entered if the direct connection option (static IP-address) is selected. ISDN (PPP) and PPPoE (DSL) are then inactive.

— Enter the external IP-address you have received from your ISP.

— Enter the IP-address for the Next Hop, which you can obtain from your ISP.

Note:
Important: Under »Extended« enter the IP-addresses for the DNS server that have been communicated to you.

»/32« is the prefix for the subnet maks and represents an alternative to the writing in decimal format 255.255.255.255. Using this format, the subnet maks for Class A, B and C networks are represented as follows:

Class A: 11111111 00000000 00000000 00000000 /8 = 255.0.0.0

Class B: 11111111 11111111 00000000 00000000 /16 = 255.255.0.0

Class C: 11111111 11111111 11111111 00000000 /24 = 255.255.255.0

For example, the IP-address 138.96.0.0 of a class B network with the subnet mask 255.255.0.0 can also be expressed as 138.96.0.0/16.

26_4_5 Extended...

Click this button to open a new entry field on the screen. If required for the selected provider, specify additional settings and values here. However, this configuration is necessary only for a few providers.

If the IP-addresses for the LAN clients are not assigned by DHCP, the IP-address of the gateway and the DNS server has to be entered in all LAN clients. In this case, this is the IP-address for the PABX (factory setting 192.168.1.250)

26_4_5_1 DNS server

The DNS server address usually is automatically transmitted by the IPS when establishing a connection. If your ISP assigns a static public IP-address, you have to enter the DNS server of the ISP into this field. Click »+« to release the first entry (0.0.0.0) – you can then enter an IP-address.

26_4_5_2 Other parameters

- **PPP-authentication:**
  Login to a network is password-protected with different access procedures:

- **PAP:**
  Password Authorization Protocol Procedures using password verification to access a network. Contrary to the CHAP procedure, PAP constitutes an unencrypted login.

- **CHAP:**
  Challenge Handshake Authorization Protocol Dial-up procedures where an encrypted password is transferred.

- **MSCHAP:**
  MicroSoft-CHAP. A CHAP process modified by Microsoft.

Select the procedure indicated by the respective ISP. PAP should work in most cases.

26_4_5_3 VJ-IP header compression (VJ = Van Jacobsen):

If your provider supports VJ IP header compression, activate this function to optimize data transfer.

26_4_6 Internet-by-Call

The Professional Configurator includes a list of Internet-by-call ISPs (internet Service Provider) for you to choose from. The advantage here is that you can set up an Internet connection immediately without first having to agree to a contract. (The requisite access data are already contained in the configuration software for the Internet-by-call ISPs that are listed). You can change this configuration when you decide to conclude a contract with a provider for example (at present required for all DSL providers).

— Fallback configuration for several ISPs »Internet always works«

— You can configure more than one IPS in your PABX system.

— You have one DSL connection that is not always available. In this case you could configure your PABX such that it automatically attempts to set up Internet connections by DSL. If this attempt is unsuccessful an Internet connection via ISDN can be programmed using a different ISP.

— You are using a provider that is not always available (some Internet-by-call providers have very reasonable rates, but their access nodes are overloaded due to heavy traffic during peak times). Here you can simply configure several Internet-by-call providers. The PABX system will automatically attempt to set up a connection with one of the configured ISPs.

You can easily change the order of the ISPs with which the Internet connection is to be set up (»Fallback order« down / up). You can also set the number of and intervals between these attempts at setting up an Internet connection for each ISP that has been configured. When the waiting period between the attempts expires and when the configured number of actual attempts is reached and no connection has been established, the next ISP in the list is selected.

Connection to the Internet is always set up automatically by the PABX system when a data packet is to be sent to the Internet. This occurs automatically when you enter http: //www. elmeg. de in your browser for example.

Billing of the costs is made through the telephone bill from your network provider.

26_4_7 Automatic termination of the Internet connection (ShortHold)

You have the option of activating a so-called ShortHold. Specify a time after which an existing connection is severed if data is no longer transferred. Short-hold is deactivated when entering 0 as the time value.

26_4_7_1 Terminating the connection to the DSL-modem

You disconnected your Internet connection but the LED of your DSL modem indicates that you are still connected. The connection to the DSL router is not severed until the »disconnect after inactivity« time has expired and when the router no longer receives any data packets. If hubs are installed in your network, for example, or if a connection to the Internet still exists, data packets may continue to be sent to the router and the connection can not be terminated.

If the router of the PABX system determines that there is incoming data from the Internet the connection will not be terminated automatically when the set inactivity time expires. This can result in considerable costs, even though you are not actually using the Internet connection. This can occur, for example, when a port scan is conducted toward the

router which is frequently the advance stage of a hacker attack. A further possibility is that peer-to-peer file sharing software has been run using the IP-address that was assigned automatically to the router by the ISP. In this case, queries for downloading files from the Internet to the IP-address currently being used for your Internet connection can continue to arrive over an extended period of time. Although these queries can not be responded to they can not be technically prevented either. To make sure additional costs are not incurred, use the Control Center to disconnect the Internet connection or disable the router's automatic connection function (see Control Center).

26_4_8 Setting up a new Internet access

If an ISP has not been entered yet when you open the »Internet« configuration window, the «Select Predefined Provider« tab opens automatically: You can then select ISPs from this list.

26_4_8_1 Adding a predefined provider from the list

You can select and add predefined Internet providers to your list from an already existing list. Click the appropriate button.

- **You can then view the predefined DSL or ISDN providers:**
  - — Highlight the desired provider.
  - — Use »Edit« to edit the provider entries. (See also: »Settings for an Internet access«)
  - — Use »Import« to import the selected provider.
  - — The selected provider is displayed in a new screen mask:

26_4_8_2 Adding an individual provider

Click »New« to add a provider of your choice. Make the different settings and entered the necessary data now. Confirm the configuration of the new Internet access entry with »OK«.

The selected provider is displayed in a new screen mask.

26_5 Dynamic_DNS

26_5_1 Dynamic DNS

Using Dynamic DNS you can also offer your own Internet services (e.g. WEB, FTP or e-mail servers). Usually you must have a fixed line or a set IP-address for this so that you can always be reached at the same URL (for example www.elmeg.de). You are assigned a new IP-address by the ISP each time you dial in to the Internet however. Using Dynamic DNS you can link this automatic (dynamic) IP-address with a set name. The router will then inform your Dynamic DNS service provider (e.g. www.dyndns.org) automatically of the new IP-address. Internet enquiries for your Web services are then automatically forwarded to your dynamic IP-address via your service provider.

26_5_1_1 Using Dynamic DNS

- — Configure an Internet address (URL) at a Dynamic DNS service provider. For example, at "www.dyndns.org" configure the address "www.my-homepage.dyndns.org".
- — Configure the LAN client of the network in which you wish to offer your Web services with a set IP-address. For example, let's say we want to configure a Web server with the IP-address 192.168.1.200.

— Activate the dynamic DNS function in the router and enter the Internet address of your dynamic DNS provider (example: www.dyndns.org). Add the necessary filters to the firewall in order to be able to access the PC externally using the Web services.
- Configure port mapping for Port 80 (HTTP protocol) to IP-address 192.168.1.200.
- Configure the filters that permit incoming and outgoing WAN connections at Port 80.

— The router will automatically inform your Dynamic DNS provider of your current dynamic IP-address each time a connection is set up with the Internet. The information about the IP-address is transferred after setting up a new Internet connection, as well as during an ongoing Internet connection.

— A PC in the Internet enters the address (URL) “www.my-homepage.dyndns.org”. In this way it reaches your Dynamic DNS service provider. Your service provider reroutes the connection to your current dynamic IP-address.

— Any incoming connection is handled in accordance with the configured filters. In the example given here the incoming WAN connection at port 80 is forwarded to the LAN client with the IP-address 192.168.1.200. The available Internet sites of your Web server are displayed on the external PC.

See also:

»Dynamic DNS Configuration«

26_5_2 Dynamic DNS Configuration

- **Here, enter the data for your Dynamic DNS service:**
  — Server (provider’s IP-address or Internet address, e.g: members.dyndns.org)
  — Host name (e.g: my-homepage.dyndns.org)
  — User name
  — Password

Note:
The function Dynamic DNS is currently only supported by the provider www.dyndns.org.

You define the data hostname, username and password yourself when you register with your DynDNS-provider.

26_6 Filter

26_6_1 Filter

When you use NAT, the PCs connected to the router are well protected against attacks from the Internet. Here, the internal IP-addresses are not passed on to the Internet. The router carries out the transfer to the Internet and distributes the incoming data packets in the internal system. This only requires one external IP-address. The internal IP-addresses are protected from attacks from outside. The internal IP-addresses can not be targeted by hackers, as these IP-addresses are non-accessible.

If you wish to have additional security you can also use the integrated package Filter Firewall. A firewall acts as a logical wall for data packets between the Internet and the LAN which has »holes« for certain packets (firewall rules, also known as filters), allowing these packets to pass through the wall. In the initial status the firewall is configured such that all data can pass through that are sent in the direction of the Internet.

An exception to this rule is the »Netbios filter«: This filter prevents the forwarding of Netbios name queries from Windows PCs to the Internet. As the names of the Windows PCs within the LAN are not known in the Internet, it is not meaningful to establish an Internet connection for forwarding the name query (this could result in considerable costs, as these name queries occur frequently, meaning that the Internet connection would practically never be terminated).

The filters are described by rules whose configuration requires expert knowledge about the TCP/IP protocol family. The firewall of your router can be easily configured using a Filter Wizard in which you need to indicate (in plain text) whether you wish to allow defined applications access to the Internet.

The filters available using the Filter Wizard have been implemented using the latest knowledge. We can, however, provide no guarantee for the function of the filters. Use of a firewall should go hand in hand with use of virus scanning software on all your PCs! Firewalls and virus scanners cover different areas of data security and are an ideal compliment to one another, but can not replace one another.

See also:

Firewall Configuration

Editing filters

Creating filters with the »Filter Wizard«

26_6_2 Filter configuration example

26_6_2_1 Example of configuration for enabling the firewall for Web surfing.

First, set the response by the last filter rule to »discard«.

The IP packets for two services must be routed through the firewall in order that pages from the World Wide Web can be displayed: DNS for establishing names and the »html data flow«. When you enter a URL in the Web browser, the browser uses a DNS inquiry for transforming the plain-text name (for example www. Telekom. de) into an IP-address (in the example here 217. 160. 73. 88). After that, the browser establishes at least one connection to this IP-address via TCP/IP. This yields the following filter configuration:

The UDP and TCP protocol must be enabled for DNS (protocol name: domain) for the destination port 53 of any DNS server from any non-privileged port; same applies for the return route.

Access to any destination addresses for port 80 must be possible for http requests for the TCP protocol via the WAN interface from non-privileged ports. The return patch for reply packets must be enabled appropriately: From any Internet IP-addresses (0.0.0.0 / 0) from port 80 to non-privileged ports for the WAN address of the router.

26_6_3 Examples for predefined filters

Help for the various filters contained in the Filter Wizard can be found in the file “Filter_Info.txt” in the Win-Tools installation directory (e.g. “C:\Program files\elmeg WIN-Tools\WIN-Tools V6.30\filterinfo”), or by clicking the corresponding “Help” button«.

- **Protecting the system:**
  This filter blocks the firewall against connection setups at privileged ports (0 ... 1023) for TCP and UDP. Most relevant data services are offered via privileged ports (establishing names, file transfer, etc.).

- **IP Spoofing Blocking:**
  This filter blocks the firewall against "fake" (spoof) packets on the "wrong side" of the firewall. As a result, data packets which would certainly belong in the LAN based on their IP-address, but would be routed to the port for the DSL modem by an attacker from the Internet, are ignored (same applies to ISDN links to the Internet).

- **DNS-filter:**
  This filter permits establishing of names (assignment of IP-addresses to URLs) by enabling outgoing UPD and TCP packets at port 53, as well as incoming ones from port 53. Longer replies and zone transfers are also permitted by enabling TCP. No DNS queries can pass through the firewall when this filter is de-activated!

- **Active FTP - Filter:**
  Together with the corresponding software module in the firewall this filter permits active FTP. Active FTP differs from passive FTP in that the FTP server sets up a connection for data transfer at the request of the clients (applies both to the response to the FTP command "ls" and to the file transfer proper). The problem here is that the connection setup by the FTP server is made at any non-privileged port, thus requiring that a large region of the firewall be enabled.
  Outgoing connections at ports 20 and 21 and incoming ones from these ports to non-privileged ports are enabled.

- **Passive FTP - Filter:**
  This filter permits file transfer via FTP, with the connection always being established by the FTP client. Outgoing connections to port 21 and incoming ones from this port to non-privileged ports are enabled.

- **HTTP - Filter:**
  This filter permits Web browsing by enabling packets to ports 80 and 8080 (when using http proxies) for outgoing connections and incoming packets from these ports to non-privileged ports.

- **HTTPS - Filter:**

  — This filter permits secure Web surfing by enabling packets to port 443 for outgoing connections and incoming packets from this port to non-privileged ports. The https protocol is frequently used for home banking and online shopping; http connections are used for transfer of secure packets using encryption.

- **HBCI - Filter:**
  This filter permits the use of HBCI for home banking by enabling packets to port 3000 for outgoing connections and incoming ones from this port to non-privileged ports.

- **E-mail send filter:**
  This filter permits transmission of e-mails via SMTP (= sending e-mails) by enabling packets to port 25 for outgoing connections and incoming packets from this port to non-privileged ports.

- **E-mail Reception Filter:**
  This filter permits transmission of e-mails via POP (= receiving e-mails) by enabling packets to port 110 for outgoing connections and incoming packets from this port to non-privileged ports.

- **ICMP(all) - Filter:**
  This filter permits the "ping" program to be used, for example to check the availability and accessibility of computers in the Internet and to measure the transfer time of IP packets to these computers. This can be useful, for example, for locating the server with the most rapid response time for Internet games. When you activate this filter you can also reach the router using the "ping" program, but not any computer in the LAN "behind" (i.e. downcircuit) of the router, as these are protected by NAT. This filter enables all ICPM protocols, and not only those used for "ping". If necessary you can set further restrictions for this filter by having only ICMP protocols 0 and 8 enabled (echo-request, echo-reply). Overall security is increased

when you do not activate this filter, as the firewall can not be easily located by a simple "ping" from a port scan program.

- **SSH - Filter:**
  This filter permits the use of the 443 service program on computers in the Internet by enabling packets to port xxx for outgoing connections and incoming packets from that port to non-privileged ports.

- **TELNET - Filter:**
  This filter permits the use of the telnet service program at computers in the Internet by enabling packets to port 23 for outgoing connections and incoming packets from this port to non-privileged ports.

- **P2P - Filter:**
  This filter allows peer-to-peer (P2P) file sharing software to be used. The following ports are enabled to provide one single filter for the various P2P systems:

Incoming packets:

— from port80 to non-privileged ports

— from port 1214 to non-privileged ports

— from non-privileged ports to port 80

— from non-privileged ports to non-privileged ports

— Outgoing packets:

— from non-privileged ports to port 80

— from non-privileged ports to port 1214

— from non-privileged ports to port 4661

— from non-privileged ports to non-privileged ports. With this filter the firewall is wide open!

- **Gaming - Filter:**
  Use this filter to play Internet games. The following port enables have been provided:

- **Incoming packets:**
  from port 7002 to non-privileged ports for TCP from non-privileged ports to non-privileged ports for UDP

- **Outgoing packets:**
  from port 7002 to non-privileged ports for TCP from non-privileged ports to non-privileged ports for UDP

- **Realplayer - Filter:**
  This filter makes it possible to use the RealPlayer for streaming audio and video. The following port enables have been provided:

- **Incoming packets:**
  from port554 to non-privileged ports for TCP, from port 7002 to non-privileged ports for TCP, from non-privileged ports to ports 6970 through 7170 for UDP

- **Outgoing packets:**
  from non-privileged ports to port 554 for TCP, from non-privileged ports to port 7070 for TCP

- **Mediaplayer - Filter:**
  This filter makes it possible to use the RealPlayer for streaming audio and video. The following port enables have been provided:

- **Incoming packets:**
  from port 1755 to non-privileged ports for UDP, from port 1755 to non-privileged ports for TCP

- **Outgoing packets:**
  from non-privileged ports to port 1755 for UDP, from non-privileged ports to port 1755 for TCP

26_6_4 Editing filters

The following parameters can be configured when setting / editing a filter.

- **Name of the filter:**
  Each filter must be assigned a unique name. Select a name for the filter that uniquely describes the function for that filter - this will make it easier for you later if you wish to change any filters.

- **Action:**
  The following options can be selected: allow, deny, discard and portmap. When »allow« is selected, all packets which correspond to the parameters of the associated filter can pass through. When »deny« is selected, the corresponding IP packets are rejected and the sender of the packet is informed. »discard« results in packets being discarded (refused) without the sender being informed. The option »portmap« permits specific forwarding of packets with TCP and UDP protocols to the IP-address of a PC in the LAN.

