

Teldat H/L Router Family

Teldat-Dm 402-I

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I Important Information



Note

The manufacturer reserves the right to make changes and improvements in the appropriate features in either software or hardware of this product, modifying the specifications of this manual without prior notice.

The images showing the front and back panels of the device are for information purposes only. Some small modification may exist in the actual device.

The equipment is intended to be installed by Service Personnel and only handled by qualified personnel. If not, the device may be damaged and malfunction.

This device contains elements that are sensitive to electrostatic surges and shocks. Therefore, it is essential when handling the equipment that an antistatic wristwrap is connected to the device chassis and that this is placed on an antistatic mat. Furthermore, it is crucial to avoid any kind of contact between the device components and necklaces, bracelets, rings, ties, etc.

Chapter 1 Description

1.1 Introduction

The **Teldat H/L** is a general purpose IP router, suitable for a wide range of applications (SOHO/SME and corporate environments).

It enables the user to access data networks through cellular or mobile telephony technologies. Thanks to its modular design, the router adapts perfectly to the latest emerging technologies. The **Teldat H/L** is also compatible with GPRS, EDGE, UMTS, HSDPA, HSUPA, CDMA 2000 1xRTT, CDMA Ev-Do, etc.

The **Teldat H/L** is suitable for plenty of IP scenarios, providing simultaneous access to the Internet for private LAN users and accommodating teleprocess networks and SNA support. The most common applications are:

- Access router
- Backup for LAN networks
- Backup for WAN networks

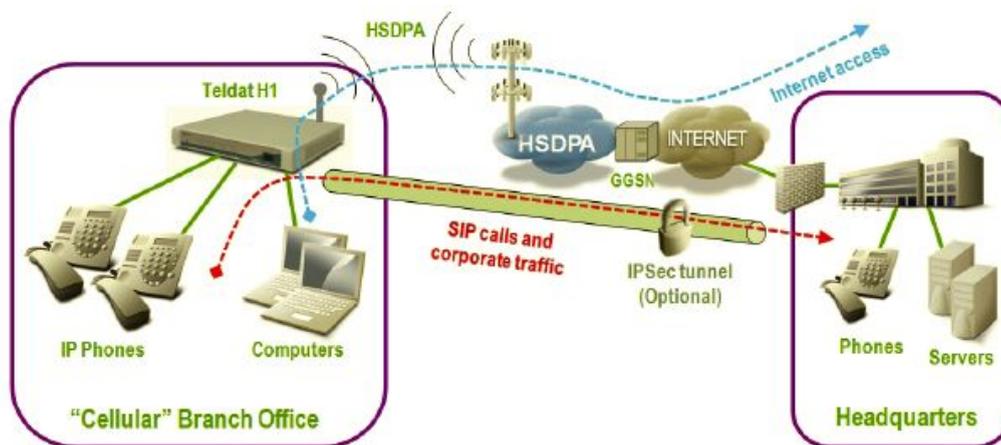


Fig. 1: Access Router

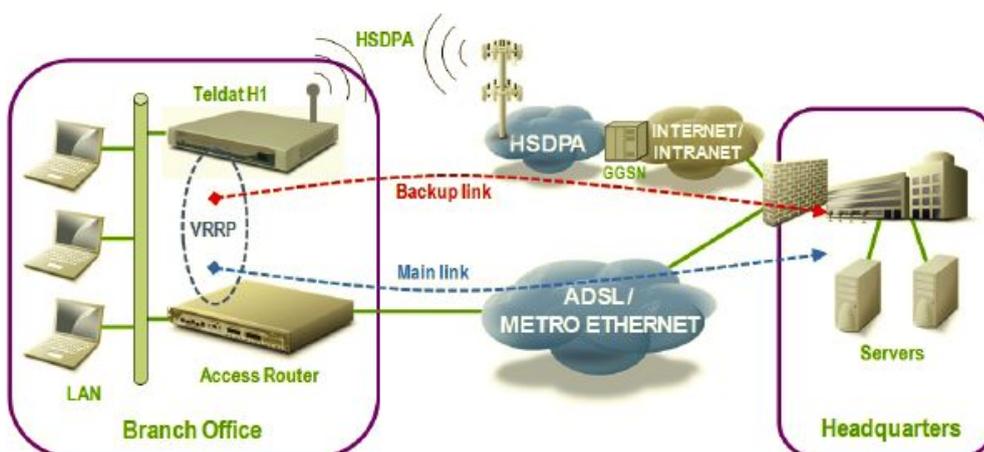


Fig. 2: Backup for LAN network

The **Teldat H/L** covers the access needs for cellular technologies (GPRS, UMTS, HSDPA, HSUPA, etc.). Some models may not include a 3G module (Teldat L) although this can be installed at the client's request. The **Teldat H/L** has a 4 port Ethernet LAN Switch and can be equipped with a Wireless LAN MINI-PCI module.

Certain **Teldat H/L** models incorporate a synchronous/asynchronous multi-purpose serial port (compatible with RS-232, V.35, RS-485 and X.21 lines). Thanks to its maximum E1/T1 speed (2Mbps), the port provides 3G access to standalone ATMs, WAN networks, etc.

