User's Guide

bintec R3000w / R3400 / R3800

ATM

Purpose This document is part of the user's guide to the installation and configuration of bintec gateways running software release 7.3.1 or later. For up-to-the-minute information and instructions concerning the latest software release, you should always read our **Release Notes**, especially when carrying out a software update to a later release level. The latest **Release Notes** can be found at www.funkwerk-ec.com.

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Guidelines and standards bintec gateways comply with the following guidelines and standards:

R&TTE Directive 1999/5/EG

CE marking for all EU countries and Switzerland

You will find detailed information in the Declarations of Conformity at www.funkwerk-ec.com.

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1 ATM Menu

The fields of the *ATM* menu are described below.

```
R3000w Setup Tool              Funkwerk Enterprise Communications GmbH
[ATM]: ATM Configuration                                     MyGateway


        Ethernet over ATM >

        PPP over ATM >

        Routed Protocols over ATM >



        OAM >

        ATM QoS >


        EXIT


```

The first *ATM* (Asynchronous Transfer Mode) root menu provides access to the following configuration menus:

■   Protocols for ATM profiles for ATM interfaces (*ETHERNET OVER ATM*, *PPP OVER ATM*, *ROUTED PROTOCOLS OVER ATM*)

■   Operation and Maintenance Configuration (*OAM*)

■   Quality of Service for ATM Connections (*ATM QOS*).

Note

The ATM encapsulations are described in RFC 1483 and 2684.
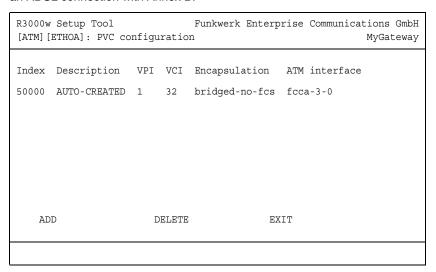
You will find the RFC on the relevant pages of the IETF (www.ietf.org/rfc.html).

2 Ethernet over ATM Submenu

The fields of the *ETHERNET OVER ATM* menu are described below.

The menu ***ATM ➜ ETHERNET OVER ATM*** displays a list of all the ATM connections (Permanent Virtual Circuit, PVC) already configured that use Ethernet over ATM (EthoA).

As per default an ATM interface AUTO-CREATED is preconfigured suitable for an ADSL connection with Annex B.

```
R3000w Setup Tool            Funkwerk Enterprise Communications GmbH
[ATM][ETHOA]: PVC configuration                              MyGateway


Index  Description   VPI  VCI  Encapsulation   ATM interface

50000  AUTO-CREATED  1    32   bridged-no-fcs  fcca-3-0






    ADD                 DELETE              EXIT

```

Press **ADD/EDIT** to access the menu for configuring an EthoA connection:

```
R3000w Setup Tool              Funkwerk Enterprise Communications GmbH
[ATM][ETHOA][ADD]                                              MyGateway


     Description

     ATM Interface                      fcca-3-0

     Virtual path identifier (VPI)      8
     Virtual channel identifier (VCI)   32

     Encapsulation                      bridged-no-fcs

     IP and Bridging >


        SAVE                                 CANCEL

```

The menu contains the following fields:

Field	Description
Description	Here you enter the desired description for the connection.
ATM Interface	Displays the name of the ATM interface.
Virtual path identifier (VPI)	Here you enter the VPI value of the ATM connection. The VPI is the identification number of the virtual path to be used. Possible values are *0* to *255* and the default value is *8*.
Virtual channel identifier (VCI)	Here you enter the VCI value of the ATM connection. The VCI is the identification number of the virtual channel to be used. A virtual channel is the logical connection for the transport of ATM cells between two or more points. Possible values are *32* to *65535* and the default value is *32.*

Field	Description
Encapsulation	Here you select the encapsulation to be used. Possible settings (according to RFC 2684) : ■ *bridged-no-fcs* - Default value. Bridged Ethernet with LLC/SNAP-encapsulation without frame check sequence (checksum). ■ *bridged-fcs* - Bridged Ethernet with LLC/SNAP-encapsulation with frame check sequence (checksum). ■ *VC Multiplexing* - Bridged Ethernet without addtional encapsulation (Null encapsulation) with frame check sequence (checksum).

Table 2-1:   *ATM ➜ ETHERNET OVER ATM ➜ ADD/EDIT*

Note

For EthoA connections interfaces within the index range of 50.000 and 79.999 are created.