- **TCP Flag:**
  If a TCP connection is to be set up (for example for downloading files), certain bit samples are set in the packets involved with this - the TCP flags. The option »connection in progress« stands for the SYN flag; the option »connection established« for the »Established flag«

- **Protocols:**
  UDP, TCP, ICMP and »all protocols« can be selected as protocols. The selection of the protocol can affect further options, as, for example, there are no TCP flags available for UDP, or no port for ISM, while there are certain types of protocols available however.

- **Interface:**
  Here you can define the interfaces for the correspondend filter. At present, the setting »WAN« is useful for most cases, as all packets are allowed at internal interfaces with this setting.

- **Connection:**
  Use this field to define the direction of the IP packet for which the configured filter is valid. Possible parameters: in, out and in/out (bi-directional).

- **Source address definition:**
  Here you specify the source address (IP-address and port) for the IP packets for which this filter is valid. Take into account any potential abstractions brought about by place holders.

See also:

Placeholder during filter creation

- **Target address definition:**
  Here you specify the target address for the IP packets for which this filter is valid. Take into account any potential abstractions brought about by place holders.

- **Warning message for port protocol association:**
  A warning appears if you attempt to enter an unknown name in the field for the TCP port. If this is bothersome you can suppress this message by removing the corresponding check in the box.

See also:

Filter configuration example »Filter configuration example«

26_6_5 Filter Wizard

The firewall is configured such that all data packets for which no explicit rule (filter) exists which would otherwise allow the packets to pass are rejected. This procedure makes the configuration of the firewall somewhat more complicated, but significantly reduces the probability of "overseeing" the blocking of some packets to prevent them from passing through the firewall.

Some filters contain rules for rejecting packets which would actually not be required for the selected basic configuration of the firewall, because the firewall would reject any packets not enabled by the filters, based on the configuration carried out by the Wizard. The rejection rules mentioned above are nevertheless retained to reject packets used in certain attacks at the earliest possible stage to prevent the packets from passing through the entire chain of filter rules; this enhances firewall performance in the event of a real attack.

The Filter Wizard can be restarted at any time to load a modified (edited) configuration into the router. Click the button »Send configuration data« to transfer and activate the filters. After the data is sent the new configuration is activated in the router and any ongoing Internet connection is terminated. The connection is re-established however as soon as a data packet must be routed to the Internet which the firewall lets pass in accordance with its configuration.

that when you click the button Send, the entire configuration for the PABX system will be overwritten. It is strongly recommended to read out the configuration for the PABX system and storing it in a file prior to changing the filter configuration.

We recommend following the instructions given by the Filter Wizard, unless you establish that one of the applications you are using can not set up a connection to the Internet. In this case, please check whether the Filter Wizard has a corresponding filter available. Elmeg regularly generates an updated database for the Filter Wizard, which is available at the www. elmeg. de Web site.

Please that all filters that are generated with the Filter Wizard are based on packets being discarded, with the exception of those for which an appropriate rule exists. The more filters you configure for the router, the more computing time is required for processing of these filters. This could slightly reduce the maximum achievable data throughput rate for the router in some cases.

See also:

Examples for predefined filters

Filter Wizards Update

26_6_6 Filter wizard (update)

As it may be necessary to provide an update for the firewall configuration to enable new applications, or to fend off hacking attacks from the Internet for example, the Filter Wizard operates using a descriptive file that you can easily update without necessarily having to update the software in your PABX, your router or PC.

Check at regular intervals whether new description files are available (names: »filterwizardtab.txt« and »Filter_Info.txt«) under http://www.bintec-elmeg.com. These two files belong together: The file "filterwizardtab. txt" controls the behavior of the Filter Wizard; the file "Filter_Info. txt" contains a detailed description of the options available in the Filter Wizard in an easy-to-read format (see following tips and hints).

If newer versions of the description files are available there you can download these to your PC (existing files are overwritten). The description files are located in the subdirectory »filterinfo« that can be found in the installation directory for the configuration software of your telephone system, for example »C:\Programs\elmeg WIN-Tools\WIN-Tools V6.3x\filterinfo« - the files »filterwizardtab.txt« and »Filter_Info.txt« are also located here.

When you then restart the Filter Wizard from within the configuration software and click the button »Restore default«, the new filters will be available immediately.

If the »Restore standard« button is grayed out you must first modify one of the given filter settings (activate or de-activate any given filter) before this button is activated. The button »Help« is located in the configuration branch »Network« »Filters«. The text that is displayed when you click this button is taken directly from the file »Filter_Info. txt«, allowing the Help function for the Filter Wizard filters to be updated without performing an overall software update.

See also:

Filter Wizard

Examples for predefined filters

26_6_7 Firewall Configuration

It is important that you have detailed knowledge about the IP protocol family before you begin configuring the firewall. If your knowledge about this is not so in-depth we recommend using a filter wizard.

The firewall functions like a chain of rules through which each IP packet is routed. If a rule applies to a packet the action associated with this rule will be executed (allow, deny or execute portmap). All rules are given in the list under Network / Filters. Please that for certain configurations the order of the filters can be of great significance for the functioning of the firewall. Therefore, after you mark a filter rule you can define the order of the rules in the table using the buttons [up] and [down].

If no rule applies to the IP packet a super-ordinate, basic rule at the end of the chain decides on the action to be taken (behavior by last filter rule).

This is why you must define the behavior.. .. .. for this super-ordinate rule at the beginning of the filter configuration. You can choose between »Allow« or »Discard« for this.

Discarding of the packet is generally a safe procedure, as only those packets for which an explicit rule (i.e. deliberately configured) exists are authorized in such a configuration.

When defining the filters it is essential to take into account that basically all packets are permitted at all LAN ports. You therefore do not need to define filter rules for passing IP packets from the LAN to the router, nor for their »Return«.

Note:
We recommend configuring the firewall filters with the aid of the Filter Wizard to ensure configuration(s) appropriate for and compatible to the applications being used. These filters provide protection against data packets from

the Internet that may result in you being charged for certain connections. The »Automatic connection termination« function, for example, may otherwise not always be ensured. A port scan from the Internet (usually the initial stage of a hack attack) may sometimes occur; the router firewall then replies to this scan with »Reject packets«. But this may nevertheless result in data traffic that prevents automatic setup of a connection.

26_6_7_1 Automatic generation of filter tables with the Filter Wizard (more)

Please consult the file filterwizardtab.txt located in the installation path of the configuration software and the “filterinfo” subfolder for additional information.

See also:

Filter Wizard

Examples for predefined filters

26_6_8 Placeholder during filter creation

- **LAN_ADDR:**
  Represents the LAN address for the router, based on the default configuration, i. e. 192. 168. 1. 250 with the network mask 255. 255. 0. 0. (192.168.1.250 / 24).

- **LAN_NET:**
  Represents all of the LAN address, based on the default configuration, i. e. 192. 168. 1. 0 with the network mask 255. 255. 255. 0 (192.168.1.0 / 24).

- **WAN_ADDR:**
  This place holder represents the WAN address for the router that is assigned dynamically by the ISP when PPoE or PPP is used. Dynamic allocation allows an IP-address to be assigned from the inventory of your ISP for the WAN port each time a connection is set up to the Internet. The WAN address can not be entered as an absolute value for filter configuration when you are defining the configuration. PPPoE is required for T-DSL for example; PPP is used for Internet connections with ISDN dial-in. If you have been assigned a fixed public IP-address by your provider for your Internet access, this address will be used for

- **WAN_ADDR.**
  The firewall is adapted automatically in accordance with the defined rules after the IP-address is assigned to the WAN port (or ISDN channel).

- **WAN_NET:**
  Represents all WAN addresses located in the same IP subnetwork as the WAN port. This parameter is currently not used and will not be significant for future software updates.

See also:

Editing filters

26_6_9 Portmapping

You wish to access your PC from an external location via Internet. Normally, access via the firewall should be prohibited. When you use port mapping, access to a router port that you have enabled is permitted from an external location. The router then forwards the access request to the defined port of the PC in the network. A fixed IP-address must be assigned to this PC. When the PC returns data packets the IP-address and port number of the PC are replaced by

the router with the number for the port mapping port and the router IP. For “outsiders” on the Internet it then appears as though there is only one connection to the router.

Note:
Please that when you use port mapping the firewall for the ports enabled for this function is ineffective. The target PC in your LAN may then be susceptible to any potential attacks. Port mapping is practical when you wish to run a game server on your own, for example.

— You can make this server accessible via the Internet to other users.

— Or, if you require certain peer-to-peer file sharing software that provides greater download bandwidth.

— When the corresponding PC in your LAN is to be accessible from the Internet (not possible in the standard configuration with NAT). In this case, certain UDP and TCP ports must be rerouted to a PC in the LAN.

See also:

Portmapping configuration example

26_6_10 Portmapping configuration example

26_6_10_1 Configuration example for a portmapping entry into the firewall for the ssh-protocol

The ssh protocol (secure shell) is used among other things for web server administration, or to implement VPN tunnels. Data can be transferred encrypted using the ssh protocol (not significant for configuration of the firewall however). Normally, port 22 of the TCP protocol is used. In the example shown here, the web server in your LAN has the set, assigned IP-address 192.168.1.42. Administration access should be provided for this web server in your LAN via ssh from the Internet. Please that you also require equivalent filters for Port 80 if the contents of the web server are to be accessible from the Internet

You must generate three rules for the firewall based on this information with the default setting »Response by last filter rule B discard«:

- **ssh_MAP:**
  This filter routes incoming packets from any IP-addresses and non-privileged ports to the Internet-end IP-address of the telephone system router unit to the computer with the IP-address 192.168.1.42; Port 22 is retained.

- **ssh_WAN_in:**
  This filter permits passing of incoming packets from any IP-address and non-privileged ports to the Internet-end IP-address of the telephone system router unit.

- **ssh_WAN_out:**
  This filter permits outgoing packets from Port 22 to pass through the WAN interface (i. e. the connection for the DSL modem or the ISDN dial-up connection to the Internet) to any IP-address and non-privileged ports.

— Filter name TCP-Flag Interface Action Protocol Connection Source IP Source port Target IP Target port

— Netbios-Sperre keines WAN discard UDP out 0.0.0.0/0 137-139 0.0.0.0/0 any

— ssh_portmap keines WAN portmap TCP in 0.0.0.0/0 22 192.168.1.42 22

— ssh_WAN_in keines WAN allow TCP in 0.0.0.0/0 any WAN_ADDR 22

— ssh_WAN_out keines WAN allow TCP out WAN_ADDR 22 0.0.0.0/0 any

Filter name	TCP -Flag	Interface	Action	Proto-col	Con-nection	Source IP	Source port	Target IP	Target port
Netbios-Inhibiting filter	none	WAN	discard	UDP	out	0.0.0.0/0	137-139	0.0.0.0/0	Any
ssh_ portmap	none	WAN	portmap	TCP	in	0.0.0.0/0	22	192.168.1.42	22
ssh_ WAN_in	none	WAN	allow	TCP	in	0.0.0.0/0	Any	WAN_ADD R	22
ssh_ WAN_out	none	WAN	allow	TCP	out	WAN_ADD R	22	0.0.0.0/0	Any

Note:
As a result, the PC in your LAN with the IP-address 192.168.1.42 has no protection whatsoever from the firewall in your telephone system at Port 22/TCP! You can restrict access options where required if access is to always be effected from an Internet connection with a set IP-address (for example T-Interconnect). In that case, any entries containing »0.0.0.0/0« should be matched to the well-known IP-addresses of the far end (read 0.0.0.0/0 as global placeholder for any IP-address).

If you wish to employ a combination of filters consisting of filters that have been generated using the Filter Wizard and your own custom filters, or port map entries, be sure to check the order of the rules in the table (you can change the order using the buttons »up« and »down«). The “Secure system” filter, which blocks all packets directed toward so-called privileged ports, is offered in the Filter Wizard. In the example given here this filter would counteract the configured functionality, as the ssh port (22) is a privileged port. We urgently recommend blocking all privileged ports that are not needed; it may therefore be expedient to use the filter configured by the Filter Wizard that has been appropriately adapted, or that is located at the appropriate position in the table.

If you are not sure which ports must be routed to the LAN PC for certain applications, or for attaining defined user privileges in exchange networks using port mapping by your telephone system router, enter the name of the application and the terms »port« and »firewall« in an Internet search engine; configuration instructions can usually be found quite easily in this manner. You can reroute one single port, or port ranges (for example 4661-4665) using a port map rule.

26_7 Dial-in_via Router module to_LAN_(RAS)

26_7_1 Dial-in into the LAN (RAS)

Using the Remote Access Server (RAS) a field representative, for example, can call into the local network from an external location and then via the local network access the Internet. Access from an external location is only possible via an ISDN connection.

External access is provided with user-name and password protection. If the call is made from an external location only, the phone number can also be monitored as an added protection feature. Access can be enabled for several users. A Windows enable (access to computer, files or printers) and Internet enable can also be configured for each user.

Note:
that this access portal is not protected by a firewall!

The IP-address is always assigned by DHCP when logging into the LAN (RAS) even when the DHCP server is deactivated. The max. number of simultaneous logins into the LAN depends on the number of reserved IP-addresses.

- **DHCP server active:**
  The IP-addresses following the specified DHCP address range are used.

DHCP server not active: The IP-addresses following the set DHCP start address are used for RAS-clients. Hence, when the DHCP server is down, the addresses between the specified start address and the next unused IP-address are used for RAS clients.

see also:

Configuring dial-in into the LAN (RAS)

26_7_2 Configuring dial-in into the LAN (RAS)

Logging into the LAN can be configured for several users (RAS clients). The following individual settings can be specified for each user.

- **User name:**
  from the redialing memory (see page).

- **Password:**
  You can assign passwords with a maximum lenght of 30 characters.

- **Password confirmation:**
  Enter your password once more into this field. The program checks whether the entered data matches. Youwill be prompted to reenter the password in case of error.

- **Authorized tel.no:**
  The caller is always the same ISDN subscriber:
  Enter here the number of the caller. The router compares the incoming number with the entered number of the caller and releases access if both are identical.
  The call originates from the analog network or from different numbers.
  Do not enter a number if this is the case or access will remain blocked.

- **Windows Broadcast:**
  You have to activate the release if you wish to work on the Windows input level. You can then access released Windows resources (computers, files, or printers) from an external location. Please that such events as a printer paper jam may prevent a connection from being severed.

- **Internet:**
  Here you give the RAS client access to the Internet via the router or block access. A blocked RAS client can access only released (shared) folders and files of your network.

- **Callback:**
  With CallBack activated, the RAS connection is terminated immediately by the router after dial-in and a call-back is initiated. The destination number is the specified, sufficiently authorized subscriber number or, if nothing is specified, the subscriber number signaled with the call.

Note:
You have to activate the Windows broadcast if you wish to work on the Windows shared input level. Only then is it possible to access Windows resources from a remote connection. Please that this process reduces the volume of transferred user data of your log in and can possibly result in a permanent connection in case of inactivity.

You require a connection to the telephone network from this PC if the RAS access is to be utilized from an external PC. The router of the PABX can be accessed via the dial-up networking function of Windows.

Enter the number of the PABX router as well as the specified user name and password. The connection can then be established.

26_8 General

26_8_1 General

- **Send gateway data:**
  When this option is checked, the data entered for the gateway are transmitted together with all other configuration data.
  - SIP RTP Port (start value): Default 10000
  - TOS-Value (SIP-packets): Default 8
  - TOS-Value (RTP-packets): Default 8

27 Configuration access

27_1 Configuration access

The PABX has numerous features requiring a more or less complex configuration. Use a PC to dial into the PABX and configure the system. Different authorization levels are set for configuring the system to prevent accidentally deleting essential settings. Dialing into the PABX requires a user name and a password (PIN). The PABX can also be configured remotely by an authorized dealer using the service access.

27_1_1 The following authorization levels are available for the PABX:

- **Service**
- **Admin**
- **User**

See also:

Service access

27_2 Service authorization level

The service technician or an authorized dealer can perform a complete PABX configuration program. Unlimited permissions can also be set for the configuration access levels »Admin« and »User« by the service technician or dealer. This authorization level has a predefined username and password (PIN), which can be modified according to the assigned authorizations.

27_2_0_1 Entering name and PIN

Enter the name in the Service field an the password in the PIN field. You will have to confirm the PIN by entering it once again.

27_2_0_2 Default Entries:

- **Name = Service**
- **PIN = Service**

See also:

Configuration access

27_3 Admin authorization level

This authorization level is intended for the daily administration and control of the PABX. Permissions for this access are specified by »Service«. The administrator (»Admin«) can assign permissions to one or several »Users«. This authorization level has a predefined username and password (PIN), which can be modified according to the assigned authorizations.

27_3_1 Entering name and PIN

Enter the name in the Admin field an the password in the PIN field. You will have to confirm the PIN by entering it once again.

27_3_2 Default Entries:

- **Name = Admin**
- **PIN = Admin**

See also:

Configuration access

27_4 User authorization level

Each internal subscriber (»User«) of the PABX can receive permissions assigned by the »Admin,« for example, to modify subscriber-relevant settings. The user name of a »User« corresponds to the Login name assigned to an internal subscriber »Internal subscriber«when configuring the PABX. An 8-digit password (PIN) can be assigned to internal subscribers in addition to the name.

The »Admin« can withdraw the right of an internal participant (»User«) to configure the PABX.

