SA_UM-ACU-SR,V1 / SA-TCU-SR,V1

Alarm Access - / SNMP Terminal Access Unit

USER MANUAL

Version	1.1
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ABBREVIATIONS

UM	User Manual
SW	FirmWare
ACU	Alarm Control Unit
TCU	Terminal Control Unit
CLI	Common Line Interface
int	internal
ext	external

VERSION CONTROL

UM Version	Date	SW Version	Major changes to previous version
1.0	9.08.2005	1.0	Start Version
1.1	14.09.2005	1.1	Modified SNMP part

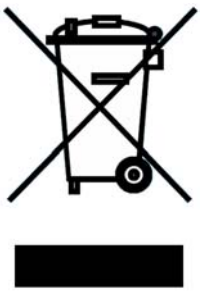
Warnings

INCORRECT USE OF THIS DEVICE, USE IN ANY OTHER ENVIRONMENT AND/OR CHASSIS/HOUSING THAN PROVIDED BY S-ACCESS MIGHT LEAD TO HARMFUL CONDITIONS. FAILURE TO FOLLOW THESE PRECAUTIONS MAY RESULT IN DEATH, SEVERE INJURY OR PROPERTY DAMAGE.

S-ACCESS GMBH REFUSES TO TAKE ANY RESPONSIBILITY, FURTHERMORE, NO WARRANTY IS GRANTED IN SUCH CASE!

Please read this manual carefully before operating the system.
Installation of this equipment has to be executded by qualified personnel only.

EU Directive 2002/96/EC and EN50419



This equipment is marked with the above recycling symbol. It means that at the end of the life of the equipment you must dispose of it separately at an appropriate collection point and not place it in the normal domestic unsorted waste stream. (European Union only)

1 SELECTION GUIDE

Model	Power feeding	RS232 interface	Alarm relays (int)	Alarm input (ext)	RS232 Monitor Interface	Telnet Interface	SNMP Interface	Ethernet switch
SA-ACU-SR,V1								
SA-TCU-SR,V1								