The menu also allows access to the *IP AND BRIDGING* menu.

2.1   IP and Bridging Submenu

The fields of the *ATM ➜ ETHERNET OVER ATM ➜ ADD/EDIT ➜ IP AND BRIDGING* menu are described below.

In the *IP AND BRIDGING* menu you configure the router internal Ethernet interface of the respective ATM connection.

```
R3000w Setup Tool              Funkwerk Enterprise Communications GmbH
[ATM][ETHOA][ADD][IP]: Configure Ethernet over ATM           MyGateway


    IP-Configuration          Manual
        local IP-Number
        local Netmask


        Encapsulation         none

   MAC Address


   Bridging                   disabled


   Virtual Interfaces >

             SAVE                               CANCEL

```

The **ETHERNET** menu consists of the following fields:

Field	Description
IP-Configuration	Possible values: ■ *Manual*: Default value. IP address and netmask can be entered manually (default value). ■ *VLAN*: Allows the assignment of the Ethernet interface to a ➤➤ **VLAN**. Enter IP address and VLAN ID. This option is only required for special applications. ■ *DHCP*: Your gateway obtains, among other values, IP address and netmask from a DHCP server. IP address and netmask are only displayed.
local IP-Number	IP address of your gateway for the router internal interface of the ATM connection.
local Netmask	Netmask for **LOCAL IP NUMBER**.

Field	Description
Second Local IP Number	Only for **IP CONFIGURATION** *Manual* or *VLAN* and after entering a **LOCAL IP-NUMBER**. Second IP address of the router internal interface of the ATM connection.
Second Local Netmask	Netmask for **SECOND LOCAL IP NUMBER**.
DHCP MAC Address	Only for **IP CONFIGURATION** *DHCP*. MAC address for the router internal interface of the ATM connection, e.g. *00e1f906bf03*. If your provider has assigned you a MAC address for DHCP, enter this here.
DHCP Hostname	Only for **IP CONFIGURATION** *DHCP*. Hostname defined by your provider for answering DHCP requests of your gateway if applicable. The maximum length of the entry is 45 characters.
Encapsulation	Defines the kind of header added to the IP packets that run over this interface. Possible values: ■ *Ethernet II* (conforms to IEEE 802.3, default value) ■ *Ethernet SNAP* ■ *none* You can generally retain the default value *Ethernet II*.

Field	Description
MAC Address	Only for **IP CONFIGURATION** *Manual* or *VLAN*. Here you can assign the router internal interface of the ATM connection a MAC address, e.g. *00a0f906bf03*. This is only required for special applications. If no address is entered,the MAC address of *en1-0* is used.
VLAN ID	Only for **IP CONFIGURATION** *VLAN*. Here you can assign the the router internal interface of the ATM connection a VLAN ID. This is only required for special applications.

Field	Description
Bridging	Here you can activate **BRIDGING** for this interface.
	Possible values: *disabled* (default value), *enabled*.
	This is only required for special applications.

Table 2-2:   *ETHERNET* menu fields

The menu leads to the following submenus:

■   *ADVANCED SETTINGS*

■   *VIRTUAL INTERFACES*

2.1.1   Advanced Settings Submenu

Th fields of the *ADVANCED SETTINGS* menu are described below.

The *ATM* ➜ *ETHERNET OVER ATM* ➜ *ADD/EDIT* ➜ *IP AND BRIDGING* ➜ *ADVANCED SETTINGS* is only displayed if a *LOCAL IP-NUMBER* has been entered.

```
R3000w Setup Tool            Funkwerk Enterprise Communications GmbH
[ATM][ETHOA][EDIT][IP][ADVANCED]: Advanced Settings          MyGateway


   RIP Send                  none
   RIP Receive               none

   IP Accounting             off
   Proxy Arp                 off
   Back Route Verify         off




        SAVE                             CANCEL

```

The *ATM* ➜ *ETHERNET OVER ATM* ➜ *ADD/EDIT* ➜ *IP AND BRIDGING* ➜ *ADVANCED SETTINGS* menu contains settings for the Routing Information Protocol (RIP), IP

Accounting, Proxy ARP and "Back Route Verify". The menu is only displayed after entering an IP address in *LOCAL IP-NUMBER*.