The user must read out the PABX system one time. The PIN is required for this. If Service has provided the user with an ». elg« file he/she can also open the configuration »offline« without having to switch the PABX on.

27_4_1 Programming a user name and a PIN

In the Internal Subscriber menu, you can enter user names and PINs (internal subscribers). »Numbers« tab.

Please enter a name for the subscriber.

Authorize the configuration for the subscriber and input the PIN for the subscriber. You will have to confirm the PIN by entering it once again.

See also:

Configuration access

28 Distinctive ringing a_b

28_1 Calling cycles

The PABX system provides six (6) different calling cycles for call signaling at analog telephones. The calling cycles can only be changed for the »Terminal device type Telephone«. All other types of terminal devices are called by "External call". Internal calls, external calls, door intercom calls and signaling calls have already been assigned calling cycles in the default settings. Two other calling cycles that are not used in the default settings (5, 6) can be freely assigned using configuration.

28_1_1 Calling cycle configuration

Set the calling rhythm as desired for the displayed call types. Select a calling rhythm from the list for the desired call type.

28_1_2 Calling cycle playback

You may want to get acquainted with the different calling cycles. This requires that a soundcard is installed in your PC and that speakers are connected. To listen to a calling rhythm, select the corresponding entry from the list and then click the play button.

Note:
The cycles assigned for external calls in the default settings are used for recalls or call-backs. Each of the 6 calling cycles can be assigned to an external MSN or a direct dial-in number (special call number) using configuration.

See also:

Call allocation

29 Audio_Applications

29_1 Melody download (voice applications)

A professional announcement sets the tone for every incoming call. Any company can use the voice applications to customize announcements and messages. Moreover, these announcements - customized by each department, if desired - can inform callers or just entertain with pleasant music while the call is transferred. You want to use special music for callers on hold or create special announcements for your customers. You can load your own Wave files to the PABX system. The CD contains some public domain sample files you can also use.

The PABX system can store user-specific voice and music files. The PABX factory setting allows for 64 seconds of voice or music. This time can be assigned to two voice applications in the PABX configuration program. A Smart Media Card can be used to expand the amount of available memory. The length of the storable voice and music data depends on the size of the Smart Media Card utilized. A proprietary Wave format is used to save the voice and music data.

29_1_1 The following voice applications can be configured in the PABX:

— »Voice announcement before answering«

— »Voice announcement without answering / info box«

— »Alarm call« «

— »Wake-up call«

— »Music on Hold«

Please refer to the function, configuration and operating s for further details about these features features.

29_1_2 Default settings for voice applications

The voice applications can be assigned to individual functions in two different ways.

- **Dynamic interface**
  Every user utilizing a voice application with this interface will always hear the corresponding voice message or music from the beginning. The dynamic interface is used with the following features: Voice announcement before answering, info box, alarm text and wake-up announcement

- **Dynamic interface**
  All users of a voice application with this interface hear the same section of the voice message or music. A new user does not necessarily hear the message or the music from the start. He or she hears the same section all other already active users are currently hearing. The number of users being able to utilize such a voice application simultaneously is not limited. The dynamic interface is used with the following features: »Music on Hold«

Note:
Please make sure that externally fed music or the music of the voice applications is not subject to copyrights of third parties. The proprietary Wave format used to save voice and music data of the PABX is not the same as the standard Wave format. Files in other formats have to be converted to the proprietary Wave format of the PABX system before saving. If you wish to use special, professional music or announcements, please contact the company Byertone directly to remotely load these into your PABX.

29_1_3 Playback time and memory capacity

— The playback time for music on hold titles is limited to 4 seconds, no matter what the stored length.

— For Voice announcements before answering and Info box the stored time and the playback time are identical.

— The maximum duration of a wav-file used for an announcement is 192 seconds; when this time expires, the voice announcement is cancelled.

29_1_3_1 Memory capacity and playback time for standard ICT PABX models

ICT	ICT46		ICT88		ICT880	
	Memory capacity	Playback time	Memory capacity	Playback time	Memory capacity	Playback time
Without Smart Media Card	0kB	192 Seconds	256kB	192 Seconds	256kB	192 Seconds

29_1_3_2 Example1:

Quantity	Type of music or voice announcement	Memory capacity	Playback time
1	Music on Hold	50 seconds	4 seconds
1	Voice announcement before answering	30 seconds	30 seconds
1	Info box	45 seconds	45 seconds
			79 seconds

29_1_3_3 Example2:

Quantity	Type of music or voice announcement	Memory capacity	Playback time
8	Music on Hold	255 seconds	8x4 seconds
			79 seconds

- **Configuration**
  Company-specific wave files are loaded into the PABX when configuring the system. Every loaded Wave file is then linked with a voice application. Additional settings are possible depending on the linked voice application.

See also:

Downloading wave files into PABX

29_2 Voice announcement before answering

You have set up a general info telephone number used by customers for a variety of different issues. Of course, not every employee or team has the answer for every question. The caller thus has to be transferred to the individual specialized departments. If you knew the topic or problem a specific caller has beforehand, you could transfer the caller to the right department at once. Calls then can bypass an operator set and be routed to the best-suited contact immediately. Each caller can decide to which employee/department they would like to be transferred.

The »voice announcement before answering« function automatically accepts calls in the PABX. The caller will hear a message with information about which keys to press during or after the announcement

. Once the caller presses a key, the announcement ends and the call is routed to an internal subscriber or team. If the caller does not press any or the wrong key, he or she is routed to the specified call diversion target (internal subscriber or team).

While being transferred, the caller hears the ringing signal or music from the PABX. The following »voice announcement before answering« functions are possible:

- **automatic without direct dial-in:**
  The caller is not required to provide any additional input. For example »Welcome to the Smith Company. Just a moment while we automatically connect you. « The caller is transferred to the specified call diversion target after the announcement.

- **automatic with direct dial-in:**
  The announcement informs the caller about possible input of a telephone number. For example »Welcome to the Smith Company. Please dial the direct extension of the person you wish to call. Just a moment while we automatically connect you. « After entering the telephone number, the caller is transferred to the dialed extension.

- **automatic with direct dial-in + DISA:**
  The announcement informs the caller about possible codes that can be entered. For example »Press 1 to contact our sales department. «. The caller is transferred to the assigned internal subscriber or team after entering a code. An internal PABX subscriber or a team are assigned to the digits 0 to 9.

29_2_1 Number of repetitions

The announcement can be consecutively repeated several times (between 1…10 or »infinite«). The caller will then hear the busy signal when the set time interval expires.

Note:
DISA - Direct Inward System Access
After the PABX has accepted a call, the caller enters a code and is then automatically transferred. This code is linked with an internal PABX extension.

The extension or a code has to be entered during the announcement. Input is no longer accepted once the announcement (wave file) has concluded. The call is then transferred to the specified call diversion target.

The »voice announcement before answering« function is a component of the voice application of the PABX and can accept up to 8 calls at once.

- **Configuration**
  A company-specific wave file is loaded into the PABX when configuring the system. This wave file is then linked with the »voice announcement before answering« voice application. The mode of this function is then set (»not automatic«, »automatic« or »automatic with DISA«). The »automatic with DISA« mode also assigns internal subscribers or teams to code digits 0 to 9.

The »voice announcement before answering« voice application is linked when configuring the call processing function of a subscriber or a team.

The number of announcement repeats is configured centrally for the PABX.

29_3 Voice announcement without answering (info box)

Do calls to your company during lunch or after hours remain unanswered? Would you still like to accept the calls to inform callers, for example about your business hours? Use infobox to inform callers about your business hours without having to accept the call yourself. You can also use this feature to inform callers about new products or services offered by your company.

The »voice announcement without answering« (info box) function automatically accepts calls in the PABX. The caller hears an announcement; the PABX ends the call after the announcement has concluded. The caller will then hear the busy signal. The announcement can be consecutively repeated several times (between 1…10 or »infinite«). The caller will then hear the busy signal when the set time interval expires.

Note:
»Voice announcement without answering« (info box) is a component of the voice applications of the PABX system.

- **Configuration**
  A company-specific wave file is loaded into the PABX when configuring the system. This wave file is then linked with the »info box« voice application . The »info box« voice application is linked when configuring the call processing functions of a subscriber or a team. The number of announcement repeats is configured centrally for the PABX.

29_4 Downloading wave files into PABX

You can download wave files tinto the PABX. The number of files that can be loaded depends of their size and the space required for them in the PABX system.

29_4_1 Loading a wave file

— Click »New«.

— Now, select the location where you wish to store the file (e. g. \Programs\elmeg WIN-Tools\WIN-Tools V6. 00\wavefiles\...) and the file that you wish to load. Finally confirm your entries by clicking »OK«.

— Click the »Play« button if you wish to listen to the Wave file that has been loaded Click »Stop« if you wish to quit listening to the file.

29_4_2 Linking a Wave file to an application

In the Application column select the voice application that you wish to assign to the WAV file. Further input may be required, depending on the application that is selected (e. g. announcement before answering).

29_4_3 The following voice applications can be configured in the PABX:

— »Voice announcement before answering«

— »Voice announcement without answering / info box«

— »Alarm call«

— »Wake-up call«

— »Music on Hold«

29_4_4 Selecting another wave file

To modify a WAV file that has been loaded click the button in the File name column on the line you wish to make the changes in. You can then select a new WAV file. The assigned voice application and any other settings you have made are retained.

29_4_5 Removing a wave file

Click with the mouse button on a line in the column Index. Click »Remove« to remove the wave file.

Note:
All available resources (storage space, time) for the WAV file are displayed in the window Melody download. The default settings for these resources will be used for a configuration without a connection to the PABX system. The actual resources are only displayed after the configuration data have been exported, or on log-on of a configuration with a connection to the PABX system. The wave files are automatically converted to the required format during the load process.

30 Data exchange

30_1 Data exchange

— All settings you have made in the Professional Configurator program must be uploaded into the PABX.

— Before actually uploading or downloading configuration data, select the PABX interface to which the PC is connected.

30_1_1 »Send configuration«

— Under »Data exchange« select »Read configuration« or click »Read« on the toolbar.

— Under »Data exchange« select »Send configuration« or click »Send« on the toolbar.

30_1_2 »Interface«

You can use the following ports for configuring your PABX:

- **COM/USB:**
  RS232 (V. 24) –port (with a PC or Laptop) USB port (with a PC or Laptop)

Select the appropriate port you wish to use for communicating with the pabx.

- **Internal ISDN:**
  For this access you require an ISDN card in your PC (Laptop).

- **TCP/IP:**
  LAN-/ Ethernet interface (when the router module is used).

Here you can enter the IP-address for the router or find the router in the LAN using the Search function.

30_1_3 Terminating a connection with the PABX

The connection between the PABX and the PC is sustained after data transfer to the PABX system. If you have set up a remote connection to the PABX (service access) you can also exchange other data with the PABX system (e. g. telephone directory manager, LCR manager, etc.) without having to establish a new connection to the PABX.

Click »Exit« to terminate the current connection with the PABX.

31 Description of functions

31_1 Answering machine

You can connect several answering machines to the PABX system. Even if a call is already signaled at or recorded by the answering machine, you are still able to pick up the call at your telephone and talk to the caller yourself.

If an answering machine has received a call, you can also take this call at any other telephone. There are two different variations for picking up calls from an answering machine.

- **System telephones**
  You can set up a function key at system telephones to act as an answering machine extension key. The assigned LED will tell you whether a call is signaled at the answering machine or if a caller is leaving a message on the answering machine. In both cases, you can press the function key to transfer the call from the answering machine for pick up.

- **Call pick-up (1st case)**
  The call is signaled at the answering machine and the answering machine has not picked up the call yet. The call can now be picked up with the »call pick-up« feature.

- **Call pick-up (accepting) (2nd case)**
  The call is signaled at the answering machine and the answering machine has already been activated and picked up the call. If an internal or external caller is already leaving a message on the answering machine, you can still transfer this call to your telephone after entering a numeric code.

Note:
Picking up a call is possible only within the pick-up group to which your terminal device has been assigned via configuration. The factory setting lists all terminal devices in Group 0. If several answering machines are assigned to one group, the call pick-up feature picks up the first available one.

- **Configuration**
  The internal connection (analog or ISDN) must have been configured for the terminal device type »Answering machine«.

31_2 Automatic completion of call (CCBS / CCNR)

Let's assume that you must urgently contact a business partner or an internal extension. However, the extension is busy or the subscriber is not near his or her telephone. Your chances of contacting this person would be much greater if you could be notified when the line is free again or when the person has returned to his or her desk. The feature automatic completion of call to busy subscriber does just that. Your telephone will then ring. When you then lift your handset, a connection is set up automatically to that party.

31_2_1 There are two options for automatic completion of a call.

- **Automatic completion of call to busy subscriber (CCBS)**
  You hear the busy signal when calling the extension of the person you are trying to reach. »Completion of call to busy subscriber« allows you to call the extension as soon as the other subscriber hangs up his or her telephone.

- **Automatic completion of call on no replay (CCNR)**
  When you call the desired number you always get a ringing signal, but the party is not near the phone or does not answer. Using the function »Completion of calls on no reply« you can reach the party immediately when he/she ends a call, or lifts and then replaces his/her handset.

31_2_2 Cancel completion of calls

Internal completion of calls is deleted automatically after around 30 minutes. External call-backs are canceled automatically afterperiod preset in the ofice exchange (example 45 minutes). Completion of calls can be manually deleted before this time expires by using a numeric code of the PABX.

- **For example:**
  - — Internal and external completion of calls to busy subscribers (analog terminal devices only)
  - — Internal completions of calls on no reply (analog and ISDN terminal devices)

The procedure for deleting completions of call to busy subscribers for ISDN telephone depends on the specific terminal device. Please read the instructions for these terminal devices.

External completions of calls on no reply can not be deleted manually.

Note:
The features completion of calls to busy subscriber and completion of calls on no reply must be applied for at your network service provider. When using an LCR procedure (in the PABX or in the terminal device) automatic call completions with an external party are always conducted throuogh the standard network provider. These features can only be used by telephones that permit suffix dialing! Automatic call completions from an inquiry call are not possible. In the following procedures a distinction is made between analog and ISDN telephones with regard to use and acoustic tones/signals.

- **Configuration**
  The completion of call on no answer feature must be enabled separately for each internal subscriber connected to the pabx.

31_3 Block dialing (for analog terminal devices only)

Some network service providers only allow a call to go through if the phone number is transmitted to the exchange as one block (»en bloc. For example: Calling directly to a point-to-point access connection in Austria is only possible if the point-to-point connection phone number and the number of the direct line is sent to the exchange as one block.

Using block dialing (prepared dialing) you can first input a number completely at a terminal device to put it into the buffer memory in the PABX system. You can then initiate dialing of the complete number.

Note:
Block dialing is also possible for internal communications. Please ask your network service provider whether you need to use this feature. This feature is described in the operating instructions for the ISDN terminal devices.

31_4 Switching call authorizations temporarily (booth function)

To control telephone costs not every telephone in your company is authorized to initiate external calls independently. However, even these telephones sometimes have to make an external call. In this case, the exchange can grant a terminal device authorization for an independently initiated external call. In this case, the exchange can grant a terminal device authorization for an independently initiated external call.

This feature makes it possible to temporarily grant a subscriber with authorization for incoming-receive only or in-house only the authorization to make international calls. Switching the authorization is possible only for the up-

coming next call of a subscriber. The release of the line can be effected only from an operator set telephone. The operator set can switch the authorization directly or during an inquiry call with the requesting subscriber. The changeover requires input of a numerical code and selection of the internal extension number for the internal party. Once this changeover has been completed the user has "international" authorization for the next call. The authorization level is automatically reset to default state after call termination (by ending the conversation or when the called party is busy).

Note:
Settings also apply to other features of a switched subscriber such as call control or other call restrictions or specifications.

- **Configuration**
  Please make sure the restrictions for the »switching call authorization temporarily« function when configuring and assigning call controls for a subscriber are not eliminated.

31_5 Broker`s call

You are engaged in a sales consultation. Your customer has several questions. Before answering these questions, you want to confer with a colleague first. While talking with your colleague on the phone, you can switch between the customer call and the call to your colleague to settle additional issues.

The broker's call feature allows you to switch between subscribers, two internal, two external or one external and one internal. The subscriber on hold will hear a programmed message or programmed music (Music on Hold), if activated. The procedure depends on the specific terminal device. Brokering between more than two subscribers is also possible for system and ISDN phones. Please refer to the manual for your respective phone.

Note:
If you switch back and forth between an internal caller and an external party (broker's call) and then hang up your handset, your call is terminated and the two callers will be connected with one another! If you switch back and forth between two external parties (broker's call) and then hang up your handset, the current call is terminated and the caller on hold will call you by way of the »Call-back« function. If »Coupling external connection« has been configured, then there will be no recall but the two external parties will be connected with one another. If, during a broker's call, you press R*40, the two external parties are connected with one another and your call with both of the external parties is terminated. Please that when switching back and forth between external subscribers, the parties can be hold either by the exchange or by the PABX.

31_6 Call forwarding (Call rerouting)

Are you going to be absent from your office but do not want to miss any calls? The call forwarding function routes calls to other telephone numbers such as your mobile telephone, for example. You can route calls made to your telephone number to any other telephone number. Call forwarding can be »immediately«, »delayed« or »on busy«.

