A MITEL
PRODUCT
GUIDE

Unify OpenScape Alarm Response Professional

OScAR-Pro V5

Service Manual
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Mitel

Notices

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Inhaltsverzeichnis

1 Conventions and Operating Instructions

Readers and qualifications

This manual is written for service engineers and technicians who need to carry out the initial installation and start up of OScAR.

To perform the tasks described in this manual all service engineers and technicians need to be trained on OScAR and must have a sound knowledge of telecommunication engineering.

Fire security and life safety features were not evaluated by UL.

Contents

This chapter covers the following areas:

1.1 Overview of chapters

This document covers the following chapters:

Chapter	Description
Chapter 1, “Conventions and Operating Instructions”	This chapter lists the notations and symbols that are used throughout the manual. It also gives you helpful work instructions and provides valuable information on data protection and data safety.
Chapter 2, “Product Overview”	This chapter gives you an overview of OScAR V9, its components and functions.
Chapter 3, “Server Specification”	This chapter covers the technical specification of the OScAR server
Chapter 4, “Product Components”	This chapter gives you an overview of the boards, cable cords, adapters, line extensions and other external components
Chapter 5, “Hardware Operations on the DAKS Server”	This chapter contains important safety instructions and shows you how to install the boards and other components
Chapter 6, “Wiring plans”	This chapter gives you an overview of the wiring that is needed to connect the OScAR Server with external components

Table 1-1 Overview of chapters

1.2 Notations and symbols

Notations

The following definitions are used in this document:

`Text`	All texts from files that are described in this manual and all entries that are added to those files appear in the non-proportional **`Courier`** typeface.
The password 123456 ...	Details and instructions in the continuous text that are of particular importance or must be heeded appear in bold print. Buttons and menus are also output in bold print.
The file `global.cfg`	`Files` and `directories` are output in the non-proportional `Courier` typeface.
<Place holder>	Entries and outputs, both of which may vary depending on the individual situation in which they appear, are placed in <angle brackets> and appear in italics.
[beginning of value range ... end of value range; default setting] or [X]	All default values and all value range details from data fields are placed in squared brackets and appear in italics. The [x] after an entry option for a database field indicates that this entry option is also the default value.

Table 1-2 Notations

Symbols

The following symbols are used in this manual:

Note:
The "i" is used to indicate additional helpful information.

Attention!
The exclamation mark is used to indicate important information to which the reader should give particular attention.

Warning!
The warning sign is used to alert you to a hazardous or high risk situation. It means that you are currently exposed to a risk situations that can cause physical injury. Before you start working with any apparatus, please be aware of the risks that may arise in connection with the electric currents of the device and follow the standard practice to avoid accidents.

1.3 Data protection and data safety

In order to comply with the legal provisions that apply when providing service, be it service at the customer's site or teleservice, we strongly urge all readers to follow the below-listed rules. This will not only help you to protect the interests and concerns of your/our customers and clients, but also to avoid adverse or unwanted repercussions and liability.

Please help ensure the full protection and safety of data by being aware of these issues as you work:

- Always make sure that only authorized persons have access to your client and customer data.
- Assign passwords whenever you can and do not grant unauthorized persons access to your passwords, for example by writing them down.
- Always make sure that no unauthorized persons can process (e. g. save, edit, transmit, block, or delete) or utilize customer data in any way.
- Always make sure that no unauthorized persons have access to data storage mediums, for example to backup disks or logging printouts. This applies both to service work provided at the customer direct and to the storage and transport of data mediums.
- Always make sure that every data storage medium that is no longer needed is properly and fully destroyed. Also be careful not to leave behind any papers that could become openly accessible to others.

We urge all readers to work together closely with the clients' contact persons. This will help to build trust and at the same time reduce your own workload.

2 Product Overview

The central element of a OScAR system is the OScAR server. It realizes all switching and transmission processes:

➤ see Image 2-1

Inhalt

This chapter contains the following sections:

2.1 General

The OScAR server supports both the classic TDM telephony and voice over IP (VoIP):

- TDM
  In TDM telephony networks, the OScAR server is connected digitally to one or more PBXs like a sub-system with its own dial plan. Depending on the bus boards that are installed, the connection can be realized with up to 480 channels (S_0, E1 or S_{2M}, T1).
  In combination with OpenScape, the Unify network protocol CorNet-NQ is used as D-channel protocol. Especially in combination with OpenScape 4000, this makes it possible for OScAR server to utilize, even worldwide, all OpenScape-features that are available throughout the network, for example alarm and emergency calls, forced release and display control.
  The network protocols QSIG, DSS1 and NI2 are used in combination with any PBX and public network providers.
- VoIP
  Here the OScAR server is connected to the TCP/IP network and acts like an SIP gateway with up to 60 channels at maximum data rates of 1000 Mbit/s.
  The network communications protocol that is used is SIP (Session Initiation Protocol) in combination with the standard G.711 for voice encoding, whereas RTP (Real-Time Transport Protocol) is used to log the data transport, and SDP (Session Description Protocol) is used as session description protocol.

The OScAR server has 2 slots for the power supply. The slots can be used in any combination to connect one or two PSUs:

- ACP-41/ACP-42
  Power supply voltage 115 or 230 V AC (start of value range)
- DCP-41
  48 V DC from the 48V telephone battery of the PBX system

The bus boards CPC-41 or CPH-42 serve as the central control computer of the OScAR server:

- CPC-41
  The bus board CPC-41 is used for all central processes of the OScAR server. Here, the following interfaces can be utilized:
  - 2x Ethernet 10-/100-/1000Base-T for the IP connection to the LAN
  - 1x RS232 interface for the basic settings and external servicing and maintenance of the OScAR server
  - 2x USB2.0-Host to link up:
    - System printer for system- and process messages
    - DCF-77 radio clock receiver via adapter DUA-41 for the synchronization with the DCF-77 standard time
- CPH-42
  The bus board CPH-42 is used for all central processes of the OScAR server. The following interfaces are available:
  - 2x Ethernet 10-/100-/1000Base-T for the IP connection to the LAN

  - 1x USB interface for the basic configuration
  - 2x USB2.0-Host to link up:
    - System printer for system- and process messages
    - Radiomodems and/or external digital in- and outputs

As a monitoring and interface module in addition to CPH-42

- SDU-42
  - 1x relay output for process messages with normally open and normally closed contacts
  - 2x USB host interface for connecting a protocol printer or radio modem and/or remot digital inputs and outputs
  - 1x Connection option for remote DCF receiver

The following bus boards are used to connect TDM channels:

- PRA-41
  Primary-Rate Adapter for E1 (S_{2M}) with max. 4x30 B-channels, or T1 with max. 4x23 B-channels.
- BRA-41
  Basic-Rate-Adapter for S_0 with max. 4x2 B-channels.
- CPH-42

Different B-channel protocols can be used for the individual interfaces.

- The OScAR server can be equipped with the following additional bus boards:
- DSP-41
  The DSP bus board has the following functions:
  - Switching network and conferences
  - Storage and playback of voice announcements
  - Encode and decode the payload for VoIP (e.g. RTP data)
  - Generate the central timing for TDM
- AIO-41
  - Audio frequency interface to couple analog audio signals in and out (4 x IN, 4 x OUT)
- DIO-41
  - 16 digital inputs, electrically isolated with internal or external feed
  - 8 digital outputs, isolated electrically or among one another
  - 1 relay output
- SIO-41
  Bus board with 4 serial interfaces (RS232, RS422, RS485), each electrically isolated from one another and from the housing to connect external systems:
  - Nurse call system ESPA 4.4.4 via RS232 or RS422
  - Profibus-DP über RS485
  - Fire alarm system, central building control system via RS232 or RS422
  - Send SMS messages to GSM handsets using an analog/ISDN or radio modem
  - Other Host systems via RS232 or RS422
  - Different protocols can be used for the individual interfaces.

2.2 Overview OScAR with peripheral components

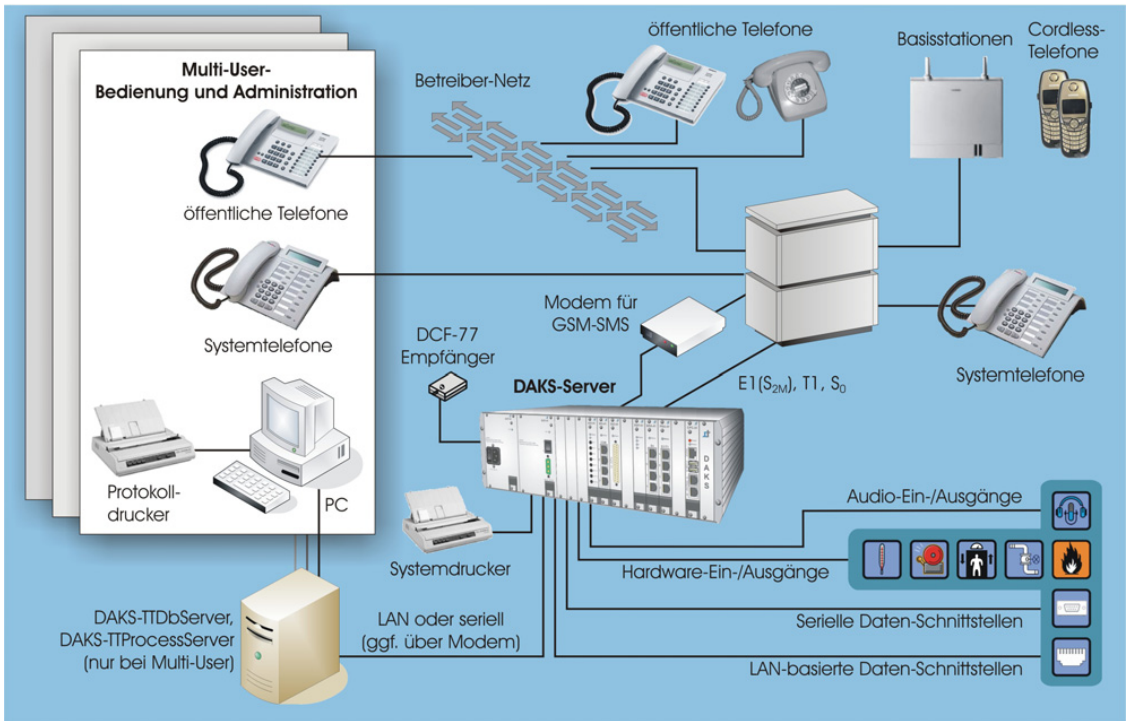


Image 2-1 Overview OScAR V9

3 Server Specification

The table below offers a detailed overview of the OScAR server properties:

Description	Value
Dimensions	• height 150 mm • width 449 mm • depth 282 mm
Weight	• max. configuration 7500 g
Electric power supply	AC power supply • Voltage range 100 V - 240 V 50/60 Hz • Electric current requirement 0.55 A - 0.39 A DC power supply • Voltage range 36 V - 60 V • Electric current requirement 1.3 A- 0.8 A
Air cooling	Convective air cooling
Operating conditions	• Temperature: +5 °C .. +35 °C • Relative Humidity: 5 % .. 80 % (non-condensing)
Storage conditions and terms of transport	• Temperature: -20 °C .. +70 °C • Relative Humidity: 5 % .. 80 % (non-condensing)
MTBF	> 400,000 h (over a 5-year period under report)
System bus	• 32/64 bit cPCI bus • 3U
cPCI Standards	• PICMG 2.0 Compact PCI • PICMG 2.1 Hot Swap • PICMG 2.6 Bridging • PICMG 2.10 Keying • PICMG 2.11 Power Interface
System expansions	• cPCI bus with 5 slots • cPCI bus with 12 slots
Certifications/Declarations of conformity	• EN 55035 • EN 55032 • EN 61000-3-2 • EN 61000-3-3 • EN 62368-1 • UL 60950-1 • FCC 47 CFR Part 15 • CE marking • UKCA Marking • CB Scheme • RCM marking

Table 3-1 System specification of the OScAR server

4 Product Components

Warning!
All external components that are connected to the OScAR server must meet and comply with the pertinent legal provisions that are currently in force in the country in which they are operated.