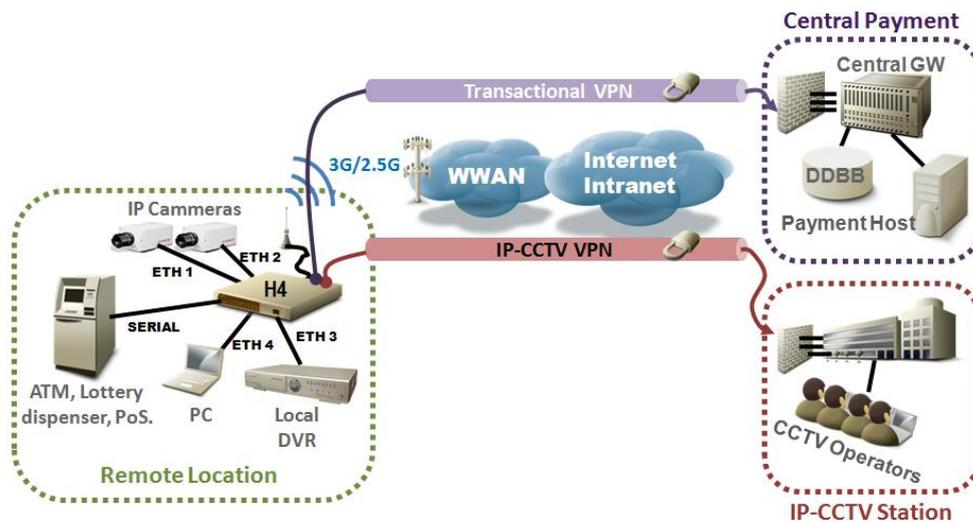


Fig. 3: Standalone ATM with IP Telesurveillance

The **Teldat H/L** range boasts several models equipped with different cellular technology:

- Teldat H1 HSDPA
- Teldat H1 HSUPA
- Teldat H1 EV-DO

This manual shows you how to install and connect these routers.



Fig. 4: Teldat H1: External aspect

1.1.1 Recycling and the Environment

Please do not, under any circumstances, throw away any **Teldat H/L** with normal domestic waste. Ask your local town hall for information on how to correctly dispose of them in order to protect the environment against e-waste. Always respect the current laws regarding waste material. Anyone found violating the environmental laws will be subject to fines and any additional steps established by law.

All the packing materials i.e. the cardboard box, plastic and any other packaging, together with the pieces making up a **Teldat H/L**, must be recycled complying with the current active laws regarding recycling materials.

The symbol shown below, with a cross over the rubbish container, can be seen on the device. This means that, when a device reaches the end of its life, it must be taken to the official recycling/disposal centers where it must be disposed of in an environmentally responsible manner and separately from normal domestic waste.



Chapter 2 Installation

2.1 Connections



Note

BEFORE INSTALLING THE ROUTER, PLEASE READ THE FOLLOWING INSTRUCTIONS CAREFULLY

Workplace Conditions. Main Characteristics

- Excessive cold and heat should be avoided, as should humidity and dust.
- Avoid direct exposure to sunlight and any other heat sources. Do not place the device between papers, magazines or other items that could hinder natural air circulation.
- Do not place the device near strong electromagnetic fields, such as those produced by speakers, motors, etc.
- Avoid knocks and/or strong vibrations during transport, operation and storage.



Warning

The electric current in power cables, telephone lines and communication cables is dangerous. To prevent electric shocks, before installing, handling or opening the equipment covers, connect and disconnect the cables following the steps set forth in the following section.

To Connect	To Disconnect
Turn the power switch OFF.	Turn the power switch OFF.
Check the power supply is not connected to the mains or to the device.	Disconnect the power supply from the mains.
Connect all data cables.	Disconnect the power supply from the device.
Connect the power supply to the device.	Disconnect the data cables.
Connect the power supply to the mains.	
Turn the power switch ON.	

2.1.1 Power Source Connection

The **Teldat H/L** is powered with an external AC/DC source.

To avoid electric shocks, residual current circulation and other unwanted effects that may disrupt communication, the following is recommended:



Warning

All interconnected communication devices should be plugged to THE SAME GROUNDED POWER OUTLET, which should, at the same time, be of good quality (lower than 10 ohms).

Whether the workplace is provided with an uninterruptible power supply system (UPS), regulated supply, or it is independent from the rest (such as lighting, etc.), it is highly recommended that all data devices should be connected to the same power source. This will avoid operating and premature aging problems of drivers and other components.



Fig. 5: Power supply connection with external source

To connect the power source to the router, make sure the switch is OFF (0) and that the power supply is NOT connected to the mains. Then find the 12 VDC connector (located on the rear panel) and plug it into the power source.

2.1.2 Data Connection

The **Teldat H/L** is equipped with following connectors (some models may not have all):

SWITCH:

The **Teldat H/L** incorporates a 4 port 10/100BaseT switch with automatic MDI/MDIX for local area network (LAN) connection. In addition, the router has two connection LEDs: one indicating connection at 100 Mbps and the other at 10 Mbps.