The call forwarding modes »delayed« and »on busy« can be active at the same time. If you are away from your telephone, the call is forwarded to a different telephone number (for example your mobile telephone) after a short time. If you are already engaged in a telephone call at your workplace, additional callers might hear the busy signal. These callers can be switched to a colleague, for example, or the secretary's office with the »call forwarding on busy« function.

Every internal PABX subscriber can forward his or her calls to a different telephone number. Calls can be forwarded to an internal subscriber extension, internal team extensions or external telephone numbers. When entering the

number to be used for call forwarding the PABX checks whether the input number is an external or an internal telephone number.

In case of a team, call forwarding can be programmed for a member of the team. Other calls, not being forwarded, are continued to be signaled for the remaining team members. The PABX system carries out call forwarding to internal or external subscribers.

Call forwarding to an internal number are carried out by the PABX system. The PABX system also forwards internal calls to an external telephone number. In this case, the connection is established via a B channel of the trunk group released to the subscriber utilizing the call forwarding function. This B channel remains busy for the duration of a forwarded call.

- **There are two options for forwarding an external call to an external telephone number.**

- **Call forwarding in the exchange**
  The exchange carries out call forwarding if only one internal subscriber is entered in the call distribution list for an external call. Call forwarding in the exchange requires that the network service provider has activated the »call deflection« (point-to-multipoint connection) or »partial rerouting« (point-to-point connection) for the corresponding ISDN connections.

- **Call forwarding by the PABX**
  The PABX forwards calls if the required functions for call forwarding in the exchange are not available for the corresponding ISDN connections. If an external call addresses several phones (for example a team) of which a few have call forwarding activated, the PABX carries out the corresponding call forwarding. In this case, the connection is established through a B channel of the trunk group released to the subscriber utilizing the call forwarding function. This B channel remains busy for the duration of a forwarded call.

- **Call forwarding by the exchange for an external point-to-multipoint access**
  When using a PABX system with only one external ISDN point-to-multipoint connection you can define for each internal subscriber within the PABX system whether call forwarding is to be executed at the exchange or in the PABX system. You must apply for the performance feature »call forwarding« at your network service provider if you wish to have call forwarding performed within the PABX system and set an outgoing MSN for the external ISDN connection in the subscriber settings for the PABX system.

31_6_1 A distinction is made between the following types of call forwarding:

- **Call forwarding on busy**
  A call is forwarded to a specified subscriber if the called extension or the ISDN access is busy.

- **Call forwarding on no answer**
  A call is signaled at the selected terminal device for a specific time. If the call is not picked up within this time, it is routed to the specified subscriber. The call is then no longer signaled at the initially called terminal device. With a call forwarding by the pabx this time is freely adjustable. With a call forwarding by the exchange this time is fixed (presently approx. 20 seconds).

- **Call forwarding continuous**
  All calls for a subscriber are immediately forwarded to the specified subscriber.

- **System telephones**
  System phones can activate or deactivate call forwarding using a programmed function key. The status of call forwarding (activated/deactivated) can be displayed with the associated LED.

Note:
The access line digit may not be entered when specifying an external telephone number as the target for call forwarding. An external telephone numbers as target for call forwarding can be linked with the numeric code for dedicated trunk group reservation. The trunk group has to be released to the subscriber with call forwarding. Call forwarding then uses the selected trunk group. Ongoing call forwarding cal also be overwritten by a new call forwarding. Other call forwarding variants may also be activated simultaneously. For example call forwarding »by time«, to number

12345 and call forwarding »on busy«, to number 66778899. Call forwarding by the exchange is possible only if the network service provider has activated the corresponding functions for the individual PABX ISDN connections:
»call deflection« for point-to-multipoint connection
»partial rerouting« for point-to-point connection. Call forwardings to an external party are not possible if LCR-services are active for that subscriber. If you want to program a call forwarding nevertheless, the number for the »preselected« provider must be placed in front of the external number.

- **Configuration**
  Already programmed call forwardings (Internal call forwardings or External call forwardings) can be displayed and deleted with the Profes The PABX can be configured for »delayed« call forwarding. (more) ... Teams should be configured so that call forwarding can be carried out for individual team members. Call deflection during an ongoing call

31_7 Do you have to do important work and do not want to be disturbed?

If you are unable, or do not wish to accept a call, you have the option of rejecting or forwarding this call. While this call is being signaled, it can be forwarded to a different subscriber (for example your secretary).

- **This type of call forwarding can be utilized in two different ways.**

- **Manual call deflection by a terminal device**
  This function allows you to forward the call during regular signaling (inhouse or outside call) or call waiting signaling without having to accept the call first. This feature is useful for calls to teams or from the entrance telephone as well as with Inquiry calls (internal and external). This feature is not available for recalls.

  Call forwarding during the call phase is only possible with system phones or ISDN terminal devices. These have to support »call deflection«. Please refer to the corresponding chapter in the manual of the terminal device for further details.

- **Automatic call deflection by the PABX**
  Call forwarding of an external call to an external telephone number is possible at the P-MP in the form of call deflection. For example, an internal subscriber has set up call forwarding to an external telephone number. When this internal subscriber receives an external call signaled only at the internal subscriber's extension, the PABX automatically forwards this call with call deflection in the exchange.

- **Manual call deflection by a terminal device**
  You are using a system telephone or a corresponding ISDN telephone of a PABX system and would like to route an external incoming call to an external telephone number. The call deflection function in the exchange is needed to forward this call. The call is forwarded using the second B channel if the call deflection feature is not available at the exchange. The ISDN connection is busy for the duration of the call forwarding if you have access to only one ISDN connection (two B channels). The costs for forwarding a call to an external telephone number are the responsibility of the subscriber forwarding the call. The caller only pays the costs incurred up to the forwarding subscriber.

- **Automatic call deflection by the PABX**
  The call is forwarded using the second B channel if the call deflection feature is not available at the exchange. Call deflection within a team call.

- **Call deflection is carried out when calling a team if:**
  — The PABX is configured so that team forwarding is enabled.
  — The target of the call forwarding is an external telephone number. In this case, call forwarding uses the second B channel so that the call continues to be signaled for the other team members.

31_8 Call forwarding in the exchange

Call forwarding routes calls made to your telephone number to any other telephone number. Call forwarding can be »immediately« (always), »delayed« (on no answer) or »on busy«. Call forwarding by the exchange offers additional options for the forwarding function. For example, you can forward data received at a branch office to the main office while incoming calls are forwarded to a different branch office. This type of forwarding is carried out within the exchange so that your ISDN connection remains accessible.

Call forwarding is performed centrally and »service-mode-oriented« at the exchange. (for example telephony, data, fax group 2/3). You must apply for this feature to your network service provider. The call forwarding feature is supported by point-to-point access (P-P) and point-to-mulitpoint access (P-MP). Point-to-point call forwarding is always set up for a special function of the entire point-to-point connection.

Call forwarding for point-to-multipoint connections can feature one individual telephone number (MSN) or all telephone numbers (MSNs). This function is configurable by telephone only if a special programming procedure is used.

The following configurations are independent of the service mode of the terminal device initiating the call.

- **The following settings have to be considered when configuring call forwarding parameters:**
  - — Calls to which ISDN connections are to be forwarded?
  - — Which extension of the selected ISDN connection is to be forwarded (only P-MP)?
  - — Which service is to be forwarded?
  - — Which telephone number is the target for call forwarding?

- **Module**
  Use this setting to define for which ISDN connection call forwarding is to be applied. Enter the module identifier (see table below).

Access
Use this setting to define the external ISDN connection for the selected module to be used for call forwarding:

Module description	Module code number	External ISDN connections	Connection code number
Motherboard of the standard PABX	0	S01, S02, S03, S04	1, 2, 3, 4
Slot 1 of the standard PABX	1	S04, S03	4
Slot 2 of the standard PABX	2	S04, S03	4
Motherboard of the extension PABX	3	none	none
Slot 1 of the extension PABX	4	S04, S03	4
Slot 2 of the extension PABX	5	S04, S03	4
Slot 6 of the standard PABX	6	S2m	1

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- **For a point-to-multipoint access**
  Your network service provider will inform you of the numbers (MSN) for each ISDN connection. Normally, you are allocated 3 MSN, with a maximum of 10 MSN for each point-to-multipoint connection.

Each telephone number has to be entered into the configuration first and is then automatically assigned to an index. When performing configuration using the telephone you can use the associated index instead of the number so that you do not have to enter the entire number each time you perform a configuration. The first number is assigned to index 0, the second number to index 1 and so on.

- **For a point-to-point access**
  Your network service provider will inform you of the number for each ISDN connection. This includes the number block for direct dial-in. Call forwarding can be programmed for the entire ISDN connection and not separately for each direct telephone number.

31_8_1 Select services

Service group selection	Services	These service modes can also be forwarded
00	All services	
01	Telephony (incl. services 10, 11.12)	20
02	Fax (incl. services 20, 21)	11
03	Data transfer	
10	»speech«	
11	»audio 3k1Hz«	20
12	»telephony 3k1Hz«	
20	Fax group 2/3	11
21	Fax group 4	

Please that some services (e.g. 20) can also be forwarded at some exchange offices.

Note:
The numeric codes 00 ... 03 are exclusively used for selecting call forwarding service groups. For example, the service group 1 includes all telephony modes (»speech«, »audio 3k1Hz« and »telephony 3k1Hz«).

The numeric codes 10... 21 refer to individual services. For example, code 11 forwards all analog calls while ISDN calls (digital calls) continue to be signaled.

31_9 Call pick-up

A call is signaled to a colleague who just now is away from his or her desk. You can now attempt to assist the caller in spite of the colleague's absence. You could get up and go to the telephone of your colleague or you can forward your colleague's call to your telephone.

- **Call pick-up within a group**
  A code number may be used to route a call signaled at one telephone to a different telephone for pick-up. Picking-up a call is only possible within the group to which a subscriber has been assigned in the configuration program. The factory setting specifies that all all internal extensions are assigned to group 00. Call pick-up is not available from a system-parked Inquiry call.

- **Picking up a call for a specific subscriber**
  A code number entered together with the phone's extension number may be used to route a call signaled at one telephone to a different telephone for pick-up. In this case, only group extending pick-ups are possible. Call pick-up is not available from a system-parked Inquiry call.

- **Groups (Pick-up groups)**
  Groups make it possible to pick-up calls. Creating a group allows call pick-up only for subscribers within the same group. Up to 100 groups (00...99) can be specified in the PABX. The same code number for call pick-up applies to all groups.

- **System telephones**
  With system telephones you can pick up calls by pressing a preconfigured function button. You can also program line buttons and extension or team buttons.

- **Line key:**
  A B channel for an ISDN connection is configured for a line key. An LED assigned to that line key shows the status for the B channel (call, connection,...). If an external call is signaled at a different in-house telephone you can accept this call by pressing the line key.

- **Extension key:**
  An inhouse telephone connected to the PABX is configured for an extension key. An LED assigned to that extension key shows the status for that telephone (call, connection,...). If a call for this internal subscriber is signaled you can accept the call by pressing the extension key.

- **Team key:**
  A team key is a normal line key to which the internal number for a team is assigned. An LED assigned to that extension key shows the status for that telephone (call, connection,...). If a call for this team is signaled you can accept the call by pressing the team key.

- **Configuration**
  In order to pick up a call, all subscribers must be in the same group. Individual codes can be added to the code number for picking up calls. Calls can then be taken using both codes.

see also:

Assigning a subscriber to a Pick-up group

31_10 Call switching

You determine during a call that your colleague is better equipped to handle this call. You would like to transfer the call to your colleague. You can decide whether to report to your colleague some important information about the call before transferring the call or whether you want to transfer the caller directly to your colleague.

- **Transferring calls with advance notice**
  You wish to transfer a call to another internal or external party or an external call to another internal party and speak with that party beforehand. If activated, the party on hold will hear music (Music on Hold) or an announcement.

- **Transferring calls without prior notice**
  Forwarding a call without prior notice (explicit call transfer) You can transfer calls within the PABX by dialing the number of the internal party and then hanging up the handset. The internal party is then called and can take the call when he/she lifts the handset. If a called party does not accept the transferred call, the call is signaled again at your telephone after a preset amount of time has passed (recall).

Note:
The operating instructions set out below are those for analog terminal devices. Refer to the operating instructions to find out details about using this feature with ISDN or system phones.

- **Configuration**
  Configure the PABX to play music or an announcement for a party on hold. You can also specify the time to pass (1...120 seconds) before a transferred call is signaled again at the point of origin.

see also:

Setting the time for a recall

Switching two external calls

31_11 Call to a team

Individual team call settings yields a high degree of accessibility. When the Sales team is called, all phones are to ring simultaneously. When the Order Processing team is called, the next available telephone is to ring. The type of call can be configured to achieve either purpose.

- **A basic distinction is made between the following call types for a team**
  — simultaneous
  — linear
  — rotating
  — adding
  — linear, simultaneous on no response or
  — rotating, simultaneous on no response .

- **Even distribution**
  If calls made to a team are not accepted within a time specified in the configuration, the call is transferred to another team according to the configuration settings. This function can also be controlled via the call modes. .

- **Delayed call for all team members**
  The linear and rotating team calls allow you to configure a time interval (1...99 seconds) after which all members of the team will be called at the same time.

- **Call for a busy team member (Busy on Busy)**
  If a member of a team is making a call you can decide whether further calls are to be signaled for this team. If the function »Busy on busy« has been configured for this team any further callers making calls to this team will receive the »busy« signal.

31_11_1 Call to a team

- **Simultaneous signaling:**
  All assigned terminal devices are called simultaneously. If a telephone is busy call waiting can be initiated.

- **Linear signaling:**
  All assigned terminal devices are called one after the other, as entered in the configuration. If one terminal device is busy, the next available one is called. The call is signaled for around 15 seconds at each subscriber.

You can set this time to between 1 and 99 seconds during configuration (for each team). There is no call forwarding time involved for users that are currently making phone calls or are logged out. The call is then no longer made »simultaneously on No Answer«. The caller will then hear the busy signal.

- **Rotating signaling:**
  This type of call is a special variant of the linear team call. After all of the terminal devices of a team have been called the call is signaled again at the first terminal device. The call is signaled until either the caller hangs up, or until the call is terminated by the exchange (after around 2 minutes).

- **Sequential signaling:**
  The terminal devices are called in the order that they have been entered in the subscriber list in configuration. Each terminal device that has already been called will continue to be called until all of the devices that are entered have been called. In configuration you can define when the next terminal device is to be called each time.

- **Simultaneous signaling on no response:**
  You have configured your system for rotating or adding team calls. You can configure your system such that when the set time expires, all team members are called in parallel (simultaneously).

- **Even distribution (only elmeg ICT 88 / 880 /-rack):**
  You can configure this feature for a maximum of 10 teams, 16 subscribers each. »Rotating ringing« distributes calls evenly, thus ensuring all members of a team receive the same number of calls.A »Post-processing period« (0...999 seconds) for parties who have just completed a call can be configured centrally for all teams / extensions. During that period no further calls will be received. Calls that a subscriber receives via his/her number, and not via the team, are not included in »even distribution«.Any subscriber who logs out of the team (code or function key) is no longer included in »even distribution«.The existing calculation for »even distribution« is deleted and the process begun from the beginning in the event of a loss of power to the PABX, or after (re)configuring the PABX.If all subscribers are in the »post-processing period« an external call will then be switched to the configured return targets; internal callers will hear a busy signal.If the same time is calculated for several extensions on completion of their last call, the order is determined by the order of entries in the »Internal assignment«.

- **Configuration**
  The type of call signaling is configured separately for each call mode during team building and door intercom setting.

31_12 Calls

Calls signal at your PABX that an internal or external caller wishes to be connected. Analog and ISDN terminal devices signal this by switching on tone ringing,

Only calls corresponding with the terminal device type of the called terminal device are signaled. For example, an analog terminal device set to the terminal device telephone can accept fax calls (Fax Group 2/3). An ISDN board with data software, for example, cannot accept telephone calls. Configure the analog terminal devices within the PABX. ISDN terminal devices determine the device type automatically.

— Analog terminal devices can signal according to ring cadence specified by the PABX. ISDN terminal devices signal calls according to their own settings.

— Assignment of the calling cycles to the various devices can be edited (see “Adjustable calling cycles”).

— Analog and ISDN terminal devices can display the telephone number of the caller. Analog terminal devices have to support this display and the telephone number display has to be activated in the PABX.

— Special calls to system telephones or ISDN telephones (for example call-back) can be signaled in the display together with additional information.

— A call is picked up by lifting the handset or activating hands-free talking.

- **The following calls can be differentiated by the PABX:**

- **Internal call:**
  Call from an internal party.

- **External call:**
  Call from an external party.

- **Call-back:**
  You have transferred a call to a different telephone. However, this telephone does not accept the call. The call is rerouted to your telephone (call-back) after a time specified in the PABX.

- **Call-back:**
  You can set up automatic call-back to internal or external subscribers if they are busy or cannot be reached. If a call-back is performed by the PABX or the exchange, signaling is carried out as a call-back.