Overview

This chapter offers a detailed overview of the hardware properties of the different product components.

Contents

4.1 Subrack

Properties:

- Shielded metal sub-rack
- 19“ construction
- Height: 3U = 3HU (U = units, HU = height units)
- For tabletop operation with feet, or mounted in a 19" rack (convertible)

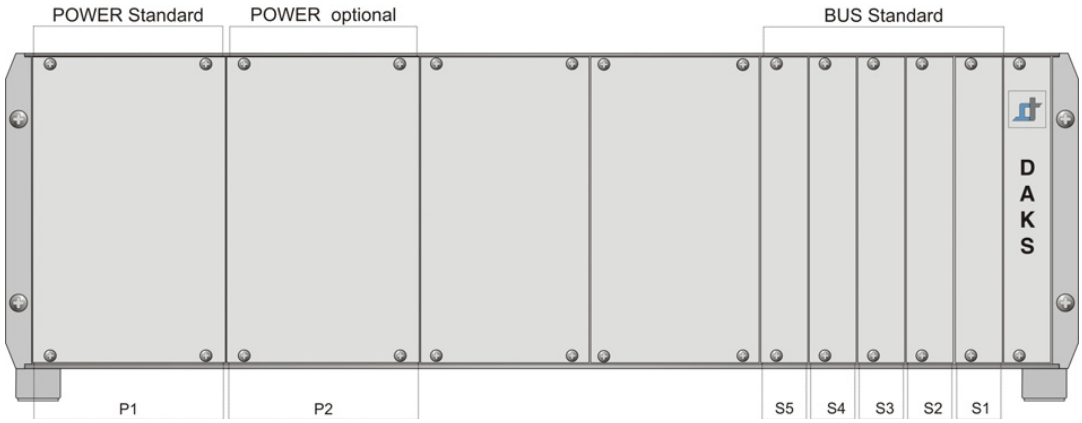


Image 4-1 Racks - Casing front - 5 slots

Image 4-2 Racks - Casing front - with optional bus - 12 slots

4.2 Boards

Note:
For further details on how to install the boards please see Chapter 5, “Hardware Operations on the DAKS Server”.

4.2.1 General information

4.2.1.1 Power supply boards

You can power supply your system with one or two PSUs of the types ACP-41/ACP-42 (see Section 4.2.2, "ACP-41: AC Power supply") or DCP-41 (see Section 4.2.3, "ACP-42: AC Power supply"). The PSUs can be inserted in slots P1 and P2. Table 4-1 and Image 4-9 show the different ways and combinations in which the PSUs can be mounted. PSUs that are used in parallel operation work in load-sharing (power distribution)

Population option	Slot P1	Slot P2
Image 4-9	ACP-41	-
Image 4-10	DCP-41	-
Image 4-11	ACP-41	ACP-41
Image 4-12	DCP-41	DCP-41
Image 4-13	ACP-41	DCP-41
Image 4-14	DCP-41	ACP-41
Image 4-9	ACP-42	-
Image 4-10	ACP-42	ACP-42
Image 4-11	ACP-42	DCP-41
Image 4-12	DCP-41	ACP-42
Image 4-13	ACP-41	ACP-42
Image 4-14	ACP-42	ACP-41

Table 4-1 Population options of the power supply units: ACP-41, ACP-42 and DCP-41