The menu consists of the following fields:

Field	Description
RIP Send	Enables RIP packets to be sent via the router internal interface of the ATM connection. Possible values: see table "Selection options for RIP Send and RIP Receive," on page 13, default value is *none*.
RIP Receive	For receiving RIP packets via the router internal interface of the ATM connection. Possible values: see table "Selection options for RIP Send and RIP Receive," on page 13, default value is *none*.
IP Accounting	For generating accounting messages for e.g. ➤➤ **TCP-**, ➤➤ **UDP** and ICMP sessions. Possible values: *on*, *off* (default value).
Proxy ARP	Enables the gateway to answer ARP requests from its own LAN acting for a defined WAN hosts. Possible values: *on*, *off* (default value).
Back Route Verify	Activates Backroute Verification for the Ethernet interface. Possible values: *on, off* (default value).

Table 2-3:   *ADVANCED SETTINGS* menu fields

RIP SEND and *RIP RECEIVE* contain the following selection options:

Description	Meaning
none	Not activated.

Description	Meaning
RIP V2 multicast	Only for *RIP SEND*
	For sending RIP V2 messages over the multi-cast address 224.0.0.9.
RIP V1 triggered	RIP V1 messages are sent rsp. received and processed as per RFC 2091. (Triggered ➤➤ **RIP**).
RIP V2 triggered	RIP V2 messages are sent rsp. received and processed as per RFC 2091. (Triggered ➤➤ **RIP**).
RIP V1	For sending and receiving RIP packets of version 1.
RIP V2	For sending and receiving RIP packets of version 2.
RIP V1 + V2	For sending and receiving RIP packets of both version 1 and 2.

Table 2-4:   Selection options for *RIP SEND* and *RIP RECEIVE*

2.1.2   Virtual Interfaces Submenu

The fields of the *VIRTUAL INTERFACES* submenu are described below.

A list of all already configured virtual interfaces is displayed in the *ATM* ➜ *ETHERNET OVER ATM* ➜ *ADD/EDIT* ➜ *IP AND BRIDGING* ➜ *VIRTUAL INTERFACES* menu.

In the *ATM* ➜ *ETHERNET OVER ATM* ➜ *ADD/EDIT* ➜ *IP AND BRIDGING* ➜ *VIRTUAL INTERFACES* ➜ *ADD/EDIT* menu you configure virtual interfaces.

```
R3000w Setup Tool              Funkwerk Enterprise Communications GmbH
[ATM][VIRTUAL][ADD]: Configure Virtual                       MyGateway
                   LAN Interface # 1


     IP-Configuration          Manual
         Local IP-Number
         Local Netmask



         Encapsulation         none
    MAC Address                00a0f9



     Advanced Settings >

              SAVE                                    CANCEL

```

The menu consists of the following fields:

Field	Description
IP-Configuration	Possible values: ■ *Manual*: Default value. IP address and netmask can be entered manually (default value). ■ *VLAN*: Enter IP address and VLAN ID. This option is only required for special applications.
Local IP Number	IP address of the router internal virtual interface of the ATM connection.
Local Netmask	Netmask for *LOCAL IP-NUMBER*.
Second Local IP Number	Only for *IP CONFIGURATION* *Manual* or *VLAN* and after entering a *LOCAL IP-NUMBER*. Second IP address of the router internal virtual interface of the ATM connection.
Second Local Netmask	Only for *IP CONFIGURATION* *Manual* or *VLAN*. Netmask for *SECOND LOCAL IP NUMBER*.

Field	Description
Encapsulation	Defines the kind of header added to the IP packets that run over this interface. Possible values: ■ *Ethernet II* (conforms to IEEE 802.3, default value) ■ *Ethernet SNAP* ■ *none* You can generally retain the default value *Ethernet II*.
MAC Address	Here you can enter teh MAC address for the router internal virtual interface of the ATM con- nection. This entry is only required for special applications. If nothing is entered, the MAC address of *en1-0* is used. The first six 6 characters of the MAC address are displayed as default proposal.
VLAN ID	Only for **IP CONFIGURATION** = *VLAN*. Here you assign the virtual interface a VLAN ID. Possible values are *1* (default value) to *4094*.

Table 2-5:   **VIRTUAL INTERFACES** submenu fields

This menu provides access to the **ADVANCED SETTINGS** submenu. It contains the same option as the as .

3 PPP over ATM submenu

The fields of the *PPP OVER ATM* menu are described below.