- **Wake-up call:**
  Every subscriber can set the PABX to make an automatic telephone call to his or her telephone at a specified time. Signaling is in the form of a wake-up call.

- **Doorline phone call:**
  You are utilizing an entrance intercom telephone (door terminal module) with your PABX. Calls from the entrance telephone to internal phones of the PABX (for example operating a bell push with signaling at different phones) are signaled as entrance telephone calls.

- **Alarm call:**
  You are using an entrance intercom module with your PABX featuring an alarm input channel or analog ports set up as alarm input channels. If alarm input is detected, signaling at the internal phones takes the form of an alarm call.

31_12_0_1 System telephones

You can monitor calls of individual subscribers on system phones by using the line keys. The extension of an internal subscriber is stored and associated with a function key. The assigned LCD then shows the status of this subscriber (calling out, incoming call, ...). External calls can be monitored using line keys. The B channel of an external connection of an ISDN connection is assigned to a function key. The assigned LCD then shows the status of this B channel (calling out, incoming call, ...).

Special calls (for example call-back, repeat call...) are signaled in the display of system phones with an additional reference text.

31_12_0_2 Assigning outbound calls

You can assign external calls to internal subscribers, teams or voice applications, such as »Voice announcement before answering« and »Information texts« during configuration.

— Assignment to a team is performed as described for »Calls to a team«.

— Assignment to an internal subscriber is made directly. You can select the calling cycle for this type of call.

— Assignment to the “Voice applications” is performed in a configured “Info box” or “Voice announcement before answering”. This assignment can be calendar-controlled and made via the variable call modes “Day” and “Night”. After the announcement transfer with/without announcement/music on hold can still be made to a team or to an internal subscriber.

Note:
Calls can be signaled at all terminal devices featuring the same functions. External calls are signaled based on the corresponding authorizations (unlimited, domestic, local, pending). A call to an »internal authorization« extension is not delivered; instead, the caller hears a busy signal.

Signaling is blocked only for analog phones with »station guarding« activated.

31_13 Cancel settings (Reset)

There might be some rare cases where one internal subscriber has so many features and functions set up and configured that it is impossible to keep track of them all. Delete the subscriber settings to define a new basic setting for reconfiguring this subscriber. You can reset the PABX to its factory settings if you want to operate an already installed and configured PABX at a new location (for example at another office). This makes reconfiguring the PABX easier since all current settings are deleted.

The reset function resets all settings and configurations of the internal subscribers or returns the PABX to the defined basic settings. As you configure your PABX you have the option of deleting the features and functions of one or of all internal subscribers. You can also return all settings of the PABX system configuration to the basic setting.

- **Configuration**
  Please follow the PABX configuration instructions via telephone since this configuring of the PABX system is carried out using telephone.

31_13_1 Deleting phone book- and LCR-Data

With ICT pabx systems up to and including Release 4 use of the the code ** PIN 999 (restaure factory defaults) does not delete any phone book or LCR-data. This has been modified with Release 5. When restoring the factory default settings with this numeric code, all pabx data (configuration, call data records, phone book and LCR data) are deleted.

Data on the SMC-card are maintained; all data stored in the 256k flash memory (ICT 88/880/880rack) will be deleted.

31_14 Central bell

You cannot hear your telephone because you are frequently outside the office or in the shop? A central bell may be useful here. This bell rings with external calls. You can then pick up the call yourself on your phone or have any authorized subscriber who hears the central bell ring accept the call.

- **Central bell**
  In the configuration you can program one of the door terminal's or switching contact module's contacts to be actuated within the ringing cycle when a preprogrammed terminal is called. If a bell is connected to this switching contact, it will always ring when the corresponding MSN extension is called from an external number. This setup is designated central bell.

Note:
Depending on the PABX unit, up to 12 second bells or central bells can be programmed. The PABX provides only the switching contact. The bells must be supplied by an external power source. For more information please refer to the assembly instructions.The second bell can be assigned to a team number.

- **Configuration**
  During PABX configuration you can program the various paramaters for the switching contacts by means of a »Switching order«.

31_15 Configuration using a PC

The PABX has numerous features requiring a more or less complex configuration. Use a PC to dial into the PABX and configure the system. Different authorization levels are set for configuring the system to prevent accidentally deleting essential settings. Dialing into the PABX requires a username and a password. The PABX can also be configured remotely by an authorized dealer using the service access.

- **You can use the following ports for configuring your PABX:**
  - RS232 (V. 24) –port (with a PC or Laptop)
  - LAN port (with a PC or Laptop)
  - USB port (with a PC or Laptop)

Internal ISDN connection or External ISDN connection (service access). For this access you require an ISDN card in your PC (Laptop).

Configuring the PABX requires the WIN-Tools programs, as for example Professional Configurator, Telephone Directory Manager or Charge Manager.

Access to the configuration program of the PABX is divided into three authorization levels. Each of these authorization levels has a user name and a password (PIN). Every subscriber may only access or modify the PABX configuration program according to his or her authorization level.

The PABX checks the username and password when a subscriber establishes a connection to configure the system. Only the settings available based on the authorization level of the subscriber are then displayed in the configuration program.

- **The following authorization levels are available for the PABX:**

- **Service:**
  The service technician or an authorized dealer can perform a complete PABX configuration program. Unlimited permissions can also be set for the configuration access levels »Admin« and »User« by the service technician or dealer. When logged in as a Service user, you can change Admin and User passwords without actually knowing them. This authorization level has a predefined username and password (PIN), which can be modified, however. Authorization is carried out from an operational PABX system or »offline«. With »Offline« configuration authorization is granted against an existing configuration file (up to an including Professional Configurator V.6.4) »*.elg«, from Professional Configurator V.6.5 on »elg« and »ict«). A PABX can be pre-configured for a customer and the configuration file can be transferred to the PABX at a later time.

- **Admin:**
  This authorization level is intended for the daily administration and control of the PABX. Permissions for this access are specified by »Service«. The administrator (»Admin«) can assign permissions to one or several »Users«. The Admin can change User passwords without actually knowing them. This authorization level has a predefined username and password (PIN), which can be modified according to the assigned authorizations.

- **User:**
  Each internal subscriber (»User«) of the PABX can receive permissions assigned by the »Admin,« for example, to modify subscriber-relevant settings. The user name of a »User« corresponds to the name assigned to an internal subscriber when configuring the PABX. An 8-digit password (PIN) can be assigned to internal subscribers in addition to the Login name. The user must read out the PABX system one time. The PIN is required for this. If Service has provided the user with an ».elg« or an »ict« file he/she can also open the configuration »offline«.

Note:
The PABX can be configured only by using one of the listed connections. For example, if you use a USB port to configure the PABX you cannot configure the system via a RS232 or ISDN port at the same time.

Please check the PC ISDN board for an assigned extension if you cannot establish a connection to the PABX when configuring via internal ISDN port. You have to enter the * key before the service number (for example »*55«) if there is no assigned extension but automatic line access is activated for a telephone connected to the internal ISDN bus.

You also cannot run any applications on the port selected for configuration while the port is being used to configure the system. For example, while configuring the system via a PC connection (USB or RS323), it is not possible to use additional features with this connection at the same time (for example hotel application or RS323 printer when configured to use the RS323 port). TAPI can be used while configuring the system via a PC connection if run on the same PC.

Configuration via an external ISDN connection is possible if the service access of the PABX is set up and activated.

We strongly suggest changing both PINs when assigning permissions because this resets the PABX to the factory settings, which cancels all authorizations.

- **Configuration**
  In the PABX configuration, »Admin«, authorizations can be established via the Hotline or through the service (for example, specialist dealers). »Admin« can then assign to or block PABX system configuration permissions of individual »Users«.

- **Operation**
  The PABX checks the entered username and password (PIN) when a subscriber establishes a connection to configure the system. Only the settings available based on the authorization level of the subscriber are then displayed in the configuration program.

31_16 Configuration using a telephone

You do not have the opportunity or the time to connect the PABX to a computer but still want to change system features. This is not a problem. Frequently changed features of the PABX can also be configured by telephone. For example, you can enable remote PABX access or set up a new call account for a subscriber. Configuring PABX features by telephone is protected with a 4-digit PIN.

A few important features can be configured by telephone as well. These settings are protected by the 4-digit PIN in the PABX. The PIN's factory setting is 0000. We strongly suggest changing this PIN to protect the PABX from unauthorized access.

After you begin configuring the system by telephone, you can use various numeric codes to set the corresponding features.

31_16_1 Programming features.

You will hear the positive acknowledgement signal once you successfully conclude configuration for a setting. You can then move on to configure the next setting. If you wait for more than 40 seconds between one entry and another, the PABX will terminate configuration and you will hear the busy signal. All input made up to that point which was concluded with a positive acknowledgement signal will be saved when you hang up the handset. Saving is performed for 10 seconds after you hang up the handset. During this period it is important that you do not begin a new configuration of the system, and that power is not interrupted to the system.

- **The following features are configurable after completing this procedure:**
  — Configuring or deleting a service-specific call forwarding by the exchange
  — Resetting the PABX to factory default (reset)

— Clearing the charge counter for all subscribers

— Remote access for external activation / deactivation of Follow me, room monitoring and switching contacts

— Configuring charge accounts (charge limits)

— Changing PIN 1 or PIN 2

— Resetting charge data logging

— Switching LCR procedures (simple call-by-call, Teledata or off)

Note:
Some terminal devices might be inaccessible while configuring the system.

31_17 Default setting (factory default state)

The factory settings of the PABX constitute the basis for your customized configuration. Please refer to these settings for information about features and functions already set up when you receive your PABX. The PABX is ready for use fresh out of the box due to the basic factory settings.

31_17_1 Factory settings of the PABX

- **Access settings**

  — All external ISDN connections on the base are set for point-to-point access.

  — The PABX is configured for 2-digit dial-in numbers without PABX number.

  — No fixed calling line identification for outgoing calls.

  — No exception numbers are entered.

  — The ISDN layer 2 of the external ISDN connection is not kept permanently active by the PABX.

  — All access lines are in trunk group 0.

  — The internal ISDN connection is set as a »Short passive bus«.

  — The following settings are configured for analog ports: DTMF-dialing method with a flash interval of 200 ms, telephone as terminal device type, calling line identification (CLIP) and meter pulse are not set, call waiting is off, CLIP is off.

  — No names are assigned to the ports.

  — No SIP-providers are entered.

  — No sites are entered.

  — The first MSN assigned is used as the default MSN for an internal ISDN connection.

  — No calling cycles are assigned to external connections (MSN and direct dial-in numbers).

  — CLIP no screening de-activated.

  — DTMF dialing, tone signal recognition and dialing monitoring time (5 seconds) is configured for the POTS module.

  — CLIP has not been configured.

  — The S2M-module is set to CRC4 Multiframe and the B-channels to »alternating«

  — Subscriber settings

  — No names are assigned to internal subscribers.

— Telephone numbers are transmitted (suppression of telephone number transmission is off).
— No authorization for switching day / night modes.
— No authorization for doorline phones.
— No direct exchange line access configured.
— All terminal devices are authorized for international calls.
— All external ISDN ports may be assigned.
— Dedicated assignment of trunk groups is not possible.
— No automatic switching of call authorizations.
— All subscribers are in group 00, meaning that Accepting (pick-up) of a call is possible for all terminal devices.
— No reception of annoucement or intercom calls.
— Station guarding deactivated for each terminal device (anaolg subscribers only).
— Dialing control is not active. No telephone allowed or barred telephone numbers entered.
— Call data records are stored for outgoing connections. (up to version 1.5).
— All charge counters are set to 0.
— The charge limit function is off.
— The keypad function for the external ISDN connection is not enabled for terminal devices.
— Remote access can be initiated /enabled from any terminal device.
— LCR is active for all subscribers. The LCR feature is off.
— No subscriber is authorized for SMS reception.
— Internal music on hold 1 is active for all subscribers.
— No subscriber-specific switching functions are configured.
— No calendar assigned to the subscribers.
— All subscribers can use the telephone directory according to granted rights.
— No internal subscriber has authorization for configuring the PABX. No passwords are entered.
— Calling cycle assignment for analog ports: 1 = Internal call, 2 = External call, 3 = Door intercom call, 4 = Alarm call.
— No announcement port is configured.
— CLIP Off Hook signaling for analog ports has not been configured.
— The DECT handsets have not been logged on.
— CCNR per subscriber is active.
— SMS reception is deactivated.
— LCR-provider indication is activated.
— Switching functions are deactivated.
— Team settings
— No numbers or names are assigned for teams.
— Team 0 has the numbers 10 and 40 for the day and night call modes.
— All subscribers are authorized for the team.
— The group call is set for »simultaneous«.
— All calls to a team are signaled (busy on busy is off).
— No call transfer on no answer to another team.
— The call mode Day is active.

— No calendar assigned to the teams.

— External calls are signaled at the terminal devices of team 0.

— »Linear« group calls are signaled for about 5 seconds per subscriber.

— A »Simultaneous on no answer« group call will be signaled after about 60 seconds at all subscribers.

— No individual team call processing functions configured.

— Call forwarding for individual subscribers will be executed with team calls.

— There is no operator team.

- **General settings**

— Remote access to the PABX for the features Follow me, Room monitoring, Switching contacts and Door opener is not allowed.

— LCR Professional is not activated.

— The feature for connecting external subscribers is not active.

— The switchover times are set as follows in the calendar for all days of the week :Switchover from call mode 1 to call mode 2: 8:00 am, switchover from call mode 2 to call mode 1: 4:00 PM

— A delayed call forwarding will be executed after around 15 seconds.

— Call forwarding and call-backs are deleted.

— No reception telephones are entered.

— All check-ins and morning calls are deleted.

— The hotel room status is »undefined«.

— The cost conversion factor is set to 1/1.

— The morning call duration is 30 seconds, a morning call will be repeated for about 3 minutes, the number of morning call repetitions is 0.

— MoH melody 1 is set for morning call announcements.

— After approx. 30 seconds, a call is repeated if unsuccessfully transferred.

— No direct dial-in call has been configured (the direct dial-in time is set to 5 seconds).

— Automatic call authorization switching is off.

— No fixed TEI values are established for X. 31 .

— Waiting calls (without B channel) at a point-to-multipoint access are rejected.

— The software version is set as time and date when receiving the PABX.

— PIN 1 is set to 0000.

— PIN 2 for remote access is set to 000000.

— The date and time are imported automatically from the exchange during an external connection.

— The central telephone directory is empty. for firmware up to 1.5!the telephone directory is not deleted with a pabx reset; it must be separately deleted.

— No Voice applications are available.

— The code number for international calls is 00.

— The code number for national calls is 0.

— No regional or local access codes configured.

— The global line access digit is 0.

— The charge rate factor is 0. 062 EUR.

— The meter pulse frequency is set to 16 kHz.

— Output of call data records via the RS232 (V. 24) interface is off.
— The external numbers in the call data records are shown in full length.
— No charge counter overflow signal.
— AC ringing voltage set to 50 Hz
— The internal service number entered is 55.
— The SMS server number entered is 0193010.
— No local area code has been entered.
— No country code has been set (SIP provider only).
— No emergency numbers are entered.
— No individually modified code numbers are configured.
— PABX configuration through a PC enabled for »Service« and »Admin«. The service password is »Service« and the admin password is »Admin«.
— Transfer can be made to a busy subscriber.
— Transfer of external call to external call by hanging up is inhibited.
— The serial ports (RS232) and USB have been configured as “Standard”.
— No MSN has been entered for diagnosis signaling.
— No text has been entered for the check-out print-out.
— Information texts for the Professional Configurator have not been entered.
— The repeat counter for voice announcements is set to “0".
— Dialer protection is de-activated. No numbers have been entered in the unrestricted data filter.
— The numbers for outgoing service connections are enabled in the unrestricted data filter.
— Logging on of DECT devices is inhibited.

- **Door terminal, Alarm call and Switching contact settings**
  — No doorline phone port configured. No subscribers entered in the doorline phone call modes.
  — A doorline phone call will be signaled for about 40 seconds.
  — External doorline phone call monitoring time is 3 minutes.
  — An alarm call will be signaled for about 60 seconds.
  — The switching time is set to 3 seconds.
  — The switching contacts have no assigned function.
  — The signaling function is off.
  — The TFE module (door intercom module) has been configured for three bell buttons and one signaling input.
  — No alarm inputs of the switching contact module have been set up.

Phone number plan

The factory setting of the PABX features 2-digit internal extensions. Two extensions per internal ISDN port are preconfigured. The internal service number entered is 55.

From version 1.5 on, internal numbers can also start with a leading »0«; this, however, requires changing the line access digit from »0« to »9« for example.