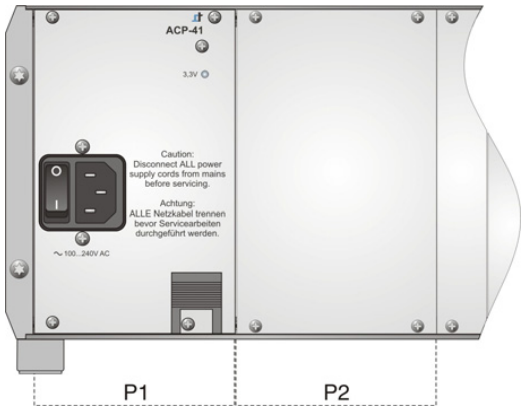


Image 4-3 Population option of the power supply unit: ACP-41

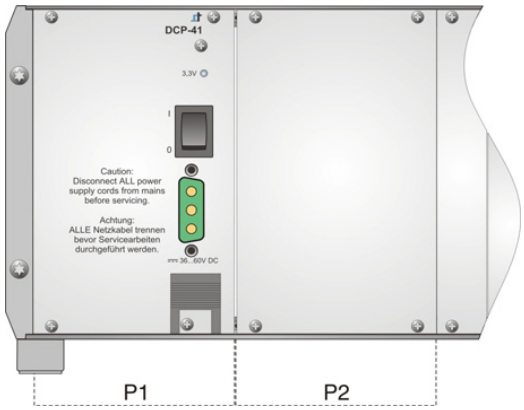


Image 4-4 Population option of the power supply unit: DCP-41

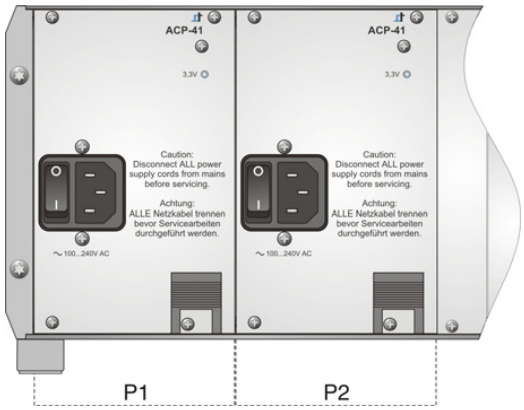


Image 4-5 Population option of the power supply units: ACP-41, ACP-41

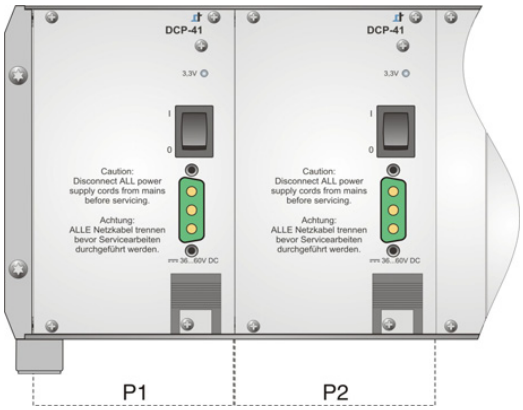


Image 4-6 Population options of the power supply units: DCP-41, DCP-41

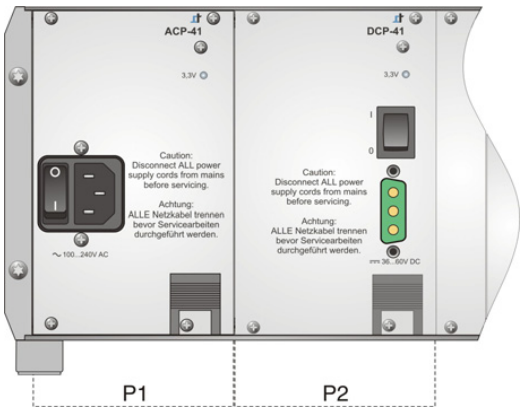


Image 4-7 Population options of the power supply units: ACP-41, DCP-41

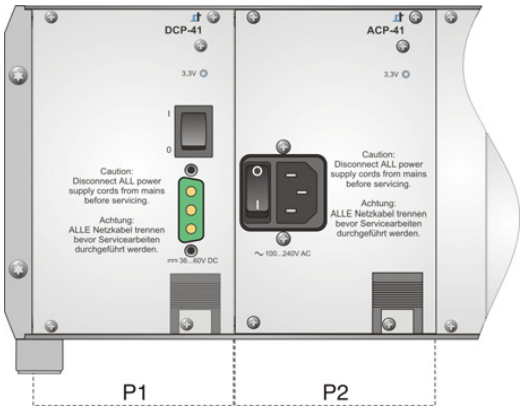


Image 4-8 Population options of the power supply units: DCP-41, ACP-41

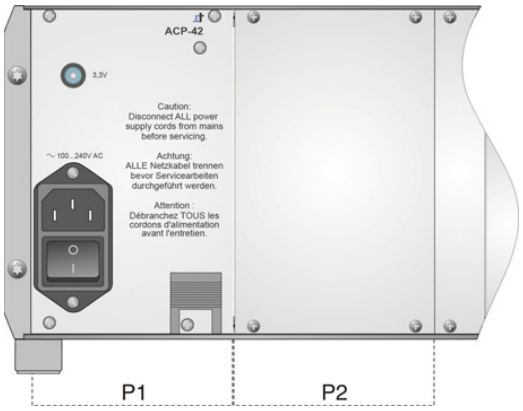


Image 4-9 Population option of the power supply unit: ACP-42

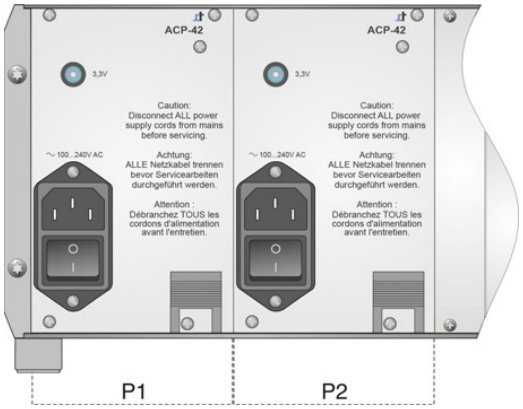


Image 4-10 Population option of the power supply unit: ACP-42, ACP-42

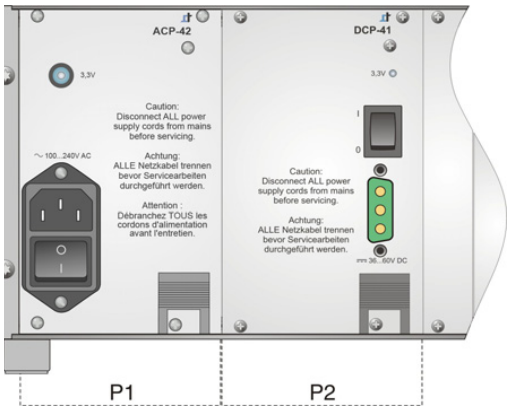


Image 4-11 Population option of the power supply units: ACP-42, DCP-41

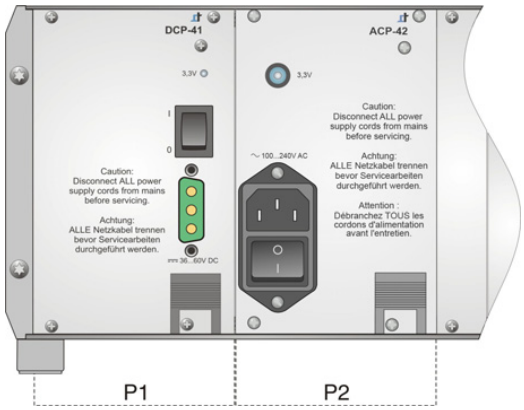


Image 4-12 Population options of the power supply units: DCP-41, ACP-42

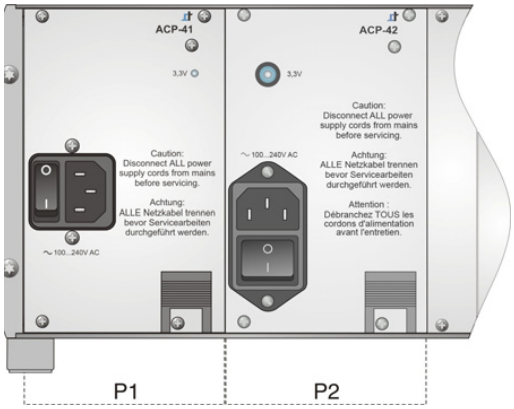


Image 4-13 Population options of the power supply units: ACP-41, ACP-42

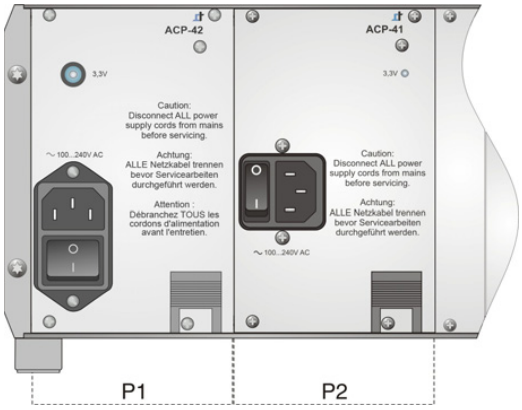


Image 4-14 Population options of the power supply units: ACP-42, ACP-41

4.2.1.2 Bus boards

Please follow the below instructions when selecting a slot to install a bus board:

- The slot S1 must always be populated with a CPC-41 or a CPH-42 bus board.
- Even if the OScAR server is operated with a bus expansion the S2 slot must be either populated with a DSP-41 or SIO-41 bus board, or remain vacant.
- The remaining bus boards (PRA-41, BRA-41, DIO-41, SIO-41, AIO-41) can be used in any combination on the slots S3 - S5 and, in combination with an already installed bus expansion, also on the slots S6 - S12.

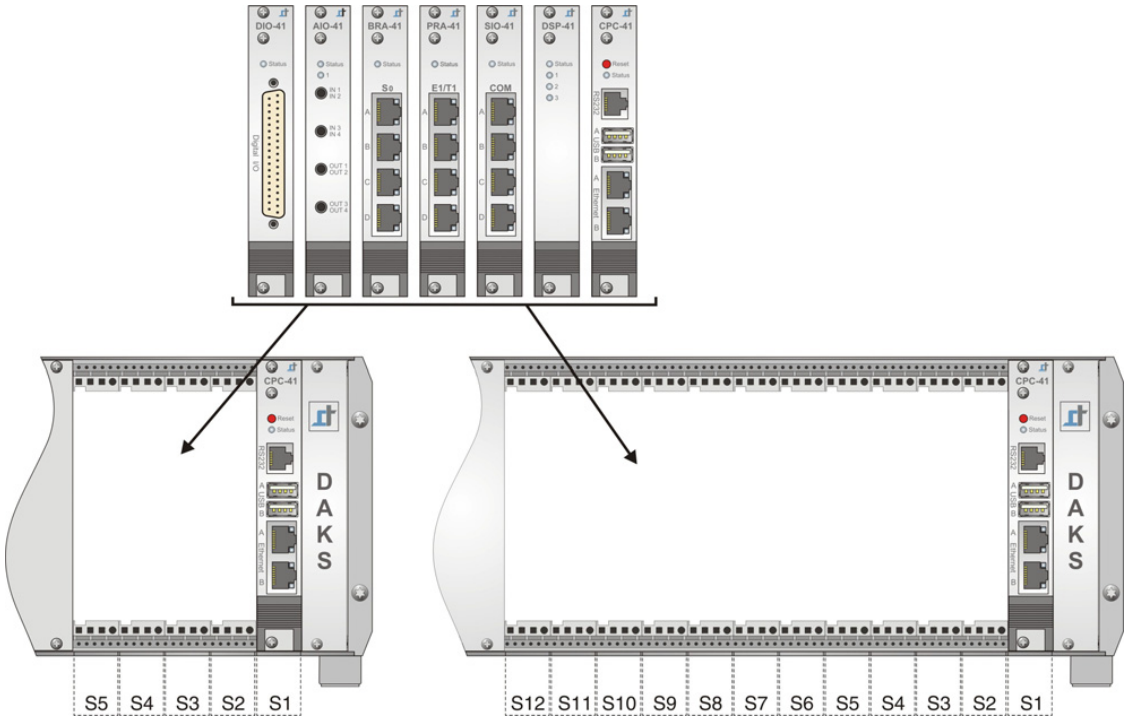


Image 4-15 Population options of bus boards for systems w. 5 or 12 slots

Hinweis:
Please note that the bus boards have no jumpers, switches or other components that require modification by the user. Also, the entire bus board configuration is done via software only.

4.2.1.3 Status indicator for bus boards

This status is indicated in form of a 3-color light-emitting diode (red, yellow, green). The below-listed attributes apply to all bus boards:

- OFF — Possible reasons why a status indicator is not lit:
  - No power supply
  - Bus board inserted wrong
  - Electronic fuse ON
- Red — Reset
- Red blinking — Internal error
- Yellow — Booting
- Yellow blinking — Basic system ready,
  For CPC-41 or CPH-42: Connection via VCON possible (see Configuration Manual)
  For all other bus boards: Operating system active and operating, application or other bus board software inactive
- Green-red blinking — OScAR server not enabled
- Green-yellow blinking — Application activated, working data ot available
- Green — Ready-to-operate
- Green blinking — Ready-to-operate, only CPC-41or CPH-42
- Green fast blinking — Active and operating

Hinweis:
If for any reason the electronic safety fuse of a bus board is triggered, causing the bus board to shut off as a consequence (status indicator: OFF), please make sure that the OScAR server is disconnected from all power supplies (see Section 4.2.2, "ACP-41: AC Power supply" and/or Section 4.2.3, "ACP-42: AC Power supply"), and remains powered off for at least 5 seconds before it is powered up again.

4.2.1.4 Status indicator Power supply boards

This status is indicated in form of a 3-color light-emitting diode (red, yellow, green). The following attributes are the same for all PSUs:

- OFF — Possible reasons why a status indicator is not lit:
  - No power supply
  - Fuse ON
- Yellow — Ready-to-operate, Load-Sharing-Operation (power distribution) OFF
- Green — Ready-to-operate, load-sharing-operation (power distribution) activated, provided 2 power supplies are mounted

4.2.2 ACP-41: AC Power supply

Order number: TNK:ACP-41-0X

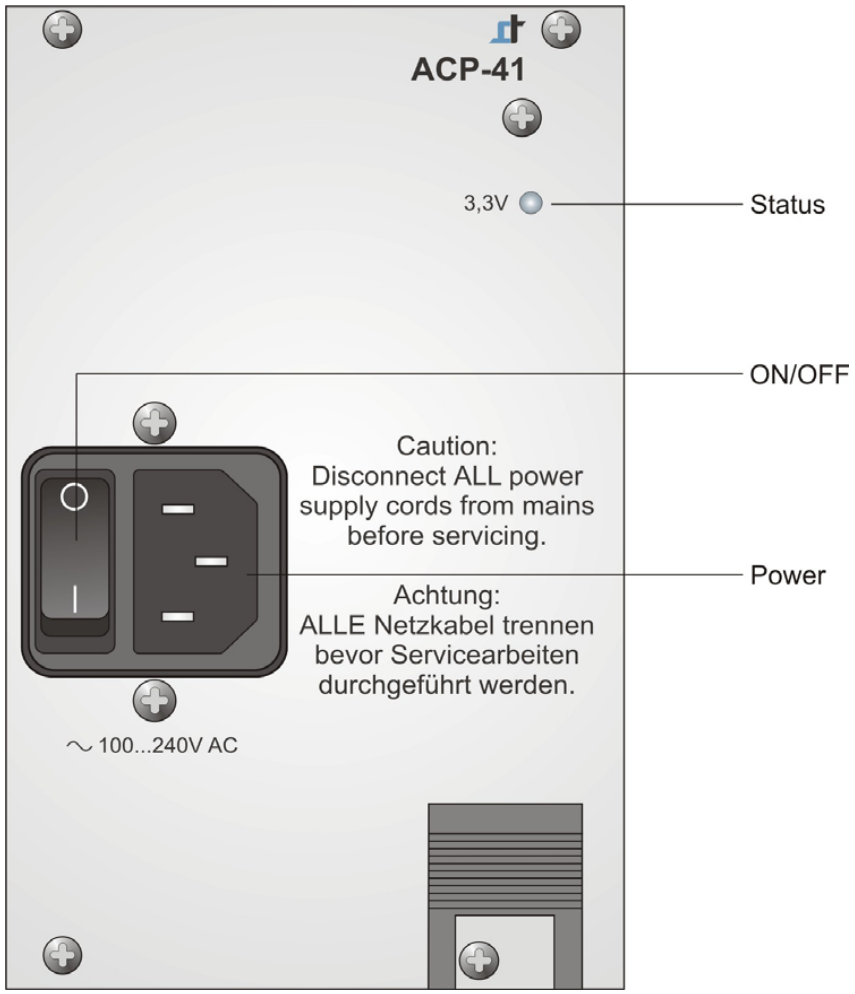


Image 4-16 Front plate ACP-41

Element	Description
Status	➤ see Section 4.2.1.4, "Status indicator Power supply boards"
ON/OFF	ON/OFF switch to activate/deactivate the power supply
Power	IEC jack for an IEC inlet connector for non-heating apparatus to connect the PSU to the mains power supply Technical details: • Input voltage 100 ... 240 V AC