The ***ATM ➜ PPP OVER ATM*** menu displays a list of all configured a ATM connetions (PVC, Permanent Virtual Circuit, connection between two partners via ATM), that use PPP over ATM (PPPoA).

The configuration is carried out in the ***ATM ➜ PPP OVER ATM ➜ ADD/EDIT*** menu:

```
R3000w Setup Tool              Funkwerk Enterprise Communications GmbH
[ATM][PPPOA][ADD]                                            MyGateway


   Description

   ATM Interface                  fcca-3-0

   Virtual path identifier (VPI)    8
   Virtual channel identifier (VCI) 32

   Encapsulation                  VC Multiplexing

   Client Type                    Permanent (Leased Line)



          SAVE                              CANCEL

```

The menu contains the following fields:

Field	Description
Description	Here you enter the desired description for the connection.
ATM Interface	Displays the name of the ATM interface.

Field	Description
Virtual path identifier (VPI)	Here you enter the VPI value of the ATM connection. The VPI is the identification number of the virtual path to be used. Possible values are *0* to *255* and the default value is *8*.
Virtual channel identifier (VCI)	Here you enter the VCI value of the ATM connection. The VCI is the identification number of the virtual channel to be used. A virtual channel is the logical connection for the transport of ATM cells between two or more points. Possible values are *32* to *65535* and the default value is *32.*
Encapsulation	Here you select the encapsulation to be used. Possible values (according to RFC 2364): ■　*VC Multiplexing* - Default value. Without additional encapsulation (Null Encapsulation). ■　*llc* - Encapsulation with LLC header.
Client Type	Here you select whether the PPPoA connection is set up permanently or on demand. Possible settings: ■　*Permanent (Leased Line)* - Default value: The PPPoA connection is constantly available. ■　*On Demand (Dialup)*: The PPPoA connection is only set up on demand, e.g. for the Internet access.

Table 3-1:　　*ATM* ➜ *PPP OVER ATM* ➜ **ADD/EDIT**

Note
Choosing **Client Type** *Permanent (Leased Line)* does automatically create WAN partner (with *LAYER 1 PROTOCOL* = *PPPoA*), e.g. *PPPoA0*, that has to be adjusted in the *WAN PARTNER* menu according to your providers requirements.

Choosing **Client Type** *On Demand (Dialup)* does not automatically create an WAN partner, i.e. you must manually configure one if applicable.

Note
For PPPoA interfaces with an index of 80000 ... 89999 are generated.

4   Routed Protocols over ATM Submenu

The fields of the *ROUTED PROTOCOLS OVER ATM* menu are described below.

The *ATM ➜ ROUTED PROTOCOLS OVER ATM* menu displays a list of all configured ATM connections (PVC, Permanent Virtual Circuit) that use Routed Protocols over ATM (RPoA).

The configuration is carried out in the *ATM ➜ ROUTED PROTOCOLS OVER ATM ➜ ADD/EDIT* menu:

```
R3000w Setup Tool                Funkwerk Enterprise Communications GmbH
[ATM][RPOA][ADD]                                               MyGateway


  Description

  ATM Interface                      fcca-3-0

  Virtual path identifier (VPI)      8
  Virtual channel identifier (VCI)   32

  Encapsulation                      non-ISO

  IP >




            SAVE                                    CANCEL

```

The menu contains the following fields:

Field	Description
Description	Here you enter the desired description for the connection.
ATM Interface	Displays the name of the ATM interface.

Field	Description
Virtual path identifier (VPI)	Here you enter the VPI value of the ATM connection. The VPI is the identification number of the virtual path to be used. Possible values are *0* to *255* and the default value is *8*.
Virtual channel identifier (VCI)	Here you enter the VCI value of the ATM connection. The VCI is the identification number of the virtual channel to be used. A virtual channel is the logical connection for the transport of ATM cells between two or more points. Possible values are *32* to *65535* and the default value is *32.*
Encapsulation	Here you select the encapsulation to be used. Possible settings (according to RFC 2684): ■ *non-ISO* - Default value. Encapsulation with LLC/Snap header, recommended for IP routing. ■ *ISO (not allowed for IP)* - Encapsulation with LLC header, not possible for IP routing. ■ *VC Multiplexing* - without additional encapsulation (Null Encapsulation).