Please pay close attention to the labelling to avoid confusing the switch with other port types.

Its availability depends on the model.



Fig. 6: LAN Switch ports (4)

SERIAL:

A multistandard serial interface to connect to an external modem (POS) or to a wide area network (WAN), such as X.25, Frame Relay, PPP, etc. Other possibilities are also available.

It requires an insertable driver (V.24, V.35, V.36, X.21, RS-485) for operating purposes.



Fig. 7: SERIAL connector

CONF:

The **Teldat H/L** is equipped with a serial interface through a female RJ45 connector, on the front panel, known as **Conf**. This provides access to the router's local console or operates as an asynchronous serial port. The interface behavior must be preconfigured. By default, the interface is configured in local console mode. This section only deals with operations in asynchronous mode.

This interface allows asynchronous serial devices (those that do not require hardware control signals) to connect. This way, external modems or an asynchronous PPP WAN may be connected.

This interface operates in compliance with the V.24 norm and only uses data signals (not control signals). While you cannot carry out hardware flow control here, you can execute flow control through software (XON/XOFF).

You cannot configure parity in MARCA and ESPACIO modes.

For configuration purposes, connect the **Conf.** port to an asynchronous terminal (or to a PC with terminal emulation).

To connect to this port, use the RJ45 connector cable together with the RJ45 female-DB9 female adaptor (both provided with the router).

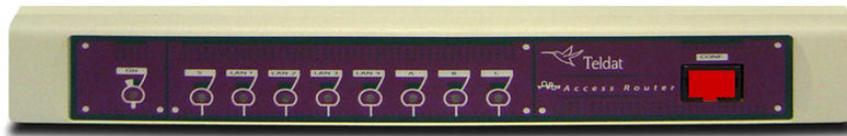


Fig. 8: Teldat H CONF Connector

2.1.3 Connecting the WWAN antenna

The **Teldat H/L** has one or two connectors for WWAN antennas. To assemble/remove the antennas, simply screw/unscrew them into/from the connectors labeled WWAN (located on the rear of the router).

Some **Teldat H/L** modules may not incorporate the Wireless Wan module. These routers do not have RF connectors for WWAN.

Installing these antennas on the **Teldat H/L** is essential to improve the quality of the signal received and transmitted by the Wireless WAN module (GPRS, UMTS, HSDPA, HSUPA, etc.).



Note

- For optimum performance, always install the WWAN antenna(s).
- The Wireless WAN interface is only operative if you have installed the corresponding software license.

Some cellular telephony technologies use antenna diversity to improve the quality of the received signal (HSUPA, CDMA EV-DO, etc.). Therefore, some **Teldat H/L** routers incorporate two WWAN connectors.

The following image shows you where the antenna connector is, on devices that do not use antenna diversity (DIVERSITY).



Fig. 9: Antenna connector for Wireless WAN

The following image shows you where the antenna connectors are, on routers that do use antenna diversity (DIVERSITY).





Fig. 10: Antenna connectors for Wireless WAN (with diversity)

As a general rule, in devices incorporating two WWAN antenna connectors (**Main** and **Ext.Diversity**), we recommend you always install both antennas. You must always install an antenna for the Main connector. The Ext.Diversity connector antenna is optional in some devices, depending on the technology used (e.g. Sierra Wireless HSUPA). In devices where this is optional, and you are not going to install Ext.Diversity, you need to suitably configure the router, disabling this antenna, in order to obtain optimum performance.

When the Main and Ext.Diversity antennas are not directly connected to the router, but are installed through extension cables, the minimum distance between the two must be 7 cm. Maximum recommended distance is 25 cms.

For optimum performance, use the radio frequency accessories (antennas and cables) recommended by Teldat.

Teldat has a range of accessories available (90° mount antennas, exterior antennas, ceiling antennas, extension cables, etc.), allowing the **Teldat H/L** to be installed in different locations.

2.1.3.1 Placing the antenna

The orientation of the antenna and its location with respect to other wireless devices or other radiation sources (such as communication devices, personal computers, etc.) can influence significantly the device performance.

The antennas transmit and receive radio signals. Performance is also affected by environmental factors (such as the distance between the device and the base station), physical obstacles and other interferences due to radio frequencies (RF).

To achieve the best coverage, follow these steps:

- Whenever possible, place the antenna where there are no physical obstacles. Obstacles between the antenna and the base station degrade the wireless signal. Place the antenna above ground level and steer it towards the nearest base station.
- The density of materials also affects the antennas. Place them away from any type of wall, metal screens, mirrors, etc.
- Do not place the antenna near columns that can throw shadows and reduce the coverage area.
- Keep the antenna away from metal pipes such as canals, air-conditioning, etc.
- Please bear in mind that other wireless devices (such as telephones, microwaves, etc.) can temporarily interfere with the quality of the wireless signal.
- We do not recommend that you install antennas in racks containing communication devices, computers, etc. Use an extension cable and place the antenna outside.