Table 4-2 Connectors and outputs of the front plate ACP-41

4.2.3 ACP-42: AC Power supply

Order number: TNK:ACP-42-0X

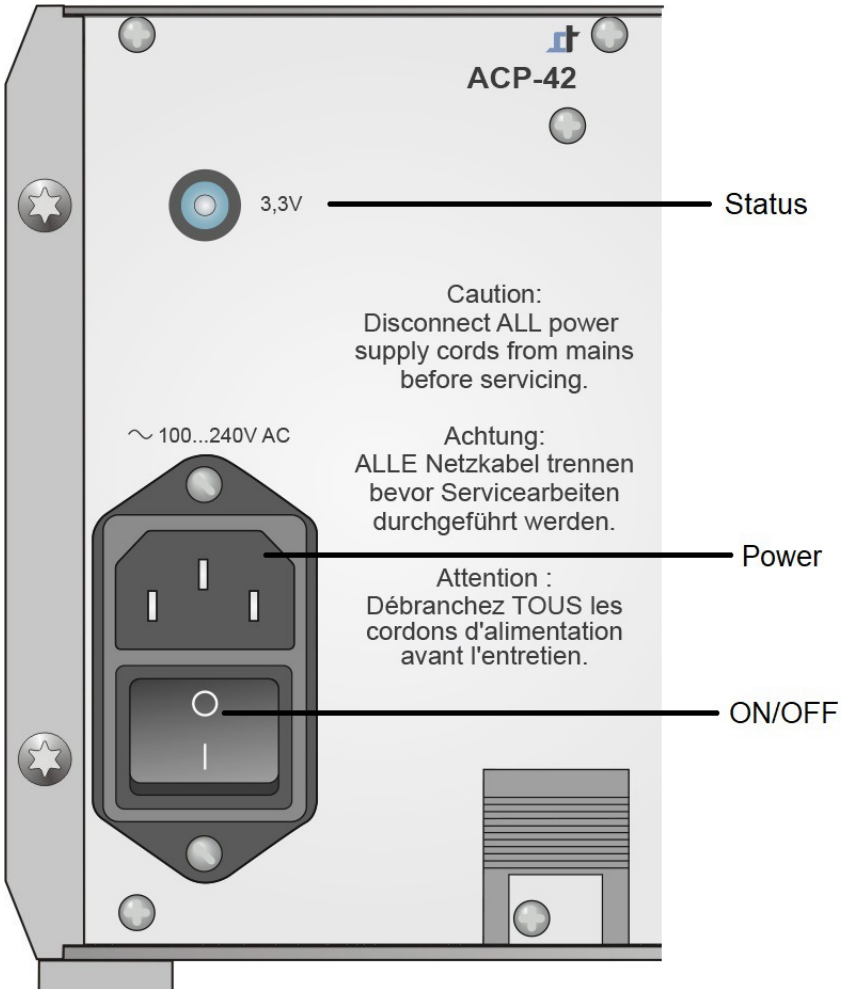


Image 4-17 Front plate ACP-42

Element	Description
Status	➤ see Section 4.2.1.4, "Status indicator Power supply boards"
ON/OFF	ON/OFF switch to activate/deactivate the power supply
Power	IEC jack for an IEC inlet connector for non-heating apparatus to connect the PSU to the mains power supply Technical details: • Input voltage 100 ... 240 V AC

Table 4-3 Connectors and outputs of the front plate ACP-42

4.2.4 DCP-41: DC Power supply

- Order number: TNK:DCP-41-0X

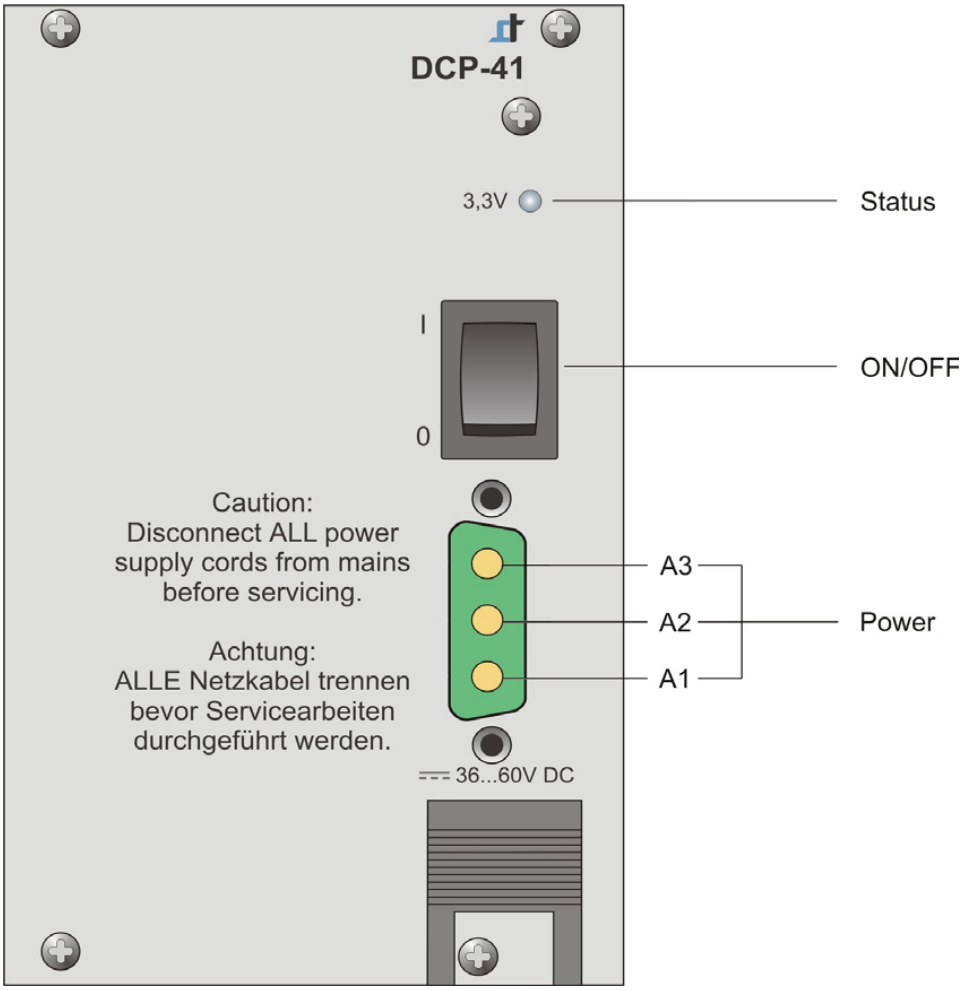


Image 4-18 Front plate DCP-41

Element	Description
Status	➤ see Section 4.2.1.4, "Status indicator Power supply boards"
ON/OFF	ON/OFF switch to activate/deactivate the power supply
Power	Connector jack to connect the PSU to the 48V DC power supply. Technical details: • Input voltage 36 ... 60 V DC Connector pin assignment: • A1 - DC • A2 Earth • A3 + DC

Table 4-4 Connectors and outputs of the front plate DCP-41

4.2.5 CPC-41: Controller board

Order number: TNK:CPC-41-0X

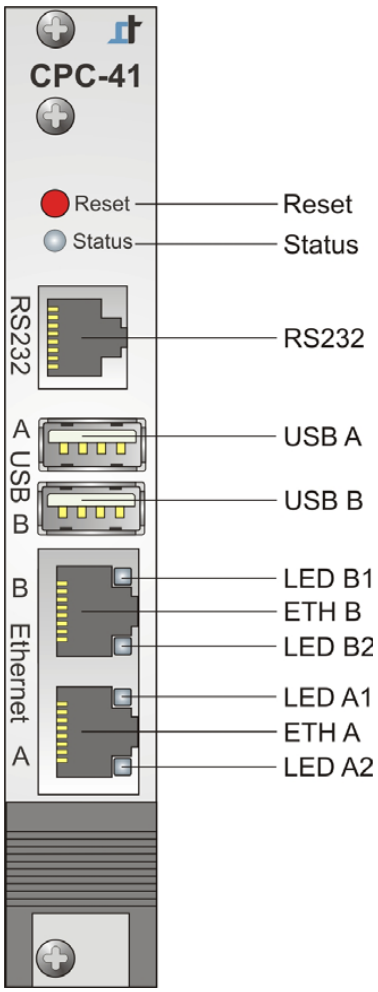


Image 4-19 Front plate CPC-41

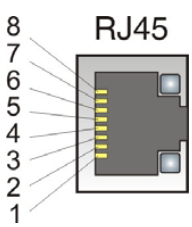
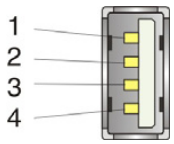
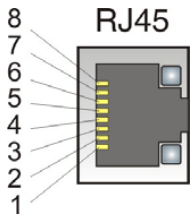
Element	Description
Reset	Reset button to reset all installed boards with the exception of the power supply boards (ACP-41/ACP-42, DCP-41)
Status	➤ see Section 4.2.1.3, "Status indicator for bus boards"
RS232	RS232 interface with RJ45 jack: Service interface for the basic OScAR server settings  Pin 1: n. c. Pin 2: RTS Pin 3: GND Pin 4: TxD Pin 5: RxD Pin 6: n. c. Pin 7: CTS Pin 8: n. c.