Base module 0							
S0 1	S0 2	S0 3	S0 4			a/b	
mextern 10, 11 *)	external (20, 21)	external (30, 31)	external (34, 35)			40 ... 47	
Base module 1 (left slot)							
S0 / Up0 1	S0 / Up0 2	S0 / Up0 3	S0 / Up0 4	DECT multicell	VoIP-VPN	a/b	
60, 61	62, 63	64, 65	66, 67	60 ... 67	60	60 ... 67	
8UP0 1	8UP0 2	8UP0 3	8UP0 4	8UP0 5	8UP0 6	8UP0 7	8UP0 8
60	61	62	63	64	65	66	67
Base module 2 (right slot)							
S0 / Up0 1	S0 / Up0 2	S0 / Up0 3	S0 / Up0 4	DECT multicell	VoIP-VPN	a/b	
70, 71	72, 73	74, 75	76, 77	70 ... 77	70	70 ... 77	
8UP0 1	8UP0 2	8UP0 3	8UP0 4	8UP0 5	8UP0 6	8UP0 7	8UP0 8
70	71	72	73	74	75	76	77

Router module special slot 5							
14, 15, 16, 17, 24, 25, 26, 27 (applies also for VoIP-VPN-gateway)							
Extension module 4 (left slot)							
Up0 1	Up0 2	Up0 3	Up0 4	Up0 5	Up0 6	a/b	
18, 19	28, 29	38, 39	48, 49	58, 59	68, 69	50 ... 53	
Extension module 5 (right slot)							
S0 / Up0 1	S0 / Up0 2	S0 / Up0 3	S0 / Up0 4	DECT multicell	VoIP-VPN	a/b	
80, 81	82, 83	84, 85	86, 87	80 ... 87	80	80 ... 87	
8UP0 1	8UP0 2	8UP0 3	8UP0 4	8UP0 5	8UP0 6	8UP0 7	8UP0 8
80	81	82	83	84	85	86	87
Erweiterung Modul 5 (Steckplatz rechts)							
S0 / Up0 1	S0 / Up0 2	S0 / Up0 3	S0 / Up0 4	DECT multicell	VoIP-VPN	a/b	
90, 91	92, 93	94, 95	96, 97	90 ... 97	90	90 ... 97	

8UP0 1	8UP0 2	8UP0 3	8UP0 4	8UP0 5	8UP0 6	8UP0 7	8UP0 8
90	91	92	93	94	95	96	97

31_18 Defining your own number for the next outside call

For example, if you want to make a business call from home, late at night, you can define your business telephone number as the MSN for this business call. The advantage is that the connection and its cost are recorded under the selected MSN and your business partner can see that it is you calling.

31_18_1 function

You can specify the following before dialing an external call:

- The ISDN port to be used for calling an external party.
- The telephone number of the selected ISDN port to be transmitted to this party.
- You now initiate a call (exchange line access) by dialing a numeric code used to determine the ISDN port and the telephone number to be displayed.
- The selected ISDN port and the telephone number to be displayed are used by the network service provider to record and bill costs.

Note:
The number used to dial out for an external ISDN port has to be dialed first when dialing from a number to be displayed on the telephone of the person called. The external ISDN ports are combined into trunk groups in the PABX configuration. Every subscriber has to have been assigned at least one trunk group (max. of 5 trunk groups per subscriber) for the external dial out. When dialing a numeric code to display a specific telephone number on the telephone of the person called you can use only one ISDN port contained in the trunk groups assigned to you.

Each telephone number has to be entered into the configuration first and is then automatically assigned to an index. A numeric code is dialed to access the line when initiating a call. This code is extended with the number of the ISDN port and the index of the telephone number to be displayed.

You can transmit only a telephone number previously assigned to the corresponding ISDN port and entered as such into the PABX configuration. It is not possible to transmit the telephone number of a different ISDN port.

This setup applies only to the next call to be conducted (temporary setting). If you would like to place several calls that display a different telephone number you have to always dial the corresponding numeric code for line access.

31_19 Disable calling line identification

31_19_1 Setting in the exchange

Your network service provider can enable »permanent call number suppression« for every number of your ISDN connection. A telephone number (MSN extension) with call number display suppression is not displayed on the telephone of the party called. This feature can be enabled separately for each telephone number (MSN) of your ISDN connection.

31_19_2 Setting in the PABX

You can specify that no telephone number is displayed on the telephone of the party called anytime a call is initiated from an internal telephone. Use the PABX configuration program to specify these settings for each individual subscriber separately.

Note:
This setting applies to all inhouse or outside calls initiated by that user.

Specify in the PABX configuration program for each internal subscriber whether to display the telephone number on the telephone of the person called or not. This setting applies to all inhouse or outside calls initiated from that terminal device. To disable the display of your telephone number on the telephone of an external party using this configuration method, your network service provider has to enable the »case-by-case telephone number display suppression« feature. This feature can be enabled separately for each telephone number (MSN) of your ISDN connection.

31_20 Enquiry Call to Enquiry Call

You are conducting an external call. You need information from one of your co-workers and would like to call that person with an Inquiry call. If the co-worker is also on the telephone, he or she will hear the call waiting signal and sees your name displayed in the system telephone display. The enquiry call can then be initiated and you can talk to your co-worker.

Two internal subscribers are each connected with an external caller. One of these internal subscribers places an enquiry call to the other internal subscriber. The subscriber uses call waiting for the existing external call. The subscriber accepts the waiting call. Both external subscribers are put on hold and will hear music on hold (when programmed), or a voice announcement from the voice application.

- If the internal subscriber who initiated the enquiry call replaces the handset, the other internal subscriber picks up his or her external call. The other external caller remains on hold.
- Once the internal subscriber who accepted the enquiry call replaces the handset, a call-back is placed from his or her external caller on hold; the other internal subscriber hears the busy signal.

Note:
An Inquiry call to an Inquiry call does not allow for three-party calls, conference, brokering, and multiple holds.

31_21 Follow me

You can reroute your calls and faxes to your respective current location, for example receive at home faxes sent to the office. Just set up call forwarding from your home and receive faxes where you need them. Of course, you can set up, activate and deactivate call forwarding from any location at any time.

With this feature, you can set up call forwarding from an external device. This requires entering the service number and the 6-digit pin from the external telephone. The PABX uses the PIN to check the authorization for call forwarding from an external location. If remote access has been enabled you will hear the special dial tone of your PABX. Then dial the numeric code and extension of the internal subscriber whose calls are to be forwarded. Then enter the telephone number of the subscriber to whom the calls are to be forwarded. The subscriber can be an internal device connected to the PABX or an external subscriber.

Note:
You can use this code to configure permanent call forwarding.

The external telephone has to feature tone dialing (DTMF) or you have to use a tone dialing manual transmitter. Previously forwarded calls can not be forwarded again.

- **Configuration**
  This feature requires configuring the service telephone number to be assigned to MSN (point-to-multipoint connection) or direct dialing (point-to-point connection). Remote control also has to be enabled.

  The factory setting of the 6-digit authorization PIN 2 is »000000«. You must change the PIN, as otherwise you will not be allowed access to the PABX system.

31_22 GSM-Gateway

You need a number of connections to GSM mobile telephones because your customers, or your staff are always on the move and that is the only way to keep in contact with them, for example. These many connections to the mobile radio networks run up your telephone costs.

Using GSM gateways at your PABX system you can save phone costs when you set up connections to the mobile units via the gateways linked to the system. Using the LCR Professional (starting from firmware Version 1.4) you can define that gateways are to be used automatically for connections to mobile handsets.

GSM gateways can be connected at external ISDN and internal analog ports of your PABX system.

The GSM gateway at an external ISDN port can be reached in the same manner as for a normal external ISDN port (using a code, trunk code or by dialing = »0« (UK = »9«). You do not have to specifically configure the external ISDN port; the connection type, either point-to-point or point-to-multipoint, is freely selectable. You must configure an GSM gateway connected to an analog port explicitly as a GSM gateway in the »Analog Settings« configuration menu. These configuration settings define the defaults for certain performance features: The subscriber is switched to tone dialing, with charge impulse and number ID de-activated.

To prevent any tampering with the gateway from an external location (for example, dialing of the code for resetting the PABX system), it is important that you configure any analog port that interfaces with an analog gateway as »GSM GatewayX« under »Analog settings«.

You can configure up to 4 types of connections in the PABX system. All analog ports that are routed to a certain GSM gateway must be set for the same type of connection (1...4) in the configuration settings. The GSM gateway is reached at the analog port via the port's internal number. If a GSM gateway is connected to several analog ports these are then dealt with as a trunk group. If one of the analog ports is busy the system searches automatically for an available analog port within the »trunk group«.

If a »Direct call« is placed from the subscriber port at which the GSM gateway is connected to a different subscriber or team (internal or external), only this one destination can be reached. The external subscriber then no longer has to perform suffix dialing via the GSM Gateway.

Using LCR-based call forwarding, outgoing calls can also be placed via the GSM Gateway .

Call data records are stored for all GSM gateways. For this, the internal number for the analog port is placed directly in front of the destination number of the external subscriber.

Note:
If the gateway is operated at an external ISDN port, signaling cycle synchronization must be conducted via the network termination unit, as the PABX system does not provide any own signaling cycles. To do this, the input for the gateway is connected in parallel to the external ISDN port at the network termination unit.

- **The following performance features can not be used when a GSM gateway is connected:**
  - — Assignment of the ports to teams, team numbers
  - — Target for immediate return options
  - — Allocation of analog ports to MSNs/direct dial-in numbers, meaning calls by external parties are not possible
  - — Announcement, Call rerouting completion of call on busy, Call waiting ...
  - — Configuration
  - — In the configuration program under » »General« you can set a dialing pause of 0 to 5 seconds length for the GSM gateway.

31_23 Information from the ISDN network (MWI - Message Waiting Indication)

You have new messages in your mailbox or new e-mails are waiting for you at your Internet provider. You have to check these messages yourself but are not sure there are actually any new ones. The PABX system can use the »MWI« feature to receive new messages from the service provider and then informs you of these messages. You have to query your e-mail box only if there are actually new messages for you.

The MWI feature allows your service provider to inform you if new messages for you are actually available. For example, if you have a new e-mail message in your mailbox or on the server of your Internet provider, MWI will notify you. ISDN terminal devices that support this feature can display or signal this information. MWI information is transferred transparently by the PABX to the terminal devices.

Note:
You must apply for this ISDN connection feature at your service provider You will then be informed of all available services there. An external terminal device can display this information only if an external MSN has been assigned to the terminal device during configuration.

31_24 Least Cost Routing

31_24_1 Least Cost Routing (LCR) 1.4.

The built-in Least Cost Routing feature lets you make calls via an alternative carrier or service provider. When this performance feature is activated the PABX system attempts to set up the most reasonably priced or optimum connection for that time. The optimum connection may not always be the most reasonably priced however.

Diverse information must be available for selecting the best price and reasonably priced service provider for a call:

- — ·To where is the call being placed?
- — ·Time of the call?

The charge rate data for the LCR function can be downloaded from the Internet site www.telefonsparbuch.de. bintec elmeg GmbH is not liable for, nor can it guarantee the up-to-dateness, completeness and correctness/freedom from error of the rate tables.

Normally, you are connected with your network service provider when you lift the handset of your phone and dial the line access digit

(default: 0). The built-in Least Cost Routing feature lets you make calls via an alternative carrier or service provider.

In its initial state, no LCR procedure is activated in your PABX. Configuration of the various LCR procedures is performed using a PC and the WIN-Tools CD supplied with the system.

Note:
Please that there are some providers whose services must be applied for. Some of these providers automatically set up a connection to enroll unregistered customers. If you terminate such a connection during dialing and then subsequently attempt to set up this link again, this may result in errors during calling (communication will not be established). In this case it will be necessary to deactivate the provider concerned in the LCR professional on the WIN-Tools CD and to update the date records in the PABX.

- **LCR Professional features**
  - Configuration of up to 20 providers including provider name and prefix. Setting options for individual routing procedures (standard, trunk group, MSN)
  - Up to 50 zones with a maximum of 200 entries each (prefix, phone numbers, subscribers) can be configured.
  - You can configure a GSM gateway as provider. If connected to the external ISDN port of the PABX system the trunk code for the respective port is dialed as a »Provider prefix«. When connected to one of the pabx's analog port, the internal extension number of the pabx is dialed.
  - Three different fallback stages can be set.
  - The rate tables are configured for Monday through Friday, Saturday and Sunday for the zones that have been configured.
  - Preconfiguration and download of rate tables from the Internet (www.telefonsparbuch.de).
  - Importing and saving the rate tables and transferring them to your PABX system.

Note:
When a connection is established via a provider, the name of that provider is shown in the display of system telephones.

Users can be inhibited from using this feature in PC configuration.

The rate information is not logged completely in the call data records of the PABX when using the LCR procedure, as this information is not furnished by all service providers.

When call forwarding is activated you should enter the network service provider as the main provider to ensure a high degree of accessibility.

Call forwarding in the exchange, or automatic call-back to an external party will always be executed via the main network service provider.

- **Operation**
  When you lift the handset you will hear a special dial tone in all country-specific variants, except for DE and AT. You can activate/de-activate the LCR procedure using either the »Professional Configurator«, or a code sequence on the telephone.

31_25 Loss of power

Everything seems fine but then: Power outage! Since your PABX needs electricity you cannot use your phones during a power outage. If you have an emergency power module (NSP) installed in your PABX system you can make external calls using an ISDN or system telephone with emergency power capabilities. You are still reachable and can use the phone yourself, for example to call emergency personnel.

The PABX system is not operable on loss of power (230 V mains voltage). meaning that you can make neither internal nor external calls.

- **Emergency operation with uninterruptible power supply**
  The PABX can be operated with an uninterruptible power supply.

- **Emergency operation with the NSP module**
  An ISDN phone capable of the power-fail function can also be connected to an external ISDN port using the power-fail module. Make sure that this phone is suitable for the point-to-multipoint or point-to-point connection type.

- **System telephones**
  Some system telephones can be used as emergency phones at a point-to-multipoint or point-to-point access.

- **Module POTS**
  Emergency power operation is not possible via the POTS module.

- **VoIP-VPN Gateway- module**
  Emergency power operation is not possible through the VoIP-VPN gateway.

Note:
Please observe the instructions in the assembly instructions.

31_26 Making Calls

The PABX allows telephone calls within the company. Internal calls are high quality and the connection is rapidly established and free of charge. Every subscriber can also be reached from an external location, if desired, even if he or she does not have an external ISDN port. The PABX transfers calls within the company.

You will hear the internal dial tone when picking up the handset or the external dial tone when »automatic line access« has been activated. Each internal PABX subscriber can initiate calls independently depending on the assigned call authorization. How a call is initiated depends on the configured features of a subscriber (for example automatic line access).

31_26_1 Making external calls

You can set up two external connections simultaneously via the two B channels of an external ISDN connection. These connections may also be to two different parties or services simultaneously. Only one B channel is available for each connection. For example, you can call an external business partner while simultaneously transferring data from your PC to a different business partner. When you initiate an outside call via your PABX, the system automatically transmits the service ID that has been configured for the analog port or is available in the ISDN terminal device.

If a PABX has more than one external ISDN port, you can specify one of the connections (trunk groups) for the dedicated trunk group assignment.

External connections usually incur costs. Ask your network service provider for details.

31_26_2 Making internal calls

All phone calls, fax transmissions or data transmissions that take place between internal analog and ISDN terminal devices are inhouse connections. for which no charges are billed.

If a connection is set up between internal terminal devices and the terminal devices connected to the external ISDN connection (to which your PABX system is also connected), this is considered as being an outside connection for which charges are billed.

Note:
If you hear the special dial tone when you lift the handset, this tells you that a feature or function is activated (for example call forwarding). You can still dial.

Configuration

- **The following settings are possible in the PABX configuration program that may affect calls placed by an internal subscriber:**
  - for example call authorizations, automatic line access per internal subscriber
  - Terminal device type for analog terminal devices

31_27 Managing Names in the PABX

Who knows all of the extensions of all internal subscribers by heart? After you have dialed the number you can also press the speaker button to have the number dialed. For example Ms. Smith at extension 44. Extension 44 is then linked with the name Smith in the configuration program. Anytime Ms. Smith calls, it will be her name and not her extension that is displayed.

You can assign names to all internal subscribers in the configuration program (analog and ISDN phones). This name is shown in the display of the called person when making an internal call. This name can also be displayed when settings are shown in the PABX system menu. For example, if this menu features a direct call for subscriber 44 (name »Smith«), the name »Smith« will be shown instead of the extension 44 when specifying additional direct call settings or when deleting the direct call feature.

You can also assign names to teams, ISDN ports or installed entrance access phone modules. These names are used for identification purposes when configuring the PABX and only displayed in the configuration program.

Using CLIP on specific analog terminals, the name can be shown on the display of the terminal device.

Note:
The name of an internal subscriber entered into the configuration program of the PABX has higher priority than the name entered into the telephone directory. For example: You assigned the name »Smith« to the internal subscriber 44 and also entered an entry for extension »44« - name »Ms. Smith« - into the telephone directory. When receiving an internal call from this subscriber the display of the called subscriber shows the name »Smith« from the configuration program and not the name »Ms. Smith« from the telephone directory.

- **Configuration**
  A name entered into the PABX configuration program can be up to max. 12 characters.

31_28 Parking (TP - Terminal Portability)

You have a standard ISDN telephone at the internal ISDN connection and are conducting a call from this phone. During the call it becomes apparent to you that you must continue this call in a different room. You can »park« the call

for around 2 minutes, unplug the telephone from the ISDN connection and then plug it back in at the internal ISDN connection in the other room. After you unpark the call you can continue with your conversation.