The following recommendations are applicable to all wireless devices:

- Do not touch or move the antenna while the router is transmitting or receiving.
- Do not touch any equipment that contains devices that radiate where the antenna is very close to, or touching, any exposed part of the body, particularly the face and eyes, when it is transmitting.
- Do not install the device in areas where the atmosphere is potentially explosive.
- Wireless devices can cause interferences with other devices. Do not use the router in areas where medical equipment is installed.
- To ensure compliance with Directive R&TTE 1999/5/EC, the router must be at least 15 cm away from a person's body when operating.

2.1.4 Connecting the WLAN antenna

The **Teldat H/L** may have two connectors for external antennas, to improve the quality of the signal received and transmitted by the Wireless LAN module. This module is optional; so your router may not have Wireless LAN or antennas. To assemble/ remove the antennas, screw/unscrew them into/from the connectors labeled WLAN (located on the rear of the router).



Fig. 11: Antenna connectors for the Wireless LAN

For the Wireless LAN interface to run, the router must have a plug-in Wireless LAN card and the appropriate software license installed. In some models, antennas are installed as a factory setting. If your router does not have a Wireless LAN module, you can add it later on. The manual delivered explains how to install the module and the antenna cables in the router.

Some routers incorporate RF connectors for Wireless WAN on the rear panel. Please pay special attention to the labelling on the router in these cases.

2.1.5 Connecting for configuration

2.1.5.1 Configuring through the local console (CONF connector)

The **Teldat H/L** has a RJ45 female connector on the front panel labeled **Conf.**, which provides access to the device's local console or operates as an asynchronous serial port. The behavior of this interface must be pre-configured. By default, it runs in local console mode. This section only deals with the connection for local console mode.



Fig. 12: Teldat H configuration connector

For configuration purposes, connect the Conf. port to an asynchronous terminal (or to a PC with terminal emulation).

Terminal configuration is as follows:

- Speed: 9600 bps
- Eight data bits
- One stop bit
- No parity bit
- No type of flow control

To connect to the configuration port, use the RJ45 cable, provided with the router, together with the female RJ45-female DB9 adapter, also provided with the device. If the terminal has DB25 connectors, you must use an additional adapter.

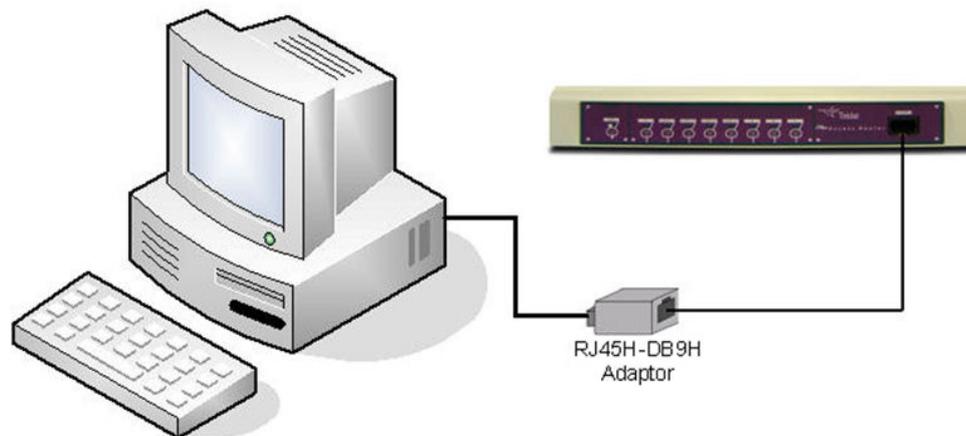


Fig. 13: Connections for the configuration

2.1.5.2 Configuring through the IP terminal (LAN1..4 connectors)

The **Teldat H/L** includes a default configuration that activates if the router has not been pre-configured.

The router's default configuration establishes the following IP address and mask:

- IP address: 192.168.1.1
- IP mask: 255.255.255.0



Note

Some devices leave the factory with customized settings. This personalization can mean that the default configuration is different from the one shown above.

This initial configuration allows you to access the router's configuration console through the Telnet IP protocol. To do this, follow these steps:

- Configure the Ethernet interface on the IP terminal (normally a PC) using the IP address from the following range [192.168.1.2, 192.168.1.254] and mask 255.255.255.0. E. g. 192.168.1.2, 255.255.255.0.
- Connect the IP terminal's Ethernet interface to any of the Ethernet Switch ports on the **Teldat H/L** (the LAN1..4 connectors) by means of the Ethernet cable (RJ45) provided.
- Start a Telnet session from the IP terminal to IP address 192.168.1.1 (the **Teldat H/L**'s default address).
- The default configuration does not ask for login credentials (user/password) to access the console.

For further information on how to fully configure the router, please see the manuals on the CD supplied with the router.

2.2 Installing the SIM card

The **Teldat H/L** router has a Wireless WAN interface that needs a SIM card to operate. There are certain services (CDMA) provided by several carriers in some countries that do not require SIM cards.