Table 4-5 Connectors and outputs of the front plate CPC-41

<table>
<tr><th>Element</th><th>Description</th></tr>
<tr><td>USB A
USB B</td><td>USB 2.0 interface:
 
Pin 1: V_{Bus}
Pin 2: D-
Pin 3: D+
Pin 4: GND</td></tr>
<tr><td colspan="2">Ethernet interface A, B</td></tr>
<tr><td>ETH A
ETH B</td><td>RJ45 jack for connectivity to the LAN (10-,100-,1000Base-T) via patch or cross-patch cable
 

<table>
<tr><th></th><th>Pin name</th><th>Used for 10-/100Base T</th><th>Used for 1000Base T</th></tr>
<tr><td>Pin 1:</td><td>MX0+</td><td>Tx+</td><td>BI_DA+</td></tr>
<tr><td>Pin 2:</td><td>MX0-</td><td>Tx-</td><td>BI_DA-</td></tr>
<tr><td>Pin 3:</td><td>MX1+</td><td>Rx+</td><td>BI_DB+</td></tr>
<tr><td>Pin 4:</td><td>MX2+</td><td>not used</td><td>BI_DC+</td></tr>
<tr><td>Pin 5:</td><td>MX2-</td><td>not used</td><td>BI_DC-</td></tr>
<tr><td>Pin 6:</td><td>MX1-</td><td>Rx-</td><td>BI_DB-</td></tr>
<tr><td>Pin 7:</td><td>MX3+</td><td>not used</td><td>BI_DD+</td></tr>
<tr><td>Pin 8:</td><td>MX3-</td><td>not used</td><td>BI_DD-</td></tr>
</table></td></tr>
<tr><td>LED B1</td><td>Activity of the Ethernet interface</td></tr>
<tr><td>LED B2</td><td>Physical contact is established to the LAN (link)</td></tr>
<tr><td>LED A1</td><td>➤ see LED B1</td></tr>
<tr><td>LED A2</td><td>➤ see LED B2</td></tr>
</table>

Table 4-5 Connectors and outputs of the front plate CPC-41

4.2.6 CPH-42: Controller board

Order number: TNK:CPH-42-0X

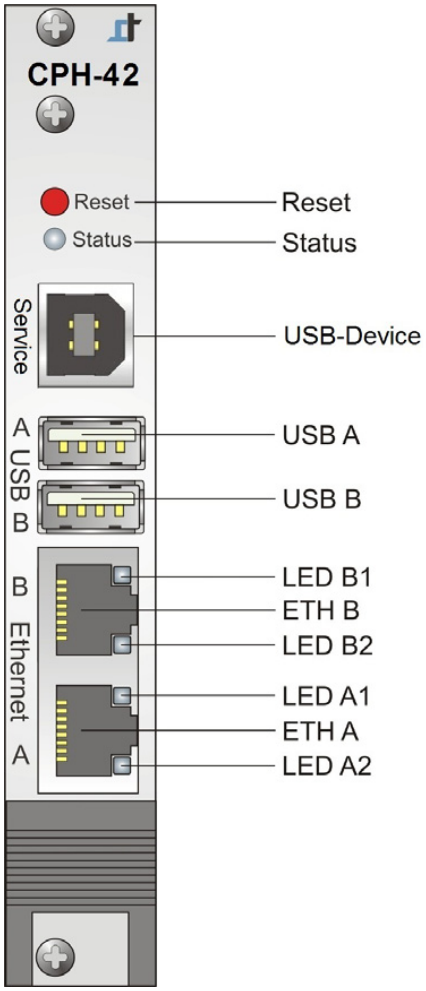


Image 4-20 Frontplatte CPH-42

Element	Description
Reset	Reset button for resetting all built-in modules except power supply modules (ACP-41, DCP-41)
Status	➤ see Section 4.2.1.3, "Status indicator for bus boards"
USB	USB socket Typ B: Pinout: Pin 1: V_{Bus} Pin 2: D- Pin 3: D+ Pin 4: GND

Table 4-6 Connectors and outputs of the front plate CPH-42

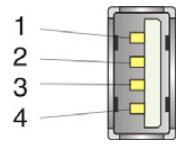
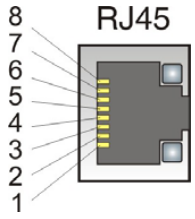
<table>
<tr><th>Element</th><th>Description</th></tr>
<tr><td>USB A
USB B</td><td>USB 2.0-Interface:
 
Pin 1: V_{Bus}
Pin 2: D-
Pin 3: D+
Pin 4: GND</td></tr>
<tr><td colspan="2">Ethernet Interface A, B</td></tr>
<tr><td>ETH A
ETH B</td><td>RJ45 socket for the connection to the LAN (10-, 100-, 1000Base-T) via patch or cross-patch cable
 
<table><tr><th></th><th>Pinbez.</th><th>Verwendung bei 10-/100Base T</th><th>Verwendung bei 1000Base T</th></tr><tr><td>Pin 1:</td><td>MX0+</td><td>Tx+</td><td>BI_DA+</td></tr><tr><td>Pin 2:</td><td>MX0-</td><td>Tx-</td><td>BI_DA-</td></tr><tr><td>Pin 3:</td><td>MX1+</td><td>Rx+</td><td>BI_DB+</td></tr><tr><td>Pin 4:</td><td>MX2+</td><td>not in use</td><td>BI_DC+</td></tr><tr><td>Pin 5:</td><td>MX2-</td><td>not in use</td><td>BI_DC-</td></tr><tr><td>Pin 6:</td><td>MX1-</td><td>Rx-</td><td>BI_DB-</td></tr><tr><td>Pin 7:</td><td>MX3+</td><td>not in use</td><td>BI_DD+</td></tr><tr><td>Pin 8:</td><td>MX3-</td><td>not in use</td><td>BI_DD-</td></tr></table></td></tr>
<tr><td>LED B1</td><td>Activity of the ethernet interface</td></tr>
<tr><td>LED B2</td><td>established a physical link to the LAN</td></tr>
<tr><td>LED A1</td><td>➤ see LED B1</td></tr>
<tr><td>LED A2</td><td>➤ see LED B2</td></tr>
</table>

Table 4-6 Connectors and outputs of the front plate CPH-42

4.2.7 SDU-42

Order number: TNK:SDU-42

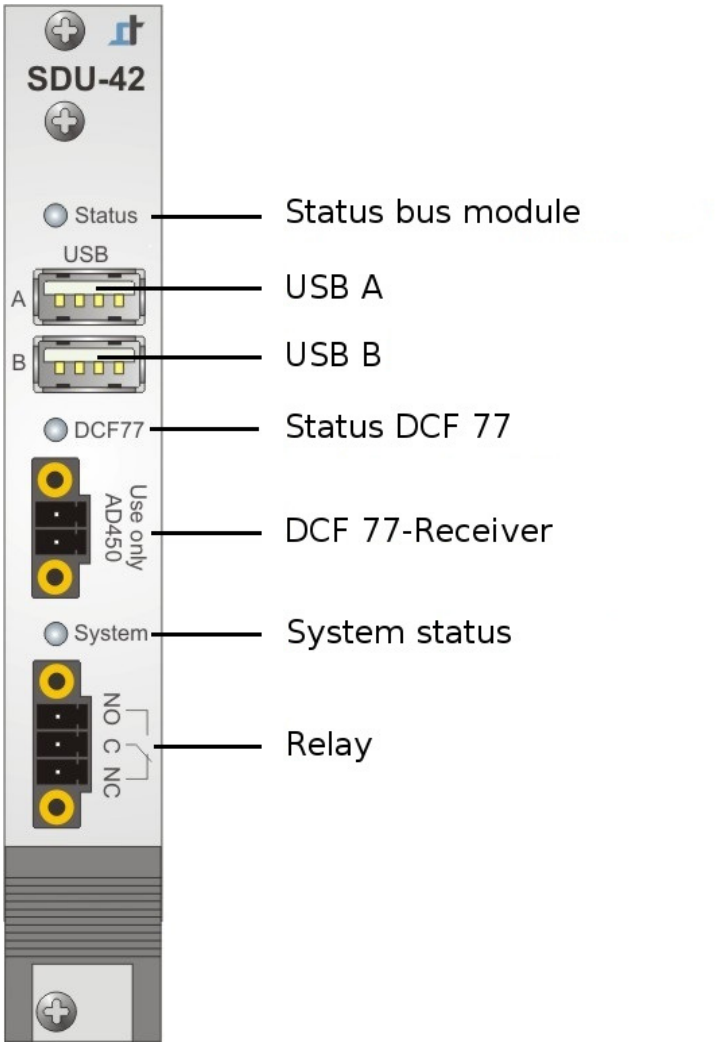


Image 4-21 Frontplate SDU-42

Element	Description
Status	➤ siehe Abschnitt 4.2.1.3 „Status indicator for bus boards“
USB A USB B	USB Stecker Typ A: Pinbelegung:  • Pin 1: V_{Bus} • Pin 2: D- • Pin 3: D+ • Pin 4: GND Technische Daten: • U_{max} 5 V DC • I_{max} 500 mA pro Schnittstelle

Table 4-7 Connectors and outputs of the front plate SDU-42

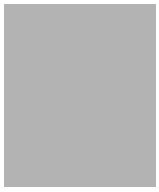
Element	Description
DCF 77	DCF Statusoutput: • off — no power • yellow — The system is being initialized • red — No time signal is being received, no DCF time available • blinking red — time signal is being received, no DCF time available • blinking green — time signal is being received, DCF time available
AD450 or AD650	• Pinout:  Pin 1: DCF-Receiver + Pin 2: DCF-Receiver -
System	System Statusoutput: • off — no Voltage • yellow — Boot procedure of the software • red — The system is not OK, the relay is not activated. • green — the system is ready for operation, the relay is activated
Relay	Pinout:  Pin 1: NO Pin 2: COM Pin 3: NC Technical Data: • Umax 60 V DC • Imax 1 A • Pmax 30 W

Table 4-7 Connectors and outputs of the front plate SDU-42

4.2.8 PRA-41: Primary-rate adapter (E1/T1)

Order number: TNK:PRA-41-0X

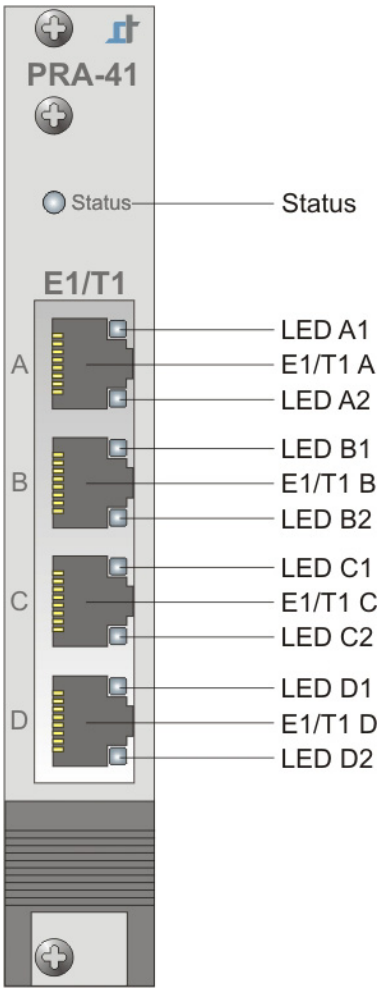


Image 4-22 Front plate PRA-41

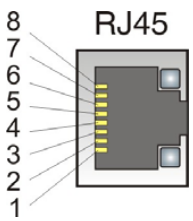
Element	Description
Status	➤ see Section 4.2.1.3, "Status indicator for bus boards"
E1/T1 Interface A, B, C, D	
E1/T1 A E1/T1 B E1/T1 C E1/T1 D	RJ45 socket for connectivity to the PBX. Technical details: • Input resistance E1 120 Ω • Input resistance T1 100 Ω  Pin 1: Rx+ Pin 2: Rx- Pin 3: n. c. Pin 4: Tx+ Pin 5: Tx- Pin 6: n. c. Pin 7: n. c. Pin 8: n. c.