2 UNITS DESCRIPTION

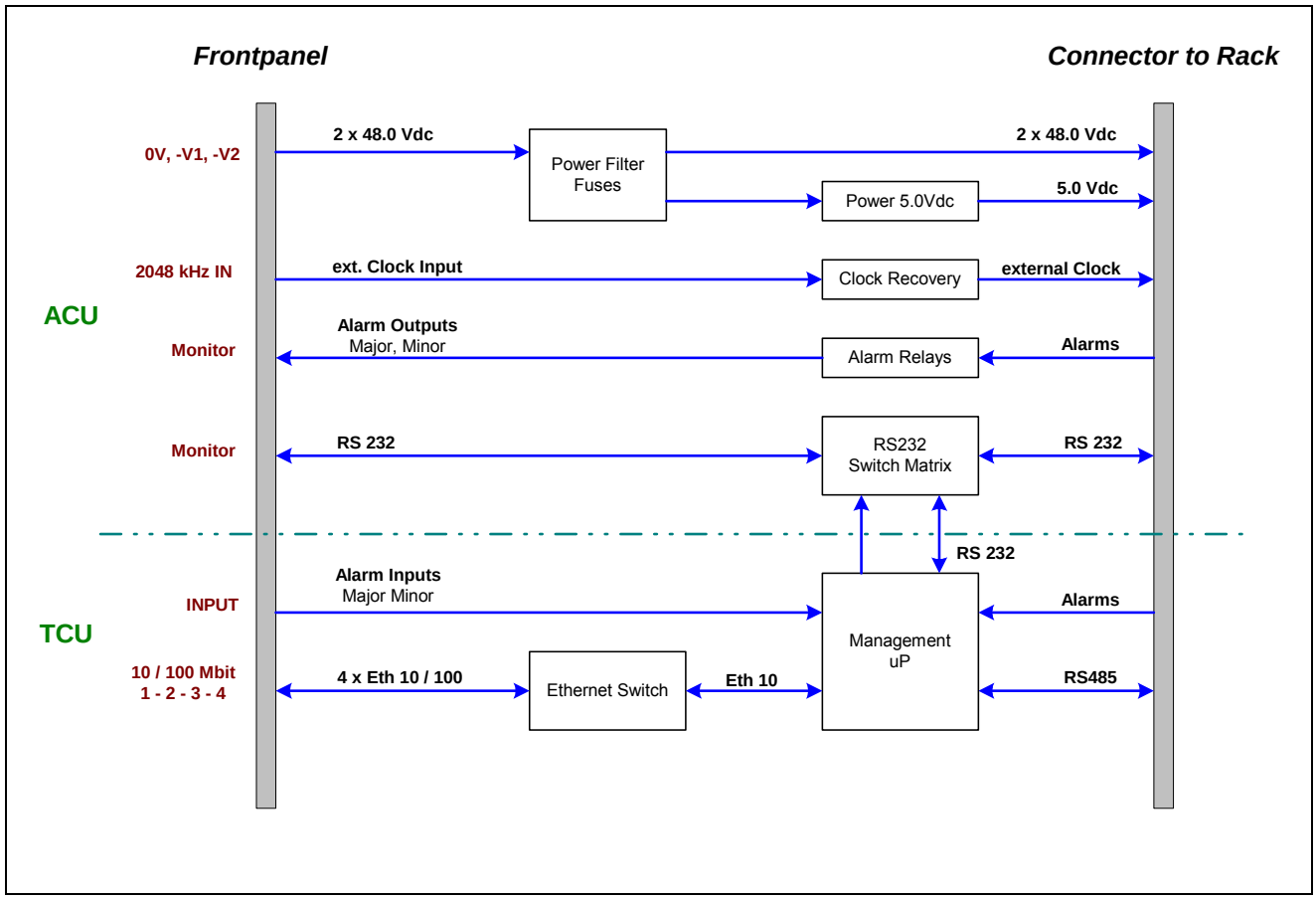
The ACU provides the following services:

- redundant power feeding
- power detection (LED)
- RS232 access to the SA-xxx-SR units
- int major / minor alarm signaling with LED or alarm relays

The TCU version has additional features:

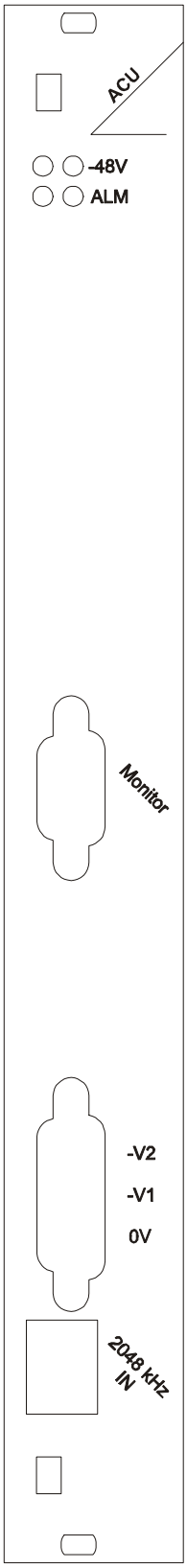
- ext major / minor alarm signaling with LED or SNMP / SNMP traps
- RS232 monitor interface
- Telnet monitor interface
- SNMPv1 management
- 4 port 10/100 Mbps IEEE 802.3u compliant Ethernet switch supporting
  MDI / MDI-X auto crossover
  Auto Negotiation