Table 4-1: *ATM* ➜ *ROUTED PROTOCOLS OVER ATM* ➜ *ADD/EDIT*

> For RPoA connections interfaces within the index range of *90.000* and *99.999* are created.
>
> **Note**

4.1 IP Submenu

The *IP* menu is described below.

The menu contains the following fields:

Field	Description
IP-Configuration	Possible values: ■ *Manual*: Default value. IP address and netmask can be entered manually (default value). ■ *DHCP*: Your gateway obtains, among other values, IP address and netmask from a DHCP server. IP address and netmask are only displayed.
local IP-Number	IP address of your gateway for the router internal interface of the ATM connection.
local Netmask	Netmask for *LOCAL IP NUMBER*.
DHCP MAC Address	Only for *IP CONFIGURATION DHCP*. MAC address for the router internal interface of the ATM connection, e.g. *00e1f906bf03*. If your provider has assigned you a MAC address for DHCP, enter this here.
DHCP Hostname	Only for *IP CONFIGURATION DHCP*. Hostname defined by your provider for answering DHCP requests of your gateway if applicable. The maximum length of the entry is 45 characters.

Table 4-2: Fields in the *ATM* ➜ *PPP OVER ATM* ➜ *ADD/EDIT* ➜ *IP* menu

This menu provides access to the *ADVANCED SETTINGS* submenu. It contains the same option as the as .

5   OAM Submenu

The fields of the *OAM* menu are described below.

OAM is a service for monitoring ATM connections. A total of five hierarchies (flow level F1 to F5) are defined for OAM information flow. The most important information flows for an ATM connection are F4 and F5. The F4 information flow concerns the virtual path (VP) and the F5 information flow the virtual channel (VC).

Note

In general monitoring is not initiated by your gateway but is initiated by the ISP. The gateway only has to respond correctly to the signals received. This is the case for both Flow levels (4 and 5) even without a specific OAM configuration.

Two mechanisms are available for monitoring the ATM connection: Loopback Tests and OAM Continuity Check (OAM CC). These can be configured independently of each other.

Attention!

The configuration of OAM requires extensive knowledge of the ATM technology and the method of operation of bintec gateways. An incorrect configuration can cause considerable disturbances in operation. If applicable, save the original configuration e.g. on your PC.

The *ATM* ➜ *OAM* menu displays a list of all configured monitoring profiles of the different flow levels.

The configuration is carried out in the *ATM* ➜ *OAM* ➜ *ADD/EDIT* menu.

```
R3000w Setup Tool              Funkwerk Enterprise Communications GmbH
[ATM][OAM][ADD]                                              MyGateway

  ATM Interface            fcca-3-0

  OAM flow level           virtual channel (VC) level (F5)

  Virtual channel connection (VCC)      specify VPI/VCI
  VPI   0            VCI   32

  Loopback
     Loopback End-to-End   disabled       Loopback Segment   disabled



  CC activation
     CC End-to-End passive             CC Segment    passive
     Direction     both                Direction     both
                SAVE                                   CANCEL

```

The menu contains the following fields:

Field	Description
ATM Interface	Displays the name of the ATM interface.
OAM flow level	Here you select the OAM flow level. Possible settings: ■ *virtual channel (VC) level (F5)* - The OAM settings are used for the virtual channel (default value). ■ *virtual path (VP) level (F4)* - The OAM settings are used for the virtual path.

Field	Description
Virtual channel connection (VCC)	Only for *OAM FLOW LEVEL* = *virtual channel (VC) level (F5)* Here you select whether you use a previously set ATM connection (displayed by the combination of VPI and VCI) or configure a new one. Possible values: ■ *Vpi: <"Vpi value"> Vci <"Vci value">* - You select an ATM connection already configured. Possible values for *ADD*: ■ *specify VPI/VCI* - You configure values for VPI/VCI that are not yet based on an existing VCC. Possible values for *EDIT*: ■ *no VCC defined* - You configure values for VPI/VCI that are not yet based on an existing VCC. Make sure that at the end of your configuration each configured VPI/VCI combination is based on a configured ATM connection (PVC).