Table 4-8 Connectors and outputs of the front plate PRA-41

Element	Description
LED A1	Status indicator: • OFF — Interface closed • red — Layer 1 inactive • yellow — Layer 1 active, Layer 2 inactive • green — Layer 1 and Layer 2 active • green blinking — Layer 1 inactive, Layer 2 active
LED A2	Status indicator: • OFF — E1/T1 closed • yellow — Layer 3 active (all B-channels occupied) • green — Layer 3 active (at least 1 B channel occupied)
LED B1	➤ see LED A1
LED B2	➤ see LED A2
LED C1	➤ see LED A1
LED C2	➤ see LED A2
LED D1	➤ see LED A1
LED D2	➤ see LED A2

Table 4-8 Connectors and outputs of the front plate PRA-41

4.2.9 BRA-41: Basic-rate adapter (S_0)

Order number: TNK:BRA-41-0X

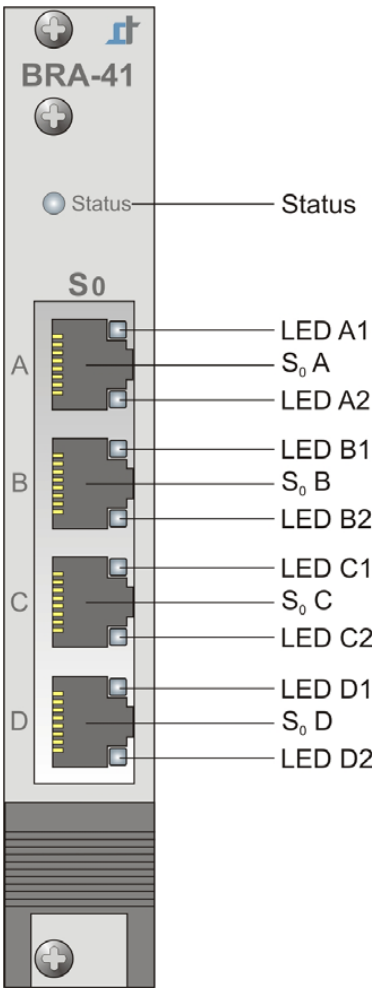


Image 4-23 Front plate BRA-41

Element	Description
Status	➤ see Section 4.2.1.3, "Status indicator for bus boards"
S_0 interface A, B, C, D	
S_0 A S_0 B S_0 C S_0 D	RJ45 jack for connectivity to the PBX via patch cable Technical details: • Input resistance S_0 100 Ω RJ45 (8 7 6 5 4 3 2 1) Pin 1: n. c. Pin 2: n. c. Pin 3: Tx+ Pin 4: Rx- Pin 5: Rx+ Pin 6: Tx- Pin 7: n. c. Pin 8: n. c.

Table 4-9 Connectors and outputs of the front plate BRA-41

Element	Description	
LED A1	Status indicator:	
	• OFF	Interface closed
	• red	Layer 1 inactive
	• yellow	Layer 1 active, Layer 2 inactive
	• green	Layer 1 and Layer 2 active
	• green blinking	Layer 1 inactive, Layer 2 active
LED A2	Status indicator:	
	• OFFs	S_0 closed
	• yellow	Layer 3 active (all B-channels occupied)
	• green	Layer 3 active (at least 1 B channel occupied)
LED B1	➤ see LED A1	
LED B2	➤ see LED A2	
LED C1	➤ see LED A1	
LED C2	➤ see LED A2	
LED D1	➤ see LED A1	
LED D2	➤ see LED A2	

Table 4-9 Connectors and outputs of the front plate BRA-41

4.2.10 DSP-41: Digital signal processor

Order number: TNK:DSP-41-0X

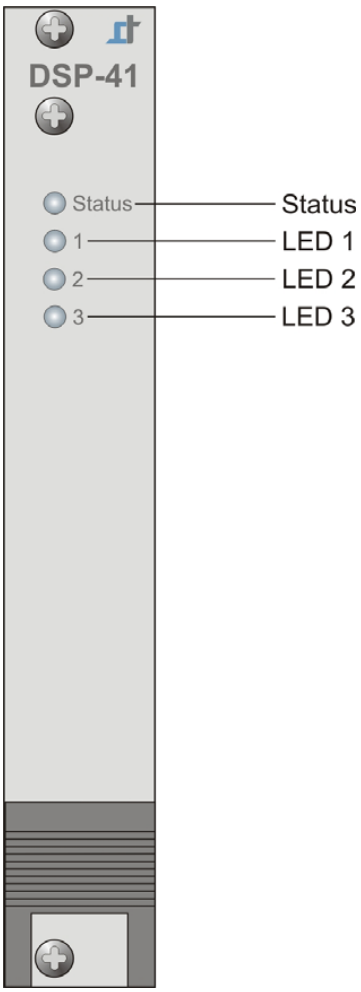


Image 4-24 Front plate DSP-41

Element	Description
Status	➤ see Section 4.2.1.3, "Status indicator for bus boards"
LED 1	Status indicator: • Universal LEDs • This function depends on the application that is currently active. Possible colors are: red, yellow, green
LED 2	
LED 3	

Table 4-10 Outputs of the front plate DSP-41

4.2.11 SIO-41: Serial interfaces

➤ Order number: TNK:SIO-41-0X

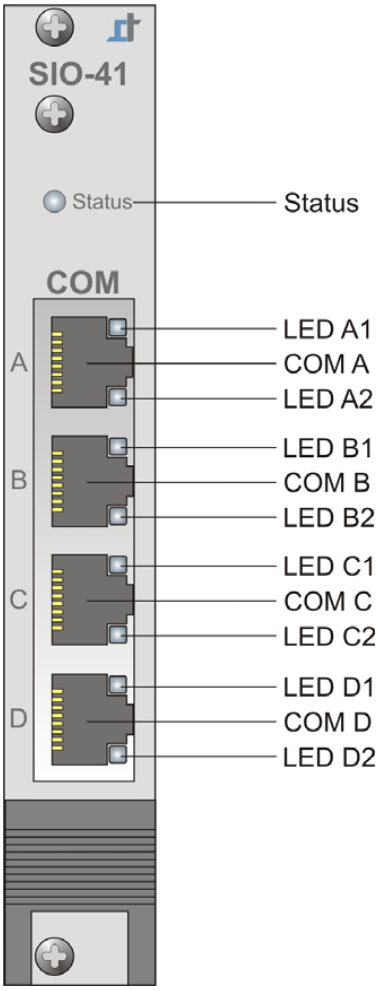


Image 4-25 Front plate SIO-41

Element	Description
Status	➤ see Section 4.2.1.3, "Status indicator for bus boards"
Communication interface A, B, C, D	

Table 4-11 Connectors and outputs of the front plate SIO-41

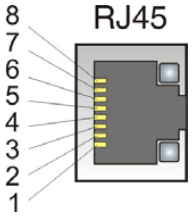
Element	Description
COM A COM B COM C COM D	RJ45 socket for connectivity to external systems (e.g. a nurse call system): • RS232 • RS422 • RS485 The interfaces COM A, B, C and D are electrically isolated from one another and from the system ground.  Pin 1: RS232 n. c. RS422 n. c. Pin 2: RTS Tx+/Y Pin 3: GND GND Pin 4: TxD Tx-/Z Pin 5: RxD Rx+/A Pin 6: n. c. n. c. Pin 7: CTS Rx-/B Pin 8: DTR n. c.
LED A1	Status indicator: • Universal LED • This function depends on the application that is currently active. Possible colors are: red, yellow, green • Standard function: TxD (green for data transfer)
LED A2	Status indicator: • Universal LED • This function depends on the application that is currently active. Possible colors are: red, yellow, green • Standard function: RxD (green for data transfer)
LED B1	➤ see LED A1
LED B2	➤ see LED B2
LED C1	➤ see LED A1
LED C2	➤ see LED B2
LED D1	➤ see LED A1
LED D2	➤ see LED B2

Table 4-11 Connectors and outputs of the front plate SIO-41

4.2.12 DIO-41: Digital inputs and outputs

Order number: TNK:DIO-41-0X

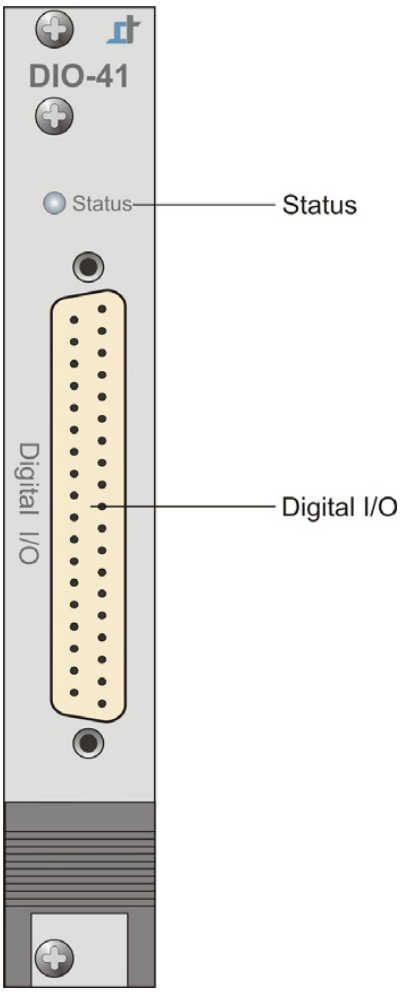


Image 4-26 Front plate DIO-41

Element	Description
Status	➤ see Section 4.2.1.3, "Status indicator for bus boards"

Table 4-12 Connectors and outputs of the front plate DIO-41

Element	Description
Digital I/O	37-Pin Sub-D jack to connect different inputs and outputs via the DIO connector cable cord K-31100 (see Section 4.7.5, "Connector cable for digital inputs and outputs") 16 electrically isolated inputs Technical details: • Internal feeding possible to connect contacts directly • External power supply: U_{in} 10.5 .. 60V DC • R_{in} 15 kΩ 8 electrically isolated outputs, also isolated from each other Technical details: • U_{max} 60 V DC • I_{max} 0.1 A • R_{ON} 11 Ω 1 Relay output Technical details: • U_{max} 60 V DC • I_{max} 1 A • P_{max} 30 W

Table 4-12 Connectors and outputs of the front plate DIO-41

Note:
Pin assignment for Digital I/O:
➤ see Section 4.7.5, "Connector cable for digital inputs and outputs"