Note:
This feature is supported for ISDN telephones by the PABX at the internal ISDN connection. Please refer to the operating instructions for your ISDN telephone for proper use. You can only park and unpark a call on the same ISDN connection.

31_29 Project numbers / client numbers

You are making telephone calls for which you would like to be reimbursed. While dialing, you can enter a project number for the respective call. When the call data records are evaluated (for example with the charge program) you know exactly which calls were made as part of which project.

A max. 6-digit project number can be assigned to a connection to be dialed or a connection already established. This project number is then saved in the corresponding call data record. A call data record is generated and saved for all outgoing calls. For incoming calls you can specify whether to generate and save always or only after assigning a project number. When using the WIN-Tools cost registration program to output the call data record, you can identify single data sets, sort them according to project numbers, filter or combine records, etc.

Note:
You can also assign project numbers during an external Inquiry call.

- **Configuration**
  You can specify whether to generate and save a call data record for all incoming calls or only for those with an assigned project number»Call data records«.

31_30 Remote access (remote control)

You are going to be away from your office for a few days but you forgot to forward calls to your mobile telephone. Or would you like to operate your electric blinds since you are working late again? Not a problem! Dial into your PABX from an external telephone and then enter the numeric code to control the desired features.

Remote access to the PABX makes it possible to control features and functions even when you are not in close proximity of the PABX. For remote access, the internal service extension of the PABX (internal virtual subscriber) is assigned to an external extension of your ISDN connection. Use this external extension to establish a remote access connection to the PABX. Remote access is protected with a 6-digit PIN. Once the PABX has accepted the remote access connection, you can implement room monitoring, call forwarding (Follow Me) and activate switching contacts, for example.

Configuration

Configuring the PABX assigns each internal service extension to an external extension. The 6-digit PIN of the PABX to protect remote access has to be changed individually. Features such as room monitoring, call forwarding and activating switching contacts must be previously enabled in the PABX.

31_31 Remote programming of call forwarding

You can reroute your calls and faxes to your respective current location, for example receive at home faxes sent to the office. Just set up call forwarding from your home and receive faxes where you need them. Of course, you can set up, activate and deactivate call forwarding from any location at any time.

With this feature, you can set up call forwarding from an external device. This requires entering the service number and the 6-digit pin from the external telephone. The PABX checks the authorization for setting up call forwarding based on the externally entered PIN. If remote access has been enabled you will hear the special dial tone of your PABX. Then dial the numeric code and extension of the internal subscriber whose calls are to be forwarded. Then enter the telephone number of the subscriber to whom the calls are to be forwarded. The subscriber can be an internal device connected to the PABX or an external subscriber.

Note:
The external telephone has to feature tone dialing (DTMF) or you have to use a tone dialing manual transmitter. Previously forwarded calls can not be forwarded again.

31_32 Reserving a trunk group (ISDN access)

You would like to dial out but all ISDN connections of your trunk group are busy. If you reserve the trunk group for your call, you will be notified when a B channel of a trunk group line is available. You are then able to use the reserved channel and place your external call.

If all B channels of a trunk group are busy, you will hear the busy signal when dialing out. By dialing a numeric code, you can reserve a B channel of the trunk group line for your external call. Your phone will ring once a B channel becomes available and you can then use this B channel of the external ISDN connection for your call.

- **Reserving a trunk group after initiating an external call is possible by:**
  - — Dialing the line access digit or automatic line acquisition,
  - — Dialing the numeric code for the dedicated seizure of a trunk group or
  - — Dialing the numeric code for displaying a specific extension number for the next external call.

The ISDN connection selected when entering the numeric code is reserved when dialing the numeric code for displaying a specific extension number. The selected trunk group is reserved in all other cases.

Note:
This function can only be used by telephones that permit suffix dialing.

Depending on the terminal device, it is possible to utilize automatic call-back (if channel is available) or a trunk group/ISDN connection can be reserved. The last configured feature deletes a previously entered feature. An ISDN terminal device can use this feature only if it can use the keypad to dial if the channel is busy or while the connection is being established. All current reservations are automatically deleted at midnight.

31_33 Room Inquiry

You are engaged in a sales consultation. To provide the correct answers to your customer's questions you would like to talk to a colleague first. Once you have talked to your colleague you can continue your customer call and provide the customer with the correct answer.

The Inquiry call allows you to interrupt an internal or external call to conduct an Inquiry call. The enquiry call can be an internal or external call. The customer in this case cannot listen in on your enquiry call. Once you have finished with your inquiry call, just continue your first call. If activated, the party on hold will hear music (Music on Hold) or an announcement.

31_33_1 Routing discrimination

Your PABX is utilized by two different companies. Using the routing discrimination function, the ISDN access of a specific company is assigned to an internal subscriber of that company for outgoing external calls. The telephone number is then displayed correctly for the called subscriber and the costs are allocated to the correct company. The ISDN port of the other company also remains open for incoming and outgoing calls.

The routing discrimination function determines which ISDN access port may be used by an internal party dialing out when several external ports (ISDN, POTS and VoIP) are in use on the PABX. This allows for reserving, for example, an »executive« line. Routing discrimination is configured for the subscribers by building trunk groups and specifying trunk group authorizations for individual internal subscribers. An authorized internal subscriber can also use the »defining your number for the next call« feature to carry out a routing discrimination.

See also:

Trunk group / trunk group reservation

31_34 Second bell

You cannot hear your telephone because you are frequently outside the office or in the shop? A central bell may be useful here. You can have this bell ring in parallel with your phone. You can then pick up the call yourself on your phone or have any authorized subscriber who hears the central bell ring accept the call.

As defined in the configuration, a switching contact is actuated in the ringing cycle when a specific terminal is called. If a bell is connected to this switching contact, it will ring when this terminal is called. This setup is designated second bell.

Note:
Depending on the PABX unit, up to 12 second bells or central bells can be programmed. The PABX provides only the switching contact. The bells must be supplied by an external power source. For more information please refer to the assembly instructions. The second bell can be assigned to a team number.

- **Configuration**
  During PABX configuration you can program the various paramaters for the switching contacts by means of a »Switching order«.

31_35 Station guarding (do not disturb)

You are in an important meeting or you have very important tasks that need to be finished. You do not want to be disturbed so you temporarily deactivate call signaling at your terminal device.Use this feature to deactivate call signaling at your terminal device temporarily. Analog terminal devices use numeri codes of the PABX to enable this feature. ISDN terminal devices are set up and configured for the »station guarding« function as described in the operating instructions of the respective terminal device.

- **The following descriptions apply to analog terminal devices only.**
  You can activate/deactivate the ringing of your analog terminal device. You will still have use of all of the other functions for the terminal device. When the caller places a call he/she will hear the ringing signal. When you lift up the handset during a call (you can not hear the call) you will be connected with the caller.

Note:
Even when this feature is active, the calling party hears the internal ringing signal. When Do not Disturb has been activated for an analog terminal device, calls are signaled with the internal special dial tone (for example when going off-hook).

31_36 Specific trunk bundle selection

An internal subscriber can also target a specific trunk group for use. This requires that an external connection is initiated with the corresponding numeric code needed to seize or acquire the trunk group instead of dialing the line access digit.

The subscriber has to have authorization to perform a dedicated trunk group acquisition. This authorization can also include trunk groups the subscriber usually cannot seize. If a subscriber does not have authorization for the dedicated trunk group seizure or if the selected trunk group is busy, the subscriber will hear the busy signal after dialing the code number. If »direct exchange line access« has been set up and activated for a subscriber, he or she has to press the * key before a targeted trunk group seizure and then initiate dialing out by using the code number for the trunk group seizure.

see also:

Trunk group / trunk group reservation

31_37 Sub-addressing

Subaddressing expands the address range of a few ISDN applications and terminal devices. The possibilities of subaddressing are utilized directly between two terminal devices. The PABX system passes this information on in a transparent fashion.

- **Specific additional information can be exchanged between caller and recipient when establishing a connection for subaddressing. The following are a few examples:**
  - Additional address information (several »sub-telephone numbers« are hidden beneath a telephone number«).
  - Password transmission before transferring data.
  - Starting of specific applications or procedures at the called extension.

Subaddressing information are transferred transparently by the PABX and processed/analyzed by the called terminal device.

Note:
You can only utilize this feature if the feature »SUB« (Subaddressing) is active for your connection and if it is supported by the ISDN terminal devices involved. Please refer to the operating instructions for your ISDN terminal devices for proper use.

31_38 Switching two external calls

During an ongoing call, you have the option of accepting a further call, or of initiating a second call yourself. The first party is put on hold during the Inquiry call. You can then connect both parties with one another and you will be disconnected (from that call).

- **Connecting a waiting caller**
  You have the option of putting several connections on hold and using a further connection (Inquiry call connection) to transfer a party on hold. You can utilize this feature with a system telephone or with an ISDN telephone that support this function (refer to operating instructions for terminal device involved).

- **Explicit call transfer by the PABX.**
  The two external callers will be connected over the pbx. Your pabx is not available for other external calls while an external, transferred call is in progress.

- **Configuration**
  In the configuration process you can specify that two external calls are connected with one another once you hang up the handset or that the second call is put on hold and signaled again by way of a recall.

31_39 System menu for the PABX

The system menu offers users of system phones several softkeys for frequently utilized system functions. Other phones either do not offer these functions at all or only by entering numeric codes.

A special menu containing functions typical for the system is provided by the PABX. This menu, and the associated features, are managed solely from the PABX. The following features are available in the system menu:

- **Telephone directory for the PABX**
  Using system telephones, you can access the PABX telephone directory. To search for an entry in the telephone directory enter the first few letters (maximum 8) for the entry and then confirm your input. Eight (8) entries from the PABX telephone directory are always shown which you can view one after the other. Select the desired entry and confirm by clicking »OK«. You must then begin dialing within five seconds. With certain system telephones you can reach the PABX telephone directory by pressing Shift + the telephone directory softkey. System telephones without a telephone directory can access the telephone directory of the PABX via this telephone directory softkey.

- **Follow me**
  Using system telephones, you can set up call forwarding from another terminal device of your PABX system to your telephone or mobile unit. This call forwarding is based on the »Follow me« feature of the PABX. Enter the number of the subscriber that is to be forwarded to your telephone and the type of call forwarding or cancel any existing call forwarding function using the system menu. A distinction is made between the following types of call forwarding:

- **»Activate« / »Always active«**
  All calls are forwarded to your telephone or mobile unit.

- **»Removal active« (only DECT 100)**
  All calls are forwarded to your DECT 100 mobile unit as long as it is not in the charger. If you have placed your mobile unit in the charger, calls will not be signaled at the mobile unit, but only at the terminal device that was originally called. If you configure call forwarding from a DECT mobile unit, the function is carried out at the internal number (MSN) that your mobile unit transmitted to the PABX during the last call. If you configure call forwarding from another system telephone, call forwarding is effected to the first MSN entered in the system telephone.

- **Message from DECT mobile units**
  The »Message« menu is only available to DECT mobile units. System telephones have this feature on board. Using the message function you can establish a connection to another telephone or team without this connection having to be actively accepted. The same conditions and prerequisites apply to a message for a DECT mobile unit as to messages for other telephones.

- **Intercom from DECT mobile units**
  The »Intercom« menu is only available to DECT mobile units. System telephones have this feature on board. You can set up a connection from a DECT mobile unit to another system telephone using the »Intercom« menu. This connection does not have to be actively accepted. The same conditions and prerequisites apply to intercom calling between a DECT mobile unit and a system telephone as to intercom calling between two system telephones.

- **Direct dial-in**
  You can configure the number for a direct call via the »Direct call« menu. If the direct call function has been configured, your telephone will dial a number that you have input previously. If you do not begin dialing a number within five seconds after lifting up the handset, dialing is begun automatically. The PABX system recognizes by the length of the number whether you have entered an internal or external number. You therefore do not need to input a prefix code for external numbers. You can also deactivate or delete a direct call number that has been previously configured.

- **Switching call modes**
  In the »Day / Night« system menu you can switch over the call mode for the PABX without using the allocated codes. The telephones must be authorized for switchover of the call modes. You can switch over all call modes for the PABX, the call modes for teams or, with an installed door intercom module, separately for each door bell button.

- **Cost registration**
  The cost registration function allows you to view the accrued units and call charges for the terminal devices and, if required, to delete this data. You can delete the data for individual terminal devices or for all. In this menu you can also activate or deactivate or cancel a charge rate printout via the serial interface. This feature is protected by the 6-digit PIN2.

- **Least Cost Routing (LCR)**
  Using the system telephones you can obtain information about the update status of the LCR rate tables. If LCR data is present in the PABX, the date and time of the last download of the rate tables and the date set for the next update of the tables (automatic: Date and time, or manual) are displayed. By means of the 6-digit PIN, you can start a manual download any time you want to.

- **Hotel functions**
  Using system telephones, you can activate the hotel functions. The telephone from which you want to activate the hotel functions must have been set up during PC configuration as reception phone. Using the »Check-In« and »Check-Out« functions of this menu you can grant different rights to a guest's room telephone. When a guest checks out, you can check and print the communication charges accrued for this account. Also, you can set up in this menu a one time or daily morning call for specific telephones.

- **Language for the PABX menu**
  Displays in the system menu of the PABX are available in several languages. These language settings are independent from the settings in the individual system phones. Language settings for the system menu are configured in the PABX central configuration program. The selected language displays to be used are loaded into the PABX. Use the telephone directory software of the PABX to load displays of the system menu into the PABX in one of the available languages.

- **Configuration**
  For more information on settings and configurations, please refer to the description for the individual features.

31_40 System parked Inquiry

You are talking on the telephone and would like to route this call to a colleague. However, you are unsure about your colleague's current location. Use the »system parked Inquiry« feature to keep the caller within the PABX waiting loop. You can now use your telephone for an announcement or message signaling to your colleague that he or she has a waiting Inquiry call. The numeric code of the system parked Inquiry allows the colleague to accept the call from any telephone.

This procedure is possible from analog, ISDN, and system telephones. The system parked Inquiry is initiated with the Inquiry call feature. The called subscriber uses the enquiry call feature to dial the default numeric code or one of 10 configurable numeric codes from the internal telephone number plan. If the dialed extension is not already being used for a different system parked Inquiry, the subscriber will hear a positive acknowledgement signal and hangs up the telephone. If the negative acknowledgement signal is heard, the subscriber cancels the enquiry call and repeats the process for another internal extension released for the system parked enquiry. The external caller is switched to the internal waiting loop of the system during this system parked enquiry and will hear music (Music on Hold) or an announcement, depending on the programming. The telephone is now available for other uses, for example an announcement or message. If the call within the waiting loop is not accepted by a subscriber within a specified time, the initiating subscriber receives a call-back or a call-waiting signal. An internal subscriber can accept the call by picking up the handset and dialing the corresponding numeric code or internal extension for the call within the waiting loop.

31_40_1 Function keys for waiting calls (hold buttons)

The system park inquiry feature for ICT systems has been expanded to include support for function keys on system telephones. This allows calls to be parked or unparked just by pressing the corresponding function keys.

- **Configuration**
  The individual codes for the performance feature »System-parked inquiry« must be defined in the configuration for the PABX system (max. 10). You then have to program the corresponding function keys at each system telephone that is to use this feature. In this case, one function key must be programmed for each code for system parked inquiry. »System parked inquiry« function keys can only be programmed on the first level.

- **Operation**
  You only have to press the function key »System parked inquiry« to put a call in the system parked inquiry queue. After this, the corresponding LED on all the system telephones at which a function key has been programmed for this same code will start flashing. You then only have to press the corresponding key at any of these system telephones to retrieve the call from the system parked inquiry queue. The call is then taken at that phone and the LED stops flashing.

31_40_2 Button »System parked inquiry«

The called subscriber uses the system-parked inquiry call feature to dial the default numeric code. The telephone is now available for other uses, for example an announcement or message. A different subscriber can accept the call when he/she lifts the handset and dials the corresponding number for the call on hold. The code numbers given by the PABX system can also be entered in the function keys for one or several system telephones. If a call is placed in the Parked inquiry queue by pressing a function key, this is indicated by the LEDs of the function keys flashing at the system telephones configured for this feature. The call can be picked up by pressing the corresponding function key. This performance feature is possible when only one call is on hold.

This performance feature is also available with multiple calls on hold.

Note:
A fixed numeric code and up to 10 configurable extensions are available for system parked inquiries.

The system parked enquiry is possible only from within an external or internal connection. Only one system parked enquiry call is possible for each code.

You have to experiment to find an available internal extension if already programmed internal extensions are already used for other open queries.

Only subscribers with at least an »incoming receive only authorization« can accept a call from the system parked Inquiry loop of an external waiting / on hold caller.

Configuration

Specify the internal extension for open queries in the PABX configuration program. These internal extensions are then no longer available for the telephone number plan.

31_41 System telephones

System phones offer optimal user interfaces. Specific functions of the system require system phones because standard ISDN or analog phones lack the technical prerequisites. Some of the special functions utilized by system phones with various PABX systems are as follows: PABX system menu, programmable function keys with LED display.

Various system telephones can be connected to the internal ISDN ports of your PABX, which automatically detects these phones and The PABX provides the system phones with the system menu and further specific features.