The **Teldat H/L** has two SIM trays. One is accessible from the outside while the other is located inside the device.

In installations where a SIM card is required, you must always insert at least one. When only one SIM card is going to be used, it can be inserted in either tray. However, remember to configure the router so that it selects the right tray.



Warning

Never install the SIM card when the device is switched on.

Always disconnect the device from the main power supply before installing the SIM card.

Always disconnect the device before removing the casing to get to the internal SIM.

When inserting the SIM card, please protect yourself against electrostatic discharges (ESD).

2.2.1 Installing the internal SIM

To access the internal SIM, open the router's upper casing. To do this, remove the four screws from the underside panel. The tray is located just below the WWAN antenna connector, on the router's main motherboard.

To insert a SIM card in the internal tray, locate the retaining lip (metal fastening labeled OPEN) so you can open the tray and place the SIM card inside. The steps are as follows:

- (1) Using a fingernail, pull the visible flap slightly back, toward the OPEN arrow, to release it from the plastic lip holding it.
- (2) Open the tray
- (3) Insert the SIM card so it's flush with the edges of the tray. If it isn't correctly inserted, the tray won't close.
- (4) Return the tray holding the SIM card to its original position
- (5) Again, using a fingernail, pull the top flap slightly back (as in step 1) so it gently slides back under the plastic lip without damaging the holder. The card is now securely held.

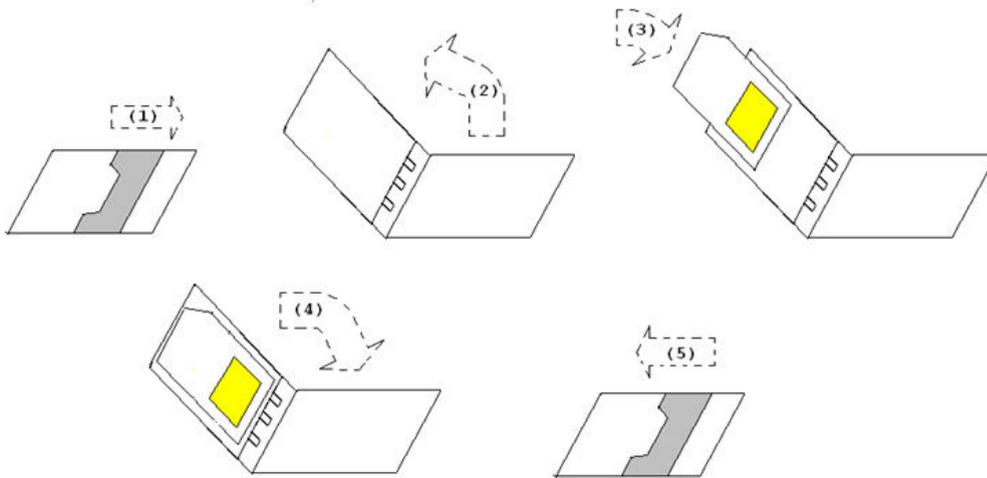


Fig. 14: Guide to inserting the SIM

2.2.2 Installing the external SIM

The external SIM tray is located on the rear panel. The following figure shows where you can find it.



Fig. 15: External SIM tray

Procedure:

- Locate the tray, located in the red colored slot labeled SIM CARD.
- Extract the tray by pressing the yellow button, (on the right-hand side of the slot), using a pointed object (e.g. a ballpoint) as shown in the following figure.

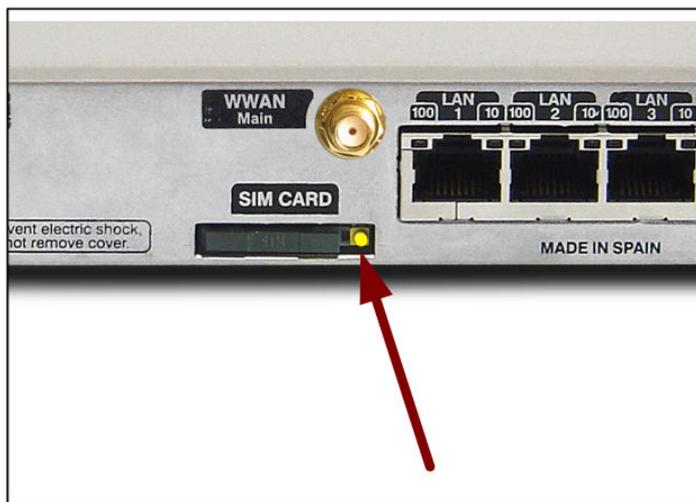


Figure 16: Extracting the external SIM

- Insert the SIM card by placing it on the tray.
- If the tray already has a SIM card, remove it by pushing it up through the circular hole underneath the tray.
- When placing the SIM, make sure the connectors are visible (these are normally a gold color). Also make sure the tray connectors match the SIM connectors.
- Gently push the tray back into the slot, making sure the SIM card remains on the tray.