2.1 Block schematic

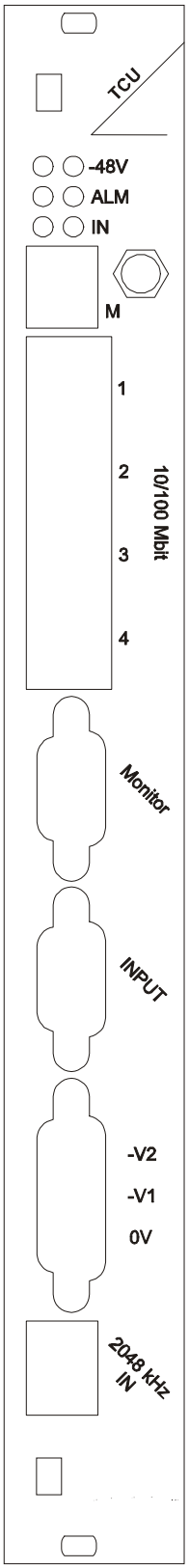


2.2 Panels

ACU Frontpanel



TCU Frontpanel



2.2.1 Panel symbol / function description

Item	*Name*		*Function*
LED	-48V	left side	Green LED indicates power on –V1 connector
		right side	Green LED indicates power on –V2 connector
	ALM	left side	Red LED indicates Major Alarm from Backplane
		right side	Orange LED indicates Minor Alarm from Backplane
	IN	left side	Red LED indicates Major Alarm from external Alarm Input
		right side	Red LED indicates Minor Alarm from external Alarm Input
Connector	M		No function. Planed for future applications
	10/100Mbit	1	Port 1 Ethernet switch / Telnet monitor backplane & management access
		2	Port 2 Ethernet switch / Telnet monitor backplane & management access
		3	Port 3 Ethernet switch / Telnet monitor backplane & management access
		4	Port 4 Ethernet switch / Telnet monitor backplane & management access
	Monitor		Monitor interface for backplane access and Alarm Relays output TCU: Additional Monitor interface access
	INPUT		External alarm inputs (major & minor)
	-V2		-48Vdc Power input 2
	-V1		-48Vdc Power input 1
	0		0Vdc Power GND
	2048kHz IN		External clock input

3 MONITOR INTERFACE (ACU)

3.1 RS232 Monitor settings

The module can be connected to a terminal or a PC (with terminal emulation) in order to monitor relevant events and to display additional information such as the signal quality of the xDSL link or the G.826 error performance parameters. In addition, full system configuration and fault localization can be done over the monitor interface
The terminal for monitoring should be VT100 compatible and configured as follows:

- 9600 baud, asynchronous
- 8 bits, no parity, one stop bit
- no new line on carriage return (i.e. no line feed on carriage return)

3.2 Backplane access

To provide a backplane connection to the desired slot you have to enter the following string:

"%xx<CR>"

Parameters: xx (slot Number) → values from 02 to 14

3.2.1 Echo command

To provide an overview of the units that provides backplane RS232 access type:

"ECHO<CR>"

4 MONITOR INTERFACE (TCU)

4.1 RS232 Monitor

The module can be connected to a terminal or a PC (with terminal emulation) in order to monitor relevant events and to display additional information such as the signal quality of the xDSL link or the G.826 error performance parameters. In addition, full system configuration and fault localization can be done over the monitor interface
The terminal for monitoring should be VT100 compatible and configured as follows:

- 9600 baud, asynchronous
- 8 bits, no parity, one stop bit
- no new line on carriage return (i.e. no line feed on carriage return)

The TCU has to send every received terminal character to the backplane.
If the monitor mode is not activated, the RS232 port has to work as “RS232 Monitor to Backplane bridge”.

4.2 Telnet Monitor

The TCU has to send every received telnet-terminal character to the backplane.
If the monitor mode is not activated, the rs232 port has to work as “Telnet to Backplane bridge”.

4.3 Backplane access

This connection is possible either over the RS232 Monitor port or over the Telnet / Ethernet interface. To provide a backplane connection to the desired slot you have to enter the following string:

“%xx<CR>”

Parameters: xx (slot Number) → values from 02 to 14

4.3.1 Echo command

To provide an overview of the units that provides backplane RS232 access type:

“ECHO<CR>”

4.4 Cli Menu

4.4.1 Monitor Mode activation

For the activation of the monitor mode you have to enter the following string:

“%01<CR>”

If the unit receives a ‘%’ sign without “01<CR>” the monitor mode has to be switched off.