The following system telephones can be connected to the PABX:

System telephones	System functions
CS100	Telephone with 2-line display and PC interface (RS232/V.24) function keys with associated LED, system menu for the PABX, emergency operation at point-to-multipoint or point-to-point access
CS290	Telephone with a 2-line display/ function keys with associated LEDs; phone book of the pabx, further features (e.g. SMS, UUS...), configuration of system phones over the pabx's internal ISDN port; if you wish to use the phone at the internal Up0-port, you will have to install the internal Up0/S0-module into the phone or utilize the external Up0/S0-converter.
CS290-U	This system telephone is designed for connection to an internal Up0-port (2 wires) of an elmeg pabx system. The internal Up0/S0-module or the external Up0/S0-converter is then no longer required.
CS300	Telephone with 2-line display and PC interface (RS232/V.24), function keys with associated LEDs, System menu for the PABX, further features (for example SMS, UUS1, macros,...), configuration of the system telephones over the internal ISDN port of the PABX, emergency operation at point-to-multipoint or point-to-point access
CS310	Telephone with 4-line display and PC interface (RS232/V.24) and answering machine, function keys with associated LEDs, system menu for the PABX, further features (for example SMS, UUS1, macros,...), configuration of the system telephones over the internal ISDN port of the PABX, emergency operation at point-to-multipoint or point-to-point access
CS320	Telephone with 4-line display and PC interface (USB) and answering machine, function keys with associated LEDs, system menu for the PABX, further features (for example SMS, UUS1, macros,...), configuration of the system telephones over the internal ISDN port of the PABX.
CS410	Telephone with a 7-line display and plug-in answering machine. Function keys with associated LEDss. Audio IN/OUT; system menu of the pabx;further features (e.g. SMS, UUS1, macros,...), conifugration of system phones over the pabx's internal ISDN port; If you wish to use the phone at the internal Up0-port, you will have to install the internal Up0/S0-module into the phone or utilize the external Up0/S0-converter.

CS410-U	This system telephone is designed for connection to an internal Up0-port (2 wires) of an elmeg pabx system. The internal Up0/S0-module or the external Up0/S0-converter is then no longer required. Telephone with a 7-line display and plug-in answering machine, function keys with associated LEDs. Audio IN/OUT; system menu for the pabx; further features (e.g. SMS, UUS1, macros,...), configuration of system phones over the pabx's internal UP0-port
CS400xt	This system telephone is delivered with a key extension module (T400/2), providing you with 10 additional, freely configurable keys. It is designed for connection to an internal S0 port (4-wire cable) of a PABX system. The system telephone is not equipped with a USB or serial port for configuration or other uses. This phone must be configured via the internal ISDN port using the WinTools Professional Configurator. There are also no »Audio functions« implemented and you can not use the Answering machine or Up0-modules or functions. None of the functions for this module are shown in the display, nor can they be used. This telephone is equipped with the function »Emergency operation«, meaning it can be operated at NT via the PABX system on a loss of 230 V~ power. Please that your PABX system supports this feature and that it can not be used via a Up0/S0 converter.
IP-290	Convenient IP telephony is now also available in IP networks using the elmeg IP-290 IP telephone and the VoIP-VPN-module.
IP-S290	Convenient IP telephony is now also available in IP networks using the elmeg IP-S290 IP telephone and the VoIP-VPN-module. The elmeg IP-S290 supports the pabx's system features.

31_42 Telephone directory (speed dialing from the telephone directory)

Employees in your company have to make many telephone calls to customers. The PABX telephone directly is a practical tool in this case. You do not have to enter the telephone number of the customer but instead select the number from the display of the system telephone. The customer name and telephone number can be managed by an employee for the entire company from a central location. When a customer listed in the telephone directory calls, his or her name are shown in the system telephone display.

The PABX system is equipped with an integrated telephone directory in which you can make up to entries, each with up to a 24-digit number and up to a 20-character name (text). For a specific trunk group selection, one additional trunk group can be assigned to each entry. This entry can then be used by those subscribers only with the appropriate rights to this trunk group. Without the appropriate authorization, a subscriber will hear the busy tone. If you assign an undefined trunk group to a phone book entry then the call will be effcted over a trunk group the corresponding subscriber is allowed to use. Please observe the s regarding »Trunk groups / Trunk group seizure«. Configuration of the telephone directory is performed using the telephone directory program on the WIN-Tools CD-ROM. You can create, edit or delete telephone directory entries using this software.

When you download new firmware versions for your PABX system, all of the telephone directory data is deleted.

31_42_1 Authorization for dialing from the telephone directory

- **There are three different authorization levels:**
  - — Subscriber is not authorized to dial numbers listed in the telephone directory.
  - — Subscriber may dial only those telephone directory listings that match his or her specified call authorization.
  - — Subscriber may dial all telephone directory listings.

An analog subscriber with no telephone directory authorization hears the busy signal. ISDN as well as system phones display »You have no authorization« if telephone directory authorization has not been assigned.

31_42_2 Speed dialing from the telephone directory

Every entry is assigned to an index when a telephone directory listing is created. This index can be used by authorized phones to initiate speed dialing for a telephone directory number. Please observe trunk group assignments for the telephone directory.

31_42_3 System telephones

System telephones can dial from the telephone directory for the PABX using a special menu. To search for an entry in the telephone directory enter the first few letters (maximum 8) for the name and then confirm your input. Eight (8) entries from the PABX telephone directory are always shown which you can view one after the other. Select the desired entry and confirm by clicking »OK«. You must then begin dialing within five seconds. The redial list of the system telephone shows the name of the called party instead of the telephone number.

With certain system telephones you can reach the PABX telephone directory by pressing Shift + the telephone directory softkey. System telephones without a telephone directory can access the telephone directory of the PABX via this telephone directory softkey.

When a system telephone receives a call whose telephone number and name is stored in the PABX telephone directory, the system telephone display will show the name of the caller.

Note:
External calls may not be preceded by the line access code when an entry is listed in the PABX telephone directory. You do not need to enter the line access code for local area telephone numbers.

31_43 Temporarily suppressing transmission of your own number

If you do not wish to have your number displayed to the party being called before he/she lifts up the handset, you can suppress the transmission of your MSN specifically for that call.

Dial a numeric code to prevent the telephone number from being displayed on the telephone of your next party called. The numeric code is dialed immediately before dialing the telephone number of the party you wish to call.

Note:
Transmission of the caller's own number is suppressed using the following procedure with analog terminal devices. Please refer to the operating instructions for ISDN terminal devices on how to initiate this feature. This setup applies only to the next call to be conducted (temporary setting). If you want to disable the telephone number display feature for several calls, you have to always dial the numeric code before entering the final telephone number of the party you wish to call.

- **Configuration**
  This type of number suppression requires your network service provider to enable the »case-by-case telephone number display suppression« feature. This feature can be enabled separately for each telephone number (MSN) of your ISDN connection.

31_44 Three-party conference call

You want to prepare a meeting with two other parties using the telephone. Initiate a three-party conference call to talk with both parties at once. This improves coordination since you do not have to make preparations in two separate telephone conversations.

Three parties (up to two external subscribers) can enter into a conference call with one another. The conference call is ended when the initiating subscriber hangs up the telephone. Any of the other two participants may hang up the telephone at any time; the call is then continued with the remaining two parties. A three-party conference call can be initiated from within an existing connection by including a party making his or her presence known with the »call-waiting« feature or by accepting an »incoming« call into the conference call. Three-party conference calls with two external subscribers require a B channel of an ISDN connection for each party.

Once you return to the »broker's call« after the conference you are again connected with the subscriber you talked to before initiating the three-party conference. The other subscriber is put on hold.

Note:
You can make three-party conference calls with external and internal parties. You can conduct two three-party conferences at once using the PABX. A three-party conference call cannot be initiated if more than one line is on hold. Any lines on hold have to be disconnected before initiating a three-party conference call.

Note:
The three-party conference call is initiated employing a PABX procedure when using analog terminal devices. The procedure depends on the specific terminal device. Please read the instructions for these terminal devices.

31_44_1 Applications in practice

Protect yourself from unpleasant telephone harassment. Even if the display of your telephone does not depict the number of the caller the exchange can still detect and save this number.

Use this feature during a call or after the caller has hung up and you just hear the busy signal. Dial »*51« to save the number of the caller at the exchange. You will hear the positive acknowledgement signal for approx. one second. ISDN telephones can also use dedicated functions for this feature. Please refer to the operating instructions for the ISDN telephones for further information.

Note:
You must apply for this feature to your service provider. You will then be informed of further procedures there.

31_45 Transmission of user-defined characters (User to User Signalling 1 UUS1)

The »UUS1« feature is used to send or receive short text messages to or from other telephones. The PABX thus allows you to send written information such as »Meeting at 9: 30 am« or »I'm on vacation until Monday«.

You can send text messages from one ISDN terminal device to another ISDN terminal without having to call that particular subscriber. Text messages can be sent from and to internal and external subscribers. There are no additional charges for transmission of these types of messages. After being transmitted, the text messages are shown in the display of the other terminal device. Depending on the type of ISDN terminal device used, these text messages may be default messages, or freely generated texts. A short message is restricted to 31 characters. Sending/Receiving of SMS messages is only possible when the caller's (sender's) number is also transferred and this number displayed at the receiving party. that all terminal devices that are used (ISDN telephones, pabx systems) must support the UUS1 feature.

31_45_1 System telephones

You can also use different system telephones for sending text messages. An incoming text message is signaled by two brief acoustic tones in the system phone. If the phone is idle, the number of messages received is displayed, along with information about these messages in the caller list. Every UUS1 text message has to be associated with the extension number of the sender, which is why text messages without transmitted extension numbers are not displayed by the system telephone. New text message cannot be received and displayed if all of the memory for text messages has been used within the system telephone.

Some system telephones are able to send an automatic text message in response to a call, for example »I am on holiday«.

Note:
Text messages can be transmitted to all internal ISDN phones that support this feature. You can also utilize the transmission of text messages to external telephones if the »UUS1« feature has been activated for your access. Ask your network service provider for details.

- **Operation**
  For information on how to use this feature please refer to the operating instructions for the ISDN phones being used. This does not require any special operator actions in the PABX system.

31_46 USB specification 1.1

USB is the abbreviation for Universal Serial Bus. USB is a serial bus system. It allows you to operate various types of devices at one port. The USB port can extend or replace various ports of the PC (serial, parallel,...). devices at one port.

USB is equipped with a standardized API (Application Programming Interface) that is based on the Microsoft Win32 driver model (WDM).

In the past, if you wished to operate a new device on the standard ports of your PC, installation (unscrew PC, open it, insert card) and configuration procedures (set interrupts and addresses and eliminate any conflicts)) were often difficult or complicated. and configuration procedures (setting interrupts and addresses and eliminating any conflicts). To put a USB terminal device into operation all you have to do is plug it in to the USB port. The configuration of the terminal device is carried out automatically by Plug&Play-compatible operating system (for example Windows 98, ME, 2000). You have to insert the disk or CD containing the drivers for your device and install the appropriate drivers. You only need to restart your PC on the initial startup of the USB terminal device. With a Plug&Play operating system you can also unplug the connector of an installed terminal device from the USB and plug it back in while the PC is running. You do not need to restart your PC after this. The operating system automatically recognizes the terminal device that has been plugged in and then loads the required drivers.

A standard connector and line system allows you to connect any type of terminal devices (such as keyboard, mouse, printer or scanner). A distinction is made here between type A- and type B plugs. These plugs can not be confused with one another. When installing a USB terminal device, plug Type A is connected to the sending device (your PC or a hub) and plug Type B into the receiving device (printer, scanner, telephone , etc.).

Every USB-capable PC is equipped with a root hub. The root hub controls all of the data traffic and power management on the USB. It transmits data to the other hubs or terminal devices and requests data. The root hub provides 2 USB-ports for terminal devices or hubs. The power management of the root hub or of the USB-hubs can, in the event of a malfunction of an individual device, deactivate the corresponding USB- port. Before the hub returns the deactivated port to operation the system checks to ensure that the fault has been eliminated. Only then can the device connected at that port be used further.

You can connect up to 127 devices to the USB of your PC when you use the USB hub. This hub is a distributor that is actually connected to the USB port of the PC, or to a different hub, and that allows further USB devices to be connected to its outputs. A USB hub is downcircuit of a PC or another hub, a receiving device and a sending device for the terminal devices connected to it. The distance between a PC and a hub, or between two hubs may not be greater than

five meters, depending on the type of USB cord that is used. The architecture of the USB does not permit more than 5 levels.

A USB hub is classified as a Fast Device. Fast devices, or full speed devices, operate at a data transfer rate of approximately 12 MBit per second. USB terminal devices are classified into two speed categories: Full Speed (or Fast Device) and Low Speed. A low-speed terminal device operates at a data transfer rate of around 1. 5 MBit per second. Owing to the different data transfer rates for »Full Speed« and »Low Speed« devices, different USB cables must be used for the individual devices.

A shielded USB connecting cord is required when using »Fast devices«. The distance between the PC, or hub, and the USB terminal device may not be greater than five meters when using »Full speed« devices, depending on the type of USB connecting cord you are using. When using »Low Speed« devices, the maximum distance is three meters, again depending on the type of USB.cord that is used. With low-speed terminal devices, the USB cord is wired at the terminal device (i. e. can not be plugged in/unplugged). However, not all terminal devices whose USB cord is “hard wired” are low-speed devices.

A further distinction made between USB terminal devices is the bus- powered and self-powered types of devices. Self-powered terminal devices have their own power supply (such as a plug-in power supply unit) and do not feed off the USB. Bus-powered terminal devices do not have their own power supply and therefore are supplied via the USB. The USB can provide a maximum power supply of 500 mA for terminal devices connected to the bus. A further distinction is made for the bus-powered terminal devices between low-powered and high-powered devices. This classification is oriented toward the load that a terminal device represents on the USB power supply. A high-powered terminal device requires up to 500 mA, a low-powered terminal device up to 100 mA.

31_47 Voice announcement

You want to make an announcement to several people in a large area. Use the message feature for an announcement via intercom or a public address system (waiting room at the doctor’s, large warehouse facility, etc.).

- **Default announcement**
  You can use an analog port of your PABX for an intercom function by configuring this port for voice announcements This enables you make voice announcements from an internal telephone.

  With an installed door terminal or switching contacts module, you can configure one of the switching contacts such that contact is made during an ongoing voice announcement. This is useful for switching additional devices (amplifiers) for the duration of the announcement.

- **Voice announcement with background music**
  In addition to standard voice announcements, background music can also be played during periods in which no announcements are made. This music is fed in via the external MoH input. The music is faded out automatically when an announcement is made. The music is faded back in on completion of the announcement. The party making the announcement will first hear a brief ringing signal after calling the device at an analog connection. The music is faded out while this is being signaled. The announcement can then be made.

Note:
You can make an announcement once the connection with the voice announcement extension is set up. They can hear you but you do not hear what is said at the location of the voice announcement extension.

The announcement itself is not acoustically amplified. For amplification, you can use the switching contact of a door terminal module to add an amplifier for the duration of the announcement.

- **For example.**
  — A remote access to the voice annoucement extension is not possible.
  — The voice announcement extension can not be assigned to an external telephone number.
  — The voice announcement extension can not be used in the team or doorline phone variants.
  — Calls can not be forwarded to the voice announcement extension.

— No outgoing connections can be established from the voice announcement extension.
— One analog connection only if the PABX can be configured as voice announcement extension.
— Inquiry calls cannot be initiated when connected to the voice announcement extension.
— Conferencing, brokering or ECT are unavailable for an announcement extension enquiry call.
— Observe any third-party copyrights when importing any music (GEMA).

- **Configuration**
  A voice announcement extension is set up by configuring the analog connections. You can also configure a switching contact to switch connected devices using the »Switching order«.

31_48 Voice mail system

Several subscribers of the PABX need an answering machine. You could purchase a separate answering machine for each subscriber. However, the costs for purchasing and installing several terminal devices are high. Connect an external voice mail system instead. Several subscribers at once can use this voice mail system as their personal answering machine (voice mail box).

You can connect a voice mail system to your PABX system. These systems can be connected to an internal ISDN port or an analog port. Configuring a voice mail connection provides the corresponding internal subscriber with typical functions supported by the voice mail system. For example, system telephones can access this voice mail system using a function key. Depending on the voice mail system employed, several internal subscribers can use one voice mail box (answering machine).

31_48_1 System telephones

You can also set up a function key at system telephones to control voice mail functions. The LED assigned to the voice mail system tells you about new messages in your voice mail box, depending on the particular system used. You can then set up a connection to your voice mail box by pressing this button.

Note:
All connections/telephone numbers of a voice mail system are combined (trunk groupd) and managed by the PABX as a whole. This requires that all connections/phone numbers are set up as parts of a voice mail system.

— Examples of connectable voice mail systems:
  elmeg VMS350, voice mail system of the company Discofone, CAPI-Butler.

Further information about operation is given in the operating instructions for the voice mail system.

Configuration

Use the PABX configuration program to set up the internal subscriber (connection/extension) as part of a »voice mail system«.

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bintec elmeg GmbH
Südwestpark 94
D-90449 Nürnberg

For information on support and service offerings please visit our Website at www.bintec-elmeg.com where, you will find a Service / Support area

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