Field	Description
Virtual path connection (VPC)	Only for *OAM FLOW LEVEL* = *virtual path (VP) level (F4)*. Here you select whether you use a previously set Virtual Path (represented by the value for *VPI*) or specify a new one. Possible values: ■ *Vpi: <"Vpi value">* - You select a VPI value of an already configured Virtual Path. Possible values for *ADD*: ■ *specify VPI* - You configure a new VPI value that is not based on an existing Virtual Path. Possible values for *EDIT*: ■ *no VPC defined* - You configure a new VPI value that is not based on an existing Virtual Path. Make sure that each configured VPI is based on a configured ATM connection (PVC).
VPI	Only for *VIRTUAL CHANNEL CONNECTION (VCC)* = *specify VPI/VCI* resp. *no VCC defined* or *VIRTUAL PATH CONNECTION (VPC)* = *specify VPI* resp. *no VPC defined* Here you enter a VPI value for this VCC resp. VPC (*0* to *255*). The default value is *0*.
VCI	Only for *VIRTUAL CHANNEL CONNECTION (VCC)* = *specify VPI/VCI* bzw. *no VCC defined*. Here you enter a VCI value for this VCC (*32* to *65535*). The default value is *32*.

Field	Description
Loopback End-to-End	Here you select whether you activate the loop-back test for the connection between the end-points of the VCC resp. VPC. Possible settings: ■ *disabled* - Default value ■ *enabled*.
Send Interval (sec)	Only visible if *LOOPBACK END-TO-END* = *enabled*. Here you enter the intervals at which the loop-back celss are sent. Possible values are *0* to *999*. The default value is *5*.
Pending Requests (max)	Only visible if *LOOPBACK END-TO-END* = *enabled*. Here you enter how many successive loopback cells may fail before the connection is regarded as "down". Possible values are *1* to *99*. The default value is *5*.
Loopback Segment enable	Here you select whether you activate the loop-back test for the segment connection (segment=connection of the local endpoint to the next connection point) of the VCC resp. VPC. Possible settings: ■ *disabled* - Default value ■ *enabled*.
Send Interval (sec)	Only for *LOOPBACK SEGMENT* = *enabled*. Here you enter the intervals at which the loop-back cells are sent. Possible values are *0* to *999*. The default value is *5*.

Field	Description
Pending Requests (max)	Only for *LOOPBACK SEGMENT* = *enabled*. Here you enter how many successive loopback cells may fail before the connection is regarded as "down". Possible values are *1* to *99*. The default value is *5*.
CC End-to-End	Here you select whether you activate the OAM CC (continuity check) test for the connection between the endpoints of the VCC resp. VPC. Possible settings: ■ *passive* - OAM CC requests are answered after CC negotiation (default value). ■ *active* - OAM CC requests are sent after CC negotiation. ■ *both* - OAM CC requests are sent and answered after CC negotiation. ■ *without negotiation* - Depending on the setting in the *DIRECTION* field, OAM CC requests are either sent and/or answered. There is no CC negotiation. ■ *disabled.*
Direction	Not visible if *CC END-TO-END* = *disabled*. Here you select whether the OAM CC test cells are sent or received. Possible settings: ■ *both* - CC data are received and generated (default value). ■ *sink* - CC data are only received. ■ *source* - CC data are only generated.

Field	Description
CC Segment	Here you select whether you activate the OAM CC test for the segment connection (segment=connection between local endpoint and next connection point) of the VCC resp. VPC.
	Possible settings:
	■ *passive* - OAM CC requests are answered after CC negotiation (default value).
	■ *active* - OAM CC requests are sent after CC negotiation.
	■ *both* - OAM CC requests are sent and answered after CC negotiation.
	■ *without negotiation* - Depending on the setting in the **DIRECTION** field, OAM CC requests are either sent and/or answered. There is no CC negotiation.
	■ *disabled.*
Direction	Not visible if **CC SEGMENT** = *disabled*.
	Here you select whether the OAM CC test cells are sent or received.
	Possible settings:
	■ *both* - CC data are received and generated (default value).
	■ *sink* - CC data are only received.
	■ *source* - CC data are only generated.

Table 5-1:   **ATM** ➜ **OAM** ➜ **ADD/EDIT**

6   ATM QoS Submenu

The fields of the *ATM QOS* menu are described below.

The *ATM* ➔ *ATM QOS* menu displays a list with all already configured ATm connections (PVC, Permanent Virtual Circuit) to which specific traffic parameters had been assigned.

Your gateway supports QoS (Quality of Service) for ATM interfaces.

⚠️
Attention!

ATM QoS is to be configured only if your provider has assigned you a list with traffic parameters (traffic contract).