4.4.2 Session login

After sending any character to the unit, the following login mask will be forced:

```
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TCU Management unit

Please, enter a valid name and password ...
Name :
```

After entering the right login name the password request mask will appear.

```
Password : *******
```

4.4.3 Login names / password

By facctory default, the following loginname and password are used:

Command	*Values*
`Name:`	admin
`Password:`	admin

4.4.4 Command prompt

If the TCU is accessed over the Telnet port the prompt will show :
`TELNET >`

If the TCU is accessed over the RS232 port the prompt will show :
`RS232 >`

4.4.5 Input character set

The following character set has to be accepted from the CLI:
Parameter: 20hex to 7Fhex

4.4.6 Command Syntax

In the main menu you have to select the desired submenu with the commands [1….5] <CR>.

The submenu is based on a „Cisco Like Interface“. It's allowed to use abbreviations.

Example: ipaddress ⇒ ipa<CR>

If a command abbreviation fits for more then one command, a warning will be displayed and the command has to be entered more precisely.

4.4.7 Variable declaration

Variables have to be written in small letters.

4.4.8 Error / Warning Messages

In case of an unknown command the TCU unit answers with the following message:

```
Unknown command!
```

In case that more then one command fits the command entry, the TCU answers with the following message:

```
More then one command possible!
```

In case of entering a wrong format or parameter the ACU answers with the following message:

```
Parameter error!
```

4.4.9 Access rights

It is only allowed to open 1 active session.

The following table defines the access rights:

Case	*Telnet*	*RS232*	*CLI owner*
0	off	off	-
1	off	on	RS232
2	on	off	Telnet
3	on	on	RS232

In case 3, the Telnet session has to be canceled from the TCU in case the telnet session was already open before RS232 took access. If the Telnet user tries to access an open or a new CLI session and the RS232 monitor is already active, the following message will be sent to the Telnet user:

```
Telnet session disabled from monitor port!
```

4.4.10 Command Tree

command tree		Description
Layer 1 (root)	Layer 2	
performance		
maintenance	reset	Reset the unit
	show	Show alarms
configuration	ipaddress	IP address
	ipmask	IP Subnet mask
	nmsaddress	Set SNMP destination address
	community	Set SNMP community
	trap_community	Set SNMP trap community
	id	Set SNMP location
	tftp	Enable / disable tftp download
	setfactorydefaults	Set factory defaults
	show	Show active configuration
Security	passwordset	Set password
Exit		Exit Menu / Session

General commands:

command tree	Description
any layer	
Main	Return to main menu
Up	Return to main menu
Help	Show help
?	Show help

4.4.11 Module Description

4.4.11.1 Main Menu

After a successful login, the menu mask below will appear.

```
MODEL TCU Management unit

HW    1.1
SW    1.1
DATE  23-09-2005
ID
RUNS  000d 00:02:00
ALARM none

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------------- Main Menu -------------
1 performance
2 maintenance
3 configuration
4 security
5 exit
-------------------------------------

RS232 >
```

To enter the desired menu, press the selection 1..5<CR>

4.4.11.2 Performance Menu

Not used yet. This part is designed for further applications.

4.4.11.3 Maintenance Menu

4.4.11.3.1 reset command

Reset the TCU unit.
Parameters: -

4.4.11.3.2 show command

Display maintenance parameter values.

```
TCU maintenance

Major Alarm:        off
Minor Alarm:        on

Ext. Major Alarm:   off
Ext. Minor Alarm:   on


TELNET/maintenance >
```

4.4.11.4 Configuration Menu

4.4.11.4.1 Ipaddress command

Set ipdadress
Parameters: IP address
Format: `xxx.xxx.xxx.xxx`

Note: Return to the main menu so that the unit restarts and the settings are valid.