Chapter 3 Meaning of the LEDs

The following figure shows where LEDs are located on the front panel of the device:



Fig. 17: Teldat H: Front panel

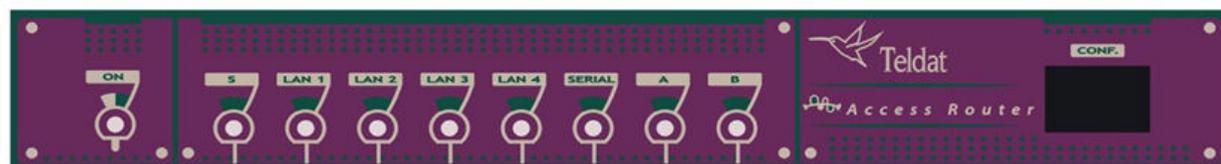


Fig. 18: Teldat H4 & L1+: Front panel

ON	Power-on indicator. It lights up when connected to the power.
S	Router operations OFF: System stopped. GREEN: System initialized and operating. YELLOW: System with Telnet session established.
LANx	Ethernet LAN switch interface: OFF: Interface not supported or unavailable. RED: Interface active, there are no active connected devices. GREEN: Interface active, there is one connected device which is active. Blinking: heartbeat.
SERIAL (Teldat H4)	Multistandard Serial Interface OFF: Port has not initialized. RED: Port has initialized. YELLOW: Establishing the link. GREEN: Communications established.
A	Wireless WAN interface channel 0 (cellular0/1). OFF: Interface unavailable or not installed (not supported). RED: Interface has not been established; no data connection. YELLOW: Registered in the SIM carrier Network. GREEN: Communications established.
B	Wireless WAN interface channel 1 (cellular1/1). OFF: Interface unavailable or not installed (not supported).

	<p>RED: Interface has not been established; no data connection.</p> <p>YELLOW: Registered in the SIM carrier Network.</p> <p>GREEN: Communications established.</p>
C (Teldat H1)	<p>The device has a MINI-PCI slot where a Wireless LAN daughter card can be installed.</p> <p>OFF: Interface unavailable or not installed (not supported).</p> <p>RED: Interface has not been established; no data connection.</p> <p>YELLOW: Connecting.</p> <p>GREEN: Communications established.</p>

Chapter 4 Microswitches

The **Teldat H/L** has a block of 8 microswitches useful for maintenance tasks and testing. Here, they are only used to load the default configuration.

This block can be found on the underside of the Teldat h/L.

These switches should not be handled by the user unless it is necessary to re-establish the default configurations.



Note

All microswitches must be in the OFF position to ensure correct operation.

4.1 Procedure to ignore the configuration

Follow these steps when you have to reject the whole router configuration (for instance, if you cannot remember the password):

- Turn off the device by means of the ON/OFF switch.
- Using a screwdriver, move microswitch **5** to the ON position.
- Turn the device on with the ON/OFF switch.

When the device is switched on, a message similar to the one shown below will appear on the configuration console:

```
*****
*****
*****

BOOT CODE VERSION: 02.02 Nov 22 2007 10:11:53
  gzip Mar 15 2007 12:42:55
P.C.B.: C0 MASK:0C10 Microcode:00E1
START FROM FLASH
BIOS CODE DUMP.....
BIOS DATA DUMP...
End of BIOS dump

BIOS CODE VERSION: 02.02
CLK=262144 KHz  BUSCLK=65536 KHz  PCICLK=32768 KHz  L0
Date: 01/09/08, Wednesday      Time: 18:40:04

SDRAM size: 32 Megabytes
  BANK 0: 32 Megabytes (detected)
I_Cache: ON
D_Cache: ON  Write-Back
FLASH: 16 Mb.
NVRAM: 128 Kb.
EEPROM: 2048 Bytes.
DPRAM: 8192 Bytes.
SWITCH 10/100
SECURITY ENGINE
PCI device: Host bridge
  (Bus: 0, Device: 0, Function: 0)
  (Subs. Vendor: 0x0000, Subs. Device: 0x0000)
Slot 1 - PCI device: serial bus controller
  (Bus: 0, Device: 10, Function: 0)
  (Subs. Vendor: 0x5444, Subs. Device: 0x2800)
Slot 1 - PCI device: serial bus controller
  (Bus: 0, Device: 10, Function: 2)
  (Subs. Vendor: 0x5444, Subs. Device: 0x2800)
Current production date: 07 47
Current software license: 16 12
```

```
Current serial number: 607/00101
BIOS MAC Add: 00-a0-26-c0-00-65
>>
.....
TRYING APP CODE DUMP
  (CONFIGURED) APPCODE1.BIN ver.: 0.10.6.48 0.0.0.0 .....
APP DATA DUMP.....
Running application
Default configuration used
Parsing text mode configuration ...
Configuration parsed
Initializing

Press any key to get started
```

At this point, return microswitch **5** to the OFF position (you don't need to turn off the device). The next time you re-start the router, the saved configuration will run.

Chapter 5 Appendix

5.1 Troubleshooting

The following table can help you solve problems when installing the device. If you cannot solve the problem, contact your dealer for more information.