The configuration of ATM QoS requires extensive knowledge of the ATM technology and of the method of operation of bintec gateways. An incorrect configuration can cause considerable disturbances in operation. If applicable, save the original configuration e.g. on your PC.

Configuration is carried out in the *ATM* ➔ *ATM QOS* ➔ *ADD/EDIT*.

```
R3000w Setup Tool              Funkwerk Enterprise Communications GmbH
[ATM][QOS][ADD]                                              MyGateway


 ATM Interface           ar7sar-3



 Virtual channel connection (VCC)      specify VPI/VCI
 VPI   0           VCI   32

 ATM Service Category       Unspecified Bit Rate (UBR)

 Peak Cell Rate (PCR) in bits per second        0



        SAVE                             CANCEL

```

The menu consists of the following fields:

Field	Description
ATM Interface	Displays the name of the ATM interface.
Virtual channel connection (VCC)	Only for *OAM FLOW LEVEL* = *virtual channel (VC) level (F5)*
	Here you select whether you use a previously set ATM connection (displayed by the combination of VPI and VCI) or configure a new one.
	Possible values:
	■ *Vpi: <"Vpi value"> Vci <"Vci value">* - You select an ATM connection already configured.
	Possible values for *ADD*:
	■ *specify VPI/VCI* - You configure values for VPI/VCI that are not yet based on an existing VCC.
	Possible values for *EDIT*:
	■ *no VCC defined* - You configure values for VPI/VCI that are not yet based on an existing VCC.
	Make sure that at the end of your configuration each configured VPI/VCI combination is based on a configured ATM connection (PVC).
VPI	Only visible if *VIRTUAL CHANNEL CONNECTION (VCC)* = *specify VPI/VCI* resp. *no VCC defined*.
	Here you enter a VPI value for this VCC (*0* to *255*). The default value is *0*.
VCI	Only visible if *VIRTUAL CHANNEL CONNECTION (VCC)* = *specify VPI/VCI* resp. *no VCC defined*.
	Here you enter a VCI value for this VCC (*32* to *65535*).
	The default value is *32*.

Field	Description
ATM Service Category	Here you select the service category for the data traffic of an ATM connection. The choice implies a specific way of how ATM traffic is handled. Possible settings: ■ *Unspecified Bit Rate (UBR)* - (Default value). The connection is not guaranteed any specific data rate. The **PEAK CELL RATE** (PCR) defines the limit above which data are discarded. This category is suitable for non-critical applications. ■ *Constant Bit Rate (CBR)* - The connection is assigned a guaranteed data rate. The maximum available data rate is determined by the **PEAK CELL RATE**. This category is suitable for critical applications (real-time) that require a guaranteed data rate. ■ *Variable Bit Rate (VBR.1)* - The connection is assigned a guaranteed data rate (**SUSTAINED CELL RATE**) that can be exceeded by the volume specified in **MAXIMUM BURST SIZE** (MBS). All further ATM traffic is discarded. The **PEAK CELL RATE** is the maximum possible data rate. This category is suitable for non-critical applications with burst data traffic.

Field	Description
ATM Service Category (cont.)	■ *Variable Bit Rate (VBR.3)* - The connection is assigned a guaranteed data rate (*SUSTAINED CELL RATE*) that can be exceeded by the volume specified in *MAXIMUM BURST SIZE* (MBS). Further ATM traffic is tagged and operated with according to the capacity of the target network with lower priority, i.e. is discarded if required. The *PEAK CELL RATE* is the maximum possible data rate. This category is suitable for critical applications with burst data traffic.
Peak Cell Rate (PCR) in bits per second	Here you enter a value for the maximum data rate used. Possible values are *0* to *10000000*. The default value is *0*.
Sustained Cell Rate (SCR) in bits per second	Only for *ATM SERVICE CATEGORY* = *Variable Bit Rate (VBR.1)*. Here you enter a value for the guaranteed minimum available bandwidth. Possible values are *0* to *10000000*. The default value is *0*.
Maximum Burst Size (MBS) in bytes	Only for *ATM SERVICE CATEGORY* = *Variable Bit Rate (VBR.1)*. Here you enter a value for the maximum number of bytes which the PCR can be temporarily exceeded by. Possible values are *0* to *100000*. The default value is *0*.

Table 6-1:   Fields in the *ATM* ➜ *ATM QOS* ➜ *ADD/EDIT* menu

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