4.4.11.4.2 Ipmask command

Set ipmask
Parameters: IP mask
Format: `xxx.xxx.xxx.xxx`

Note: Return to the main menu so that the unit restarts and the settings are valid.

4.4.11.4.3 Ipdefault command

Set default gateway
Parameters: default gateway address
Format: `xxx.xxx.xxx.xxx`

Note: Return to the main menu so that the unit restarts and the settings are valid.

4.4.11.4.4 Snmpaddress command

Set snmp trap address
Parameters: SNMP manager address
Format: `xxx.xxx.xxx.xxx`

Note: Return to the main menu so that the unit restarts and the settings are valid.

4.4.11.4.5 trap_community command

Set snmp trap community
Parameters: SNMP manager address
Format: `"textstring with max 16 chars"`

Note: Return to the main menu so that the unit restarts and the settings are valid.

4.4.11.4.6 community command

Set snmp community
Parameters: SNMP manager address
Format: `"textstring with max 16 chars"`

Note: Return to the main menu so that the unit restarts and the settings are valid.

4.4.11.4.7 id command

Set id (SNMP location).
Parameters: desired ID name
Format: `"textstring with max 16 chars"`

Note: over SNMP its possible to setup the unit up to 255 chars. Only the first 16 chars will be displayed.

4.4.11.4.8 tfpt command

Enables / disables TFTP upload functionality
Parameters: enabled / disabled
Format: -

Note: Return to the main menu so that the unit restarts and the settings are valid.

4.4.11.4.9 setfactorydefault command

Set the factory IP default values
Parameters: -
Format: -

Note: Return to the main menu so that the unit restarts and the settings are valid.

4.4.11.4.10 Show command

Display the configuration parameter values.

```
TCU configuration

IP settings:
ipaddress           192.168.169.040
ipmask              255.255.255.000
ipgateway           000.000.000.000

SNMP settings:
nmsaddress          192.168.169.010
community           public
trap _community     trap

TFTP settings:
tftp                disabled

Information:
macaddress          00-0F-D9-00-B0-01

TELNET/configuration >
```

4.4.11.5 Security Menu

4.4.11.5.1 Loginnameset (realized only if required)

Set login name
Parameters: textstring limited to 10 characters.

4.4.11.5.2 Passwordset

Set password
Parameters: textstring limited to 10 characters.

4.4.11.6 Exit Menu

Exit the active session
Parameters: -

4.5 Software download / upgrade

The following software upgrades possibilities have to be provided:

- Download by the ISP interface (connector on the hardware)
- TFTP download.

4.6 TFTP Software download instructions

The software data file can be uploaded with any TFTP client. The destination file must include the '/' sign.

Example of using the delivered tcu_upgrade.bat file:

- Unzip the delivered file to an empty directory.
- Enter the configuration menu
- Enable the tftp upload feature (tf en)
- Restart the unit

- Open the cmd window on your PC and enter the directory that contains you unzipped files.
- Enter the following command
  tcu_upgrade xxx.xxx.xxx.xxx (xxx.xxx.xxx.xxx → the actual device ip address)
- Wait until the download has finished and the unit restarted (approx 45 sec)

- Enter the configuration menu
- Disable the tftp upload feature (tf di)
- Restart the unit

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4.7 SNMP

The unit provides SNMPv1 functionality.

4.7.1 Parameter updating

To disburden the processor performance, the SNMP parameters defined in the MIB table, are checked every 13 seconds (1s polling time / slot). This value is not changeable.