Symptom	Solution
None of the LEDs light up on the device.	Check the power supply to the device (power source, ON/OFF switch, main power outlet).
The S LED does not light up.	Check that all the microswitches are in the OFF position.
The LAN LED does not light up in green.	Check the LED following the LINK is ON. If it isn't, check the Ethernet cable and the network connection (you may need a crossover cable).
The SERIAL LED never lights up in green.	If your device has a DTE/DCE interface, check that the cable used is suitable, the driver is inserted in the correct position (DTE or DCE) and the configuration is correct (speed, protocol, etc.).
LED A remains lit up in red.	Check the SIM card has been inserted correctly, or Check the SIM PIN is correct, or Check the antenna is properly installed (been screwed in correctly), or Get your technical service to check that the device is in the optimum position for the service.

5.2 Software updating

The **Teldat H/L** can be updated to newer versions. Please contact your dealer for further details on new versions.

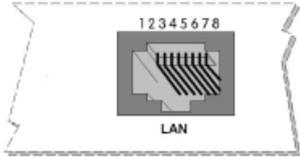
There are several ways to update a Teldat router.

The software required to update Teldat routers is supplied in a format known as **distribution**. This consists of a single file that contains all the files needed to update your device, as well as detailed information on the content.

The **Teldat H/L** incorporates independent modules for the Wireless WAN interface. You can use modules from various manufacturers, or even various modules from the same manufacturer, depending on the technology used. Generally the modules' firmware is independent of the device's software. There is an UPGRADE file for each Wireless LAN module. Please ask you distributor for the correct upgrade file for the module in your device. The document describing the CELLULAR interface explains how to upgrade the module.

5.3 Connectors

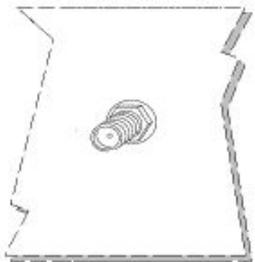
5.3.1 LAN Connector

RJ45 LAN	RJ45 PIN	LAN
	1	Tx+(input)
	2	Tx-(input)
	3	Rx+(output)
	4	--
	5	--
	6	Rx-(output)
	7	--
	8	--

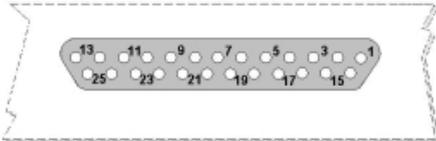
5.3.2 WWAN Connectors

	PIN	ANT
	Internal	RF in/out
	External	GND

5.3.3 WLAN Connectors

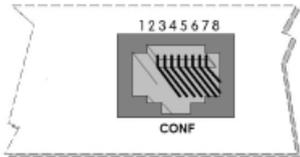
	PIN	ANT
	Internal	RF in/out
	External	GND

5.3.4 SERIAL Connector

DB25 SERIAL


DB25 connector	STANDARD							
	V.24		V.35		X.21		RS-485 2W	RS-485 4W
Pin	Signal	UIT	Signal	V.35	Signal	DB15	Signal	Signal
1	Ground	101	Ground	A	Ground	1	Ground	Ground
2	TxD	103	TxD (A)	P	TxD (A)	2	D (-)	TxD (-)
3	RxD	104	RxD (A)	R	RxD (A)	4		RxD (-)
4	RTS	105	RTS	C	CONT(B)	10		
5	CTS	106	CTS	D				
6	DSR	107	DSR	E				
7	GND	102	GND	B	GND	8	GND	GND
8	DCD	109	DCD	F				
9			ExTxC (B)	W				
14			TxD (B)	S	TxD (B)	9	D(+)	TxD (+)
15	TxC	114	TxC (A)	Y	IND(A)	5		
16			RxD (B)	T	RxD (B)	11		RxD (+)
17	RxC	115	RxC (A)	V	CLK(A)	6		
18			TxC (B)	AA	IND(B)	12		
19			RxC (B)	X	CLK(B)	13		
20	DTR	108	DTR	H	CONT(A)	3		
24	ExTxC	113	ExTxC (A)	U				

5.3.5 Configuration Connector

RJ45 CONFIGURATION	RJ45 PIN	CONF
	1	--
	2	RxD
	3	GND
	4	--
	5	--
	6	GND
	7	TxD
	8	--

5.4 Technical Specifications

Hardware Architecture

PROCESSORS	Motorola PowerPC MPC8xx.
MEMORY	32/128 Mbytes in SDRAM.
STORAGE UNIT	FLASH Memory (8/32Mbytes). EEPROM 2 Kbytes, NVRAM 128 Kbytes.

LAN Interface

PROTOCOLS	Ethernet (802.3).
SPEED	SWITCH 10/100 Mbps (BaseT)

CONNECTOR	RJ45 female.
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Wireless WAN Interface

STANDARDS	GPRS, UMTS, HSDPA,... Depends on the wireless WAN module the device has. Please see the manual on the appropriate module.
SPEED	Depends on the wireless WAN module the device has. Please see the manual on the appropriate module.
CONNECTOR	RF SMA Female.
ANTENNA	Depends on the type of wireless WAN. Please see the manual on antennas for Cellular interfaces.