4.7.2 Traps

Traps will be sent twice with a delay of 3s.The following traps are supported:

4.7.2.1 Generic Traps

- Cold start RFC1155

4.7.2.2 Rack Traps

The specific rack Traps are sent on:

- from Alarm off → Alarm on transitions
- from Alarm on → Alarm off transitions

- Major Alarm internal (1)
- Major Alarm external (2)
- Minor Alarm internal (3)
- Minor Alarm external (4)

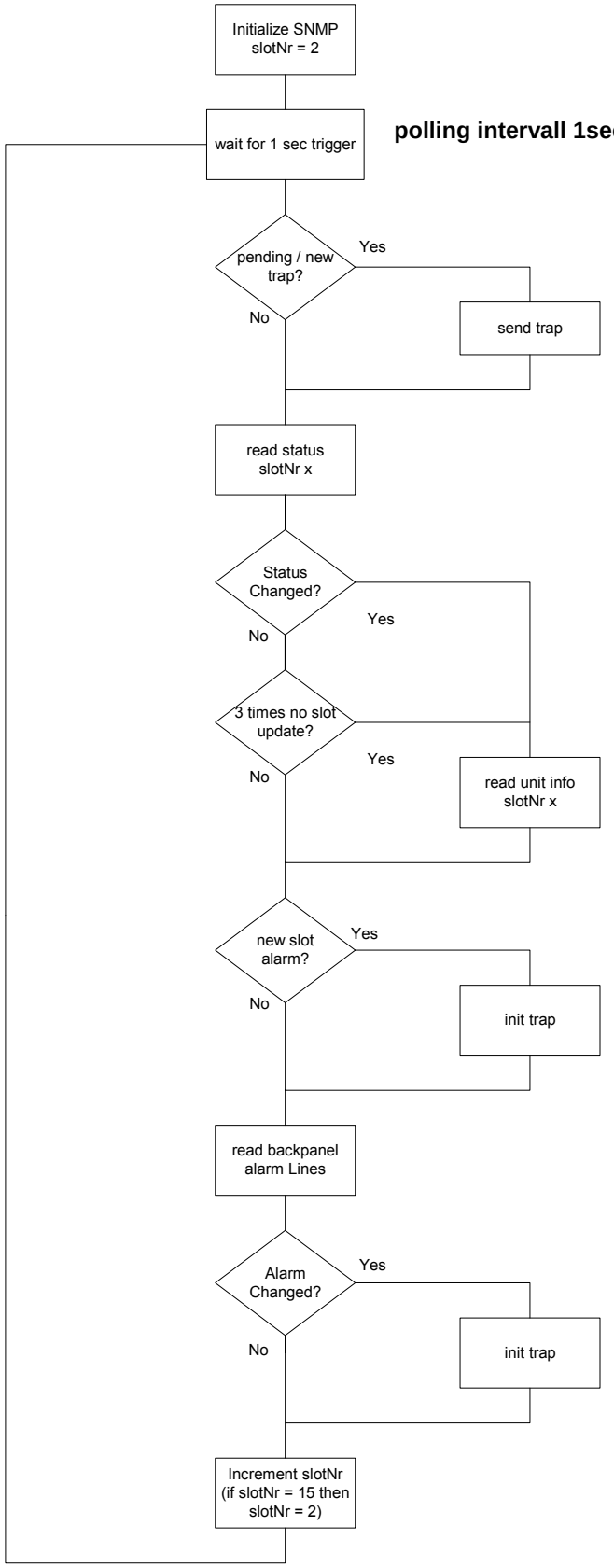
4.7.2.3 Slot Traps

Please see the MIB file for details.

4.7.2.4 Unit information

Please see the MIB file for details.

4.7.3 SNMP Polling Chart



5 SWITCH

5.1 LED description

The green LED on each switch port indicates an active Ethernet Link.
The yellow LED on each switch port indicates a full duplex Ethernet connection.