Wireless LAN Interface*

STANDARDS	Please see the manual on Wireless LAN
SPEED	Please see the manual on Wireless LAN
CONNECTOR	2 RF SMA Female.

* Depending on the model

SERIAL Interface*

PROTOCOLS	FRAME RELAY, X.25, PPP, SDLC, X.28, POS-DATAPHONE, SCADA.
INTERFACES	Insertable drivers V.24 / V.35 / V.36 / X.21 DTE/DCE and RS-485 2-4 Wires.
SPEED	200 to 2048 Kbps.
CONNECTOR	DB25 Female.

* Depending on the model

Configuration Interface

PROTOCOLS	<i>Asynchronous Port:</i> AT, PPP
INTERFACES	<i>Asynchronous Port:</i> V24 DCE. Without Hardware flow control. <i>Local Console:</i> V.24 DCE 8-N-1 only, without flow control.
SPEED	<i>Asynchronous Port:</i> 300 to 115.200 bps <i>Local Console:</i> 9.600 bps
CONNECTOR	RJ45 female, on the front panel of the device.

Power Supply

INPUT VOLTAGE	+12V DC.
INPUT CURRENT	1.5 A.
MAXIMUM POWER	18 W.

External Power Source

INPUT VOLTAGE	100-240V AC
INPUT CURRENT	0.4 A
INPUT FREQUENCY	50-60 Hz
MAXIMUM POWER	16 W

Dimensions and Weight

TYPE	Desktop.
LENGTH x WIDTH x HEIGHT	220 x 220 x 30 mm.
WEIGHT	0.9 Kg.

Environmental Specifications

AMBIENT TEMPERATURE	ON: 5° to 45°C. OFF: -20° to 60°C.
RELATIVE HUMIDITY	ON: 8% to 85%. OFF: 5% to 90%.

5.5 Safety warnings

	The equipment is intended to be installed by Service Personnel and only handled by qualified personnel. If not, the device may be damaged and malfunction.
	El equipo está diseñado para ser instalado por personal del servicio técnico y su manejo debe realizarlo personal cualificado. De lo contrario, el equipo puede resultar dañado y quedar inservible.
	This device contains elements that are sensitive to electrostatic surges and shocks. Therefore, it is essential when handling the equipment that an antistatic wriststrap is connected to the device chassis and that this is placed on an antistatic mat. Furthermore, it is crucial to avoid any kind of contact between the device components and necklaces, bracelets, rings, ties, etc.
	Este equipo contiene componentes sensibles a las sobrecargas y descargas electroestáticas. Por eso, durante la manipulación del equipo, utilice una pulsera antiestática conectada al chasis del equipo y colóquelo sobre una esterilla antiestática. Evite también el contacto de colgantes, pulseras, anillos, corbatas, etc. con cualquier componente del equipo.
	The electric current in power cables, telephone lines and communication cables is dangerous. To prevent electric shocks, before installing, handling or opening the equipment covers, connect and disconnect the cables following the steps set forth in the relevant section.
	La tensión eléctrica de los cables de alimentación, de los cables de la línea telefónica y de los cables de comunicación es peligrosa. Para evitar descargas, antes de instalar, mover o abrir las cubiertas de este equipo, conecte y desconecte los cables siguiendo el orden que se detalla en el apartado correspondiente.
	All interconnected communication devices should be plugged to THE SAME GROUNDED POWER OUTLET, which should, at the same time, be of good quality (lower than 10 ohms).
	Whether the workplace is provided with an uninterrupted power supply system (UPS), regulated supply, or it is independent from the rest (such as lighting, etc.), it is highly recommended that all data devices should be connected to the same power source. This will avoid operating and premature aging problems of drivers and other components.
	<p>Todos los equipos de comunicaciones interconectados deberán estar unidos a UNA MISMA TOMA DE TIERRA, a ser posible de buena calidad (inferior a 10 ohmios).</p> <p>Si la instalación está dotada de un Sistema de Alimentación Ininterrumpida (SAI), alimentación estabilizada, o bien es independiente del resto (alumbrado, etc.), conecte todos los equipos de comunicaciones a la misma fuente de alimentación. Así, se ahorrará problemas de funcionamiento y envejecimiento prematuro de drivers y demás componentes.</p>
	Never install the SIM card when the device is switched on.
	Always disconnect the device from the main power supply before installing the SIM card.
	Always disconnect the device before removing the casing to get to the internal SIM.
	When inserting the SIM card, please protect yourself against electrostatic discharges (ESD).
	<p>No instale nunca la tarjeta SIM con el equipo encendido .</p> <p>Desconecte siempre el equipo de la red antes de instalar la tarjeta SIM.</p> <p>Desconecte siempre el equipo antes de desmontar la carcasa para acceder al SIM interno.</p>

Al insertar la tarjeta SIM, protéjase contra descargas electroestáticas (ESD).