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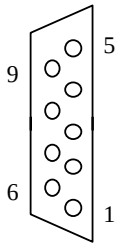
6 TECHNICAL SPECIFICATIONS

6.1 Connector Description

6.2 Monitor Interface

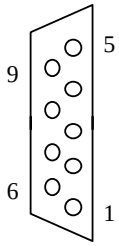
Type: DB9 female



Number	*Signal*	*Description*
1	FPE	Functional Protective Earth
2	TXD	RS232 Transmit Data
3	RXD	RS232 Receive Data
4	AL_COM	Common Contact
5	SGND	RS232 Signal Ground
6	AL_MAJ_NC	Major Alarm Contact, normally closed
7	AL_MAJ_NO	Major Alarm Contact, normally open
8	AL_MIN_NC	Minor Alarm Contact, normally closed
9	AL_MIN_NO	Minor Alarm Contact, normally open

6.3 Alarm Inputs Interface

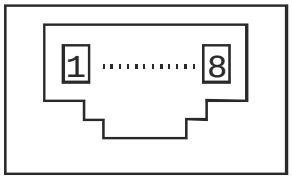
Type: DB9 female



Number	*Signal*	*Description*
1	GND	GND
2	AI_ext_P_Maj	Major Alarm positiv Input
3	NC	
4	AI_ext_P_Min	Minor Alarm positiv Input
5	GND	GND
6	AI_ext_N_Maj	Major Alarm negativ Input
7	+5.0V_Maj	Major Current source (2mA)
8	+5.0V_Min	Minor Current source (2mA)
9	AI_ext_N_Min	Minor Alarm negativ Input

6.4 Ethernet Connector

Type: RJ-45



Number	*Signal*	*Description*
1	Rx+	Ethernet receive +
2	Rx-	Ethernet receive -
3	Tx+	Ethernet transmit +
4	NC	
5	NC	
6	Tx-	Ethernet transmit -
7	NC	
8	NC	

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6.5 Interfaces

6.5.1 Monitor

Specification	RS-232 / V.28
Data Rate	9600 baud, asynchronous
Protocol	8 bit, no parity, 1 stop bit no linefeed with carriage return XON/XOFF enabled
Signal Level	V.28 on DB9 female connector
Connector Type	DB9 female connector

6.5.2 Alarm

Alarm Outputs	Major, Minor	
Output Contac Ratings	Ratings:	1A @ 24VDC resistive. 1A @ 120VAC resistive.
	Max. Switched Voltage:	AC: 120V. DC: 30V.
	Max. Switched Current:	1A.
	Max. Switched Power:	120VA, 24W.
Alarm Inputs	Major, Minor	
Alarm Inputs Values	Input Voltage:	
	V_{min}:	4.5VDC
	V_{max}:	20.0VDC
	I_{min}:	2mA
Connector Type	DB9 female connector	

6.5.3 Ethernet

Standard:	IEEE-802.3 IEE-802.1Q
Data Rate	10/100BaseT, Full/Half Duplex
Protocol	Telnet, SNMP
Signal Level	Ethernet
MDI / MDI-X auto crossover	supported
Auto Negotiation	supported
Connector Type	RJ45 (4x)

6.5.4 External Clock

Connector type	RJ45
Signal level	According to ITU-T Rec. G.703.10 (from 375 mV to 3 V)
Frequency	2048 kHz +/- 50 ppm

6.6 Power Supply

Specification	ETSI ETS 300 132-2		
Plug-in Voltage	2 x 40/60 V_{dc} (38.4 .. 72V_{dc}) over frontpanel (redundant)		
Current	2 x 8.0 A_{dc}		
Power consumption			
Mod. ACU	Max 3.0W	(typ 2.1W)	
TCU	Max 6.5W	(typ 4.1W)	

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6.7 Environment

6.7.1 Climatic Conditions

Storage:	ETS 300 019-1-1 Class 1.2	
Transportation:	ETS 300 019-1-2 Class 2.3	
Operation:	ETS 300 019-1-3 Class 3.3 ext.	(-25°C … +70°C)

6.7.2 Safety / EMC

EN 60950
EN 55022 , Class B
EN 300386
EN 50121-4

6.7.3 Mechanical Dimensions

Height:	262mm (6 HE)
Width:	30mm
Depth:	246mm (with handles)
Weight:	560g

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