4.2.13 AIO-41: Audio interface

Order number: TNK:AIO-41-0X

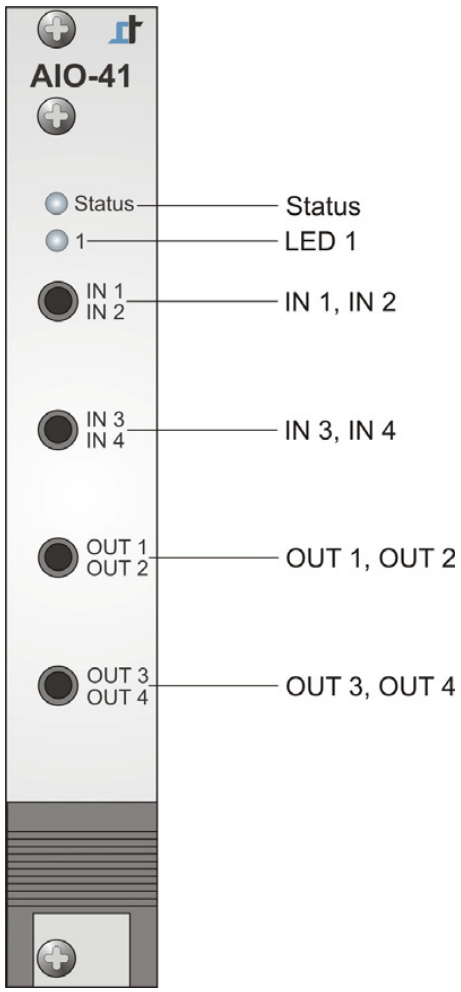


Image 4-27 Front plate AIO-41

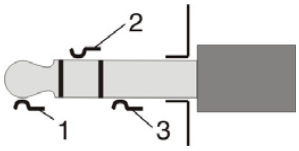
Element	Description
Status	➤ see Section 4.2.1.3, "Status indicator for bus boards"
LED 1	Universal LEDs This function depends on the application that is currently active. Possible colors are: red, yellow, green
IN 1 IN 2 IN 3 IN 4	Audio input The level settings are configured via software. Technical details: • Connection: Stereo jack socket 3.5 mm • Input voltage: U_{in} = 775 mV eff. (0 dBm) • Input resistance: R_{in} = 6 kΩ  Pin 1: IN 1 / IN 3 Pin 2: IN 2 / IN 4 Pin 3: GND / GND

Table 4-13 Connectors and outputs of the front plate AIO-41

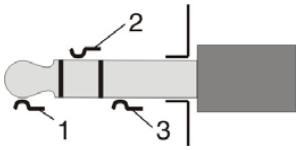
Element	Description
OUT 1 OUT 2 OUT 3 OUT 4	Audio output The level settings are configured via software. Technical details: • Connection: Stereo jack socket 3.5 mm • Output voltage: U_{out} = 775 mV eff. (0 dBm) • Output resistance: R_{out} = 600 Ω  Pin 1: OUT 1 / OUT 3 Pin 2: OUT 2 / OUT 4 Pin 3: GND / GND (OUT 1, OUT 2 / OUT 3, OUT 4)

Table 4-13 Connectors and outputs of the front plate AIO-41

4.3 CompactFlash card

Order number: TNK:D3-CF2-4G

Function: The CompactFlash card is a mass storage device format in the OScAR server. It is used to store all non-volatile data that is needed by the OScAR server to operate properly, such as data on the operating system, driver, license details, applications and announcements.

Technical details:

- Storage capacity: 4 GB

Attention!
The CompactFlash card TNK:D3-CF2-4G cannot be replaced with a commercially available CompactFlash card.

4.4 Add ons

4.4.1 USB adapter for DCF-77 radio receiver

Order number: TNK:DUA-41-0X

Function: Adapter to connect the DCF-77 radio receiver (AD 450) via USB

Image 4-28 USB adapter for DCF-77 radio receiver

Element	Description
1	Status indicator: • OFF — No power supply from USB • ON intermittently — Initializing • OFF intermittently — Time receipt synchronous
2	USB connector to link up the DUA-41 module with the USB port at the CPC-41 controller of the OScAR server
3	Port for the DCF-77 receiver unit AD 450

Table 4-14 USB adapter for DCF-77 radio receiver

4.4.2 DCF-77 radio receiver

Order number: TNK:AD450 or AD650

Function: Radio receiver to synchronize the OScAR server with the official time in the Germany time zone

Technical details:

- Measurements: Length 65 mm; Depth 35 mm; Height 90 mm (with connection plate)
- Cable length: 10 m
- Cable extension: Max. 200 m
  Cable properties: 2-wire twisted pair cable cord, minimum cross section 2 x 0.25 mm²

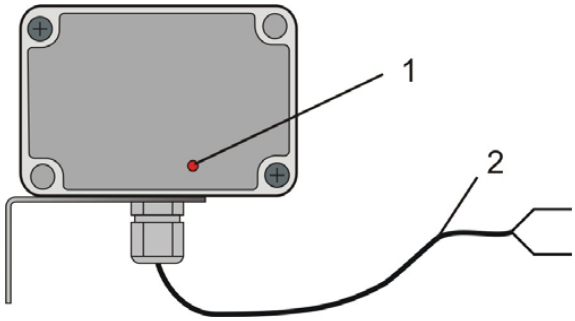


Image 4-29 AD450 or AD650: DCF-77 radio receiver

Element	Description
1	Status indicator: • OFF — No power supply from the connection cable • Blinking 1x per s — Good radio reception • Flickering — Interference of the radio reception
2	Connection cable open at both ends for connectivity to DUA-41(see Section 4.4.1, "USB adapter for DCF-77 radio receiver")

Table 4-15 AD450 or AD650: DCF-77 radio receiver

Please follow the below instructions when you install the DCF-77 radio receiver:

- Mount the apparatus as high up as possible and not in buildings with exterior walls that are highly insulated and shielded, nor in buildings with a metallic roof construction.
- Minimum distance from sources of interference 2 - 3 m.
- Mount the reception housing horizontal.
- If necessary, shorten the connection cable to avoid an antenna effect.
- After the connection is made and the receiver is adjusted, wait 30 seconds before assessing the radio reception (see Table 4-15, Status indicator).

4.4.3 Printer

Order number: TNK:LP-OML280

Function: Protocol printer for logging, with direct connectivity to the OScAR server

Note:
For further details on the OKI Microline 280 please see the installation CDs included in the printer delivery package.

The printer automatically detects if it is running on a a serial or USB interface.

The DIL switches covered below only have relevance if the printer is operated on one of the serial interfaces. Please make sure the DIL switches on the interface board are configured as described in Image 4-30 or Table 4-16 (see Printer Manual).

Image 4-30 Position of DIL switches on the interface board

Element	Def. settg.	Description
SW1		
1	ON	No parity
2	ON	
3	ON	Data format 8 bits
4	ON	Busy/ready report
5	ON	Normal printer mode, no test mode
6	ON	
7	ON	Busy signal via Pin 20
8	ON	

Table 4-16 Position of DIL switches on the interface board.

Element	Def. settg.	Description
SW2		
1	OFF	Transmission rate 9600 baud
2	ON	
3	ON	
4	ON	Printer spooler in system, printer operating in handshaking mode
5	OFF	Busy signal active when space for only 256 characters remains in buffer
6	OFF	Busy timing 2
7	ON	do not change
8	OFF	

Table 4-16 Position of DIL switches on the interface board.

Festlegen der Drucker-Standardeinstellungen Schritt für Schritt:

➤ see OKI user manual on the installation CD

Schritt	Beschreibung
1.	Turn on the printer while holding down the SELECT button. LEDs 12 and UTILITY flash.
2.	Press the SELECT button to print the entire menu. You will receive a list of the current default settings.
3.	Drücken Sie die Taste LINE FEED, um die relevante Gruppe auszuwählen, die geändert werden muss (die Gruppe finden Sie in der linken Spalte des MENÜ-Ausdrucks).
4.	Press the FORM FEED key to select the relevant element from the selected group (the element in the middle column of the MENU printout).
5.	Drücken Sie die Taste TOF SET, um in den Einstellungen des Elements zu blättern, die Sie ändern möchten (die Einstellungen finden Sie in der rechten Spalte des MENÜ-Ausdrucks).
6.	Press the TOF SET button to scroll through the settings of the item you want to change (the settings can be found in the right column of the MENU printout).
7.	After completing the changes, press the PITCH and MODE buttons simultaneously to exit the mode and save any changes.

Table 4-17 Printer default settings step by step

4.4.4 USB/RS232 interface

Order number: TNK:USB/RS232-0X

Function: Adapter to convert a RS232 interface to a USB interface for connectivity to a CPC-41

4.4.5 IOG-11A

Gateway

- Order number: TNK:IOG-11A
- Function: Gateway for the connection of the IOM modules

Technische Daten:

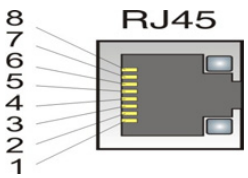
Modul	Element	Description
	U+ / U-	Power supply: • 8 .. 30V DC • > 6W
	RS-485	• RJ-45 Jack • Connection to the serial interface of the OScAR server via RS-485-LAN-adapter cable and (in case of remote mounting) junction box with in-house cabling and additional LAN cable. • The max. cable length between the OScAR server and the last IOG-11A module must not exceed 1000 m. • Bus connection, up to eight IOG-11A modules can be connected to one serial interface of the OScAR server Pinout:  RS-485 Pin 1: Pin 2: Pin 3: Pin 4: Pin 5: Pin 6: Pin 7: A+ Pin 8: B-
	Status	Status indicator • off — no power • red — no data traffic between OScAR server and gateway • flashing red — no valid data traffic between OScAR server and gateway • yellow — Valid data traffic, but not explicitly for the address of this gateway. • flashing green/ yellow — Incorrect VCON configuration of IOM modules in OScAR server • green — OK, a communication with this gateway took place within the last 2 s. • flashing green — OK, data traffic on the bus

Table 4-18 IOG-11A technical data

Modul	Element	Description
	Prog.	Configuring the bus address of the IOG-11A module: A thin object, such as a paper clip, is required for setup. • Long press (>5 s): Sets the module to programming mode. (7-segment display flashes) • Short Press: Changes the bus address of the module from "0" to "8" and then from "1." to "8.". (Address '0' = module is out of order) – Address: '1' to '8.' = termination resistor not activated '1.' to '8.' = termination resistor activated Hint: In the last module in the chain (greatest distance to the OScAR server) the built-in termination resistor must be activated. • Long press once again (>5 s): Switches the module back to working mode. (7-segment display flashes no more)
	Address	• Display of currently set module address • Fixed decimal point indicates activated termination resistor

Table 4-18 IOG-11A technical data

Attention!
Before connecting and disconnecting the IOG module and IOM modules, the IOG-11A gateway must be disconnected from the power supply:

➤ siehe Section 4.4.6, "I/O-Modul Standard"

➤ siehe Section 4.4.7, "I/O-Modul Secure"

4.4.6 I/O-Modul Standard

- Order number: TNK:IOM-02A
- Function: Connection for 8 digital signals without short-circuit and line break detection and 2 digital outputs

Technical Data:

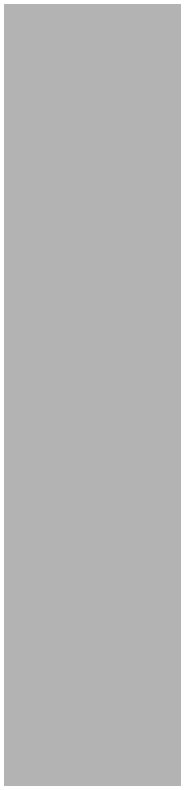
Modul	Element	Description
	U- U- U- U- (connected internally)	GND
	INPUT 1..8	Digital Inputs • electrically isolated • common ground • R_{IN} 15 kΩ • internal feeding 12 V DC
	OUT 1a, 1b, 2a, 2b	Digital Outputs • electrically isolated, also between each other • U_{max} 60 V • I_{max} 100 mA • R_{ON} 11 Ω
	Status	Status indicator • off no power • red no communication between I/O module (IOM) and gateway (IOG) • green OK

Table 4-19 I/O-Modul Standard

Image 4-31 Wiring of the digital inputs: Use of the internal voltage source, contact switching to ground

Image 4-32 Wiring of the digital inputs: Use of the internal voltage source, Open Collector switching to ground

Image 4-33 Wiring of the digital outputs

4.4.7 I/O-Modul Secure

- Order number: TNK:IOM-11A
- Function: Connection for 4 digital signals with short-circuit and line break detection and 2 digital outputs

Technical Data:

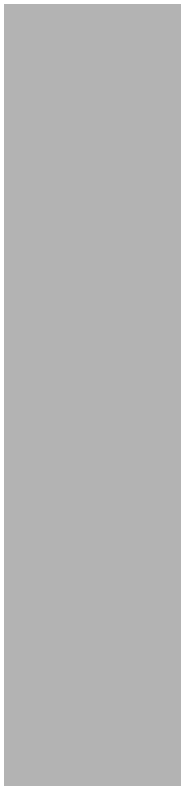
Modul	Element	Beschreibung
	U+ 1..4	Power supply • U 12 V • R_{int} 4,7 kΩ
	U- U- U- U- (connected internally)	GND
	INPUT 1..4	Digital Inputs • electrically isolated • common ground • switching threshold 1, 6 and 10 V DC For short-circuit and open-circuit detection in conjunction with external wiring • R_{IN} 15 kΩ • feeding internal 12 V DC or external U_{max} 60 V DC
	OUT 1a, 1b, 2a, 2b	Digital Outputs • electrically isolated, also between each other • U_{max} 60 V DC • I_{max} 100 mA • R_{ON} 11 Ω
	Status	Statusanzeige • off keine no power • rot no communication between I/O module (IOM) and Gateway (IOG) • grün OK

Table 4-20 I/O-Modul Secure

Image 4-34 Wiring of the digital inputs: Use of the internal voltage source, contact switching to ground, without line monitoring

Image 4-35 Wiring of the digital inputs: Use of the internal voltage source, contact switching to ground, with line monitoring

Hint:
IOM-11 Input is high-impedance, apply R~10kW if necessary

Image 4-36 Wiring of the digital inputs: Use of the internal voltage source, contact switching to positive, without line monitoring

Hint:
IOM-11 Input is high-impedance, if applicable
R necessary=5/12/24..60 V

Image 4-37 Wiring of the digital inputs: Use of an external voltage source

Image 4-38 Wiring of the digital inputs: use of the internal voltage source, open collector without monitoring

Hint:
sizing of R (U_{INPUT} = 4V)

Image 4-39 Wiring of the digital inputs: use of the internal voltage source, open collector with monitoring

Image 4-40 Wiring of the digital outputs

4.5 Line extensions

4.5.1 CSA-Converter

Order number: TNK:CSA-01-0X

Function: To convert an RS-422 interface into an RS-232 interface (see Section 6.7, "Line extension of the COM interface (CSA-01-0X)").

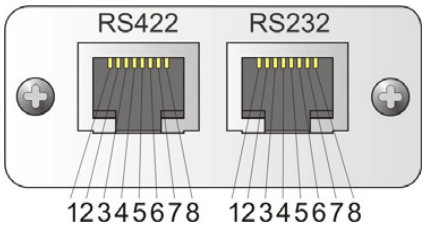


Image 4-41 CSA Adapter

Pin assignment RS422:

Pin 1:	n. c.
Pin 2:	Rx+/A
Pin 3:	GND
Pin 4:	Rx-/B
Pin 5:	Tx+/Y
Pin 6:	n. c.
Pin 7:	Tx-/Z
Pin 8:	n. c.

Pin assignment RS232:

Pin 1:	DSR
Pin 2:	RTS
Pin 3:	GND
Pin 4:	TxD
Pin 5:	RxD
Pin 6:	DCD
Pin 7:	CTS
Pin 8:	DTR

Note:
The CSA adapter is powered through the RS232 connection and needs no other electric power supply.

4.5.2 E-Link: Line extension modem

Order number: TNK:E-LINK4-T

Function: Line extension for a RS232 interface (SIO-41 or CPC-41) to connect to a Host, PC or printer

The following settings must be made for the E-Link 4 to operate correctly (see User Manual E-Link IV).

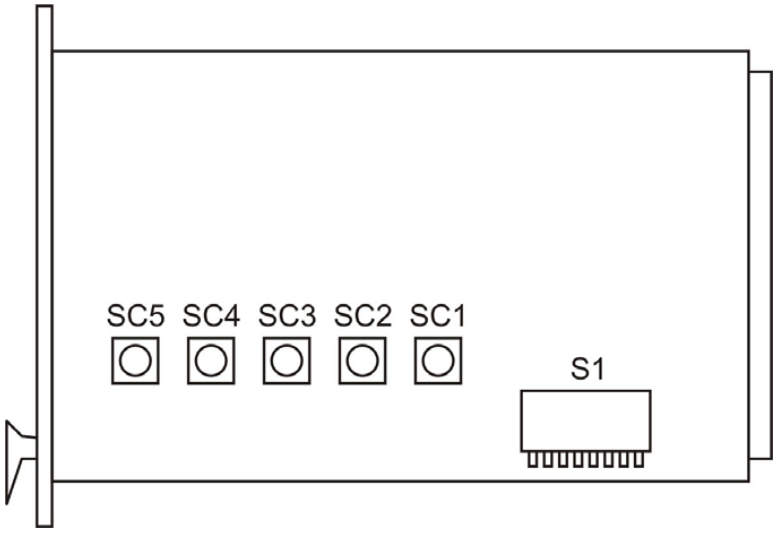


Image 4-42 Line extension E-Link IV, Settings

Element	Switch mode
SC1	Pos. 3
SC2	Pos. 7
SC3	Pos. 3: Master Pos. 2: Slave
SC4	Pos. D
SC5	Pos. 0
S1	Switch 1 = OFF Switch 2 = OFF Switch 3 = OFF Switch 4 = OFF Switch 5 = ON Switch 6 = ON Switch 7 = ON Switch 8 = OFF

Table 4-21 Line extension E-Link IV, Settings

4.5.3 Dialing modem (analog)

Order number: TNK:AMOD56k

Function: Remote maintenance of the OScAR server via dialing modem

For further details on how to use the dialing modem please see the User Manual.

4.5.4 Dialing modem (digital)

Order number: TNK:DMOD56k

Function: Remote maintenance of the OScAR server via dialing modem

For further details on how to use the dialing modem please see the User Manual.

4.5.5 GSM modem

Order number: TNK:FM-TC35I

Function: Dispatch of SMS messages via GSM modem

For further details on how to use the dialing modem please see the User Manual.

4.5.6 Transmission kit for OScAR to PC/Host

Order number: TNK:V2X-90-WPZ105

Function: Connection on the OScAR side to link-up a PC or Host to a serial interface of the OScAR server (SIO-41) with a line extension

Technical details:

- Cable length: 10 m

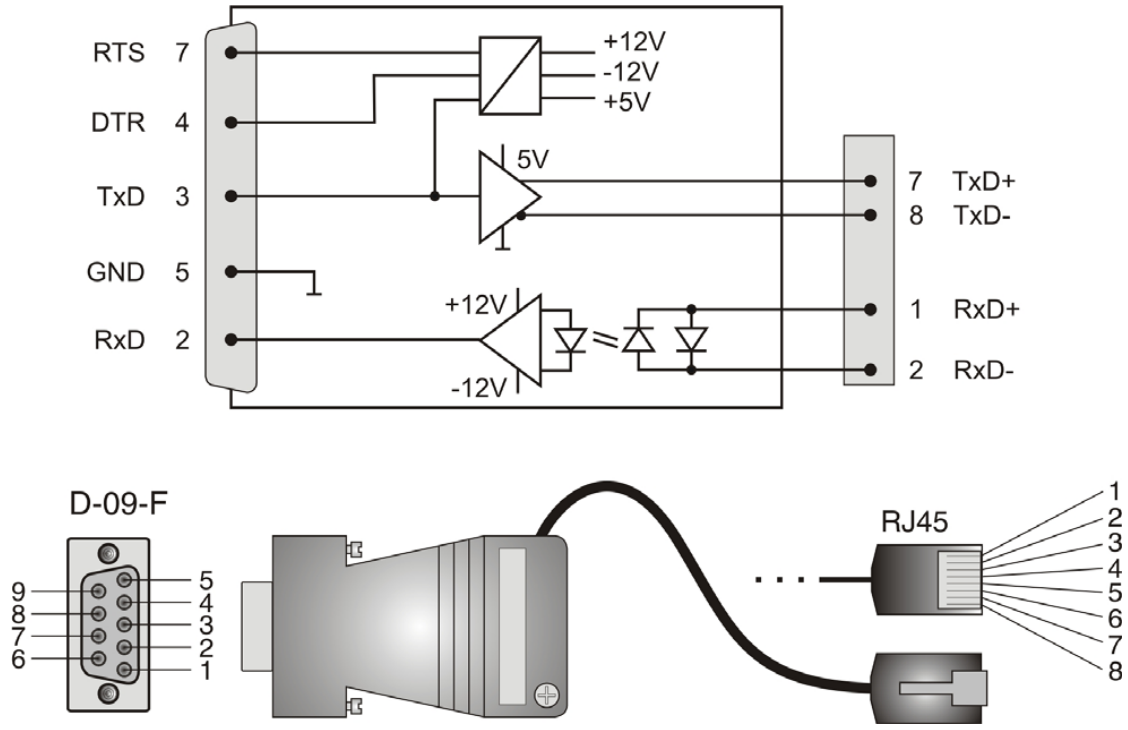


Image 4-43 Transmission kit for OScAR to PC/Host

4.5.7 Transmission kit for PC/Host

Order number: TNK:VX2-09-WPZ105

Function: Connection on the side of the PC or Host to link-up to a serial interface of the OScAR server (SIO-41) with a line extension

Technical details:

- Cable length: 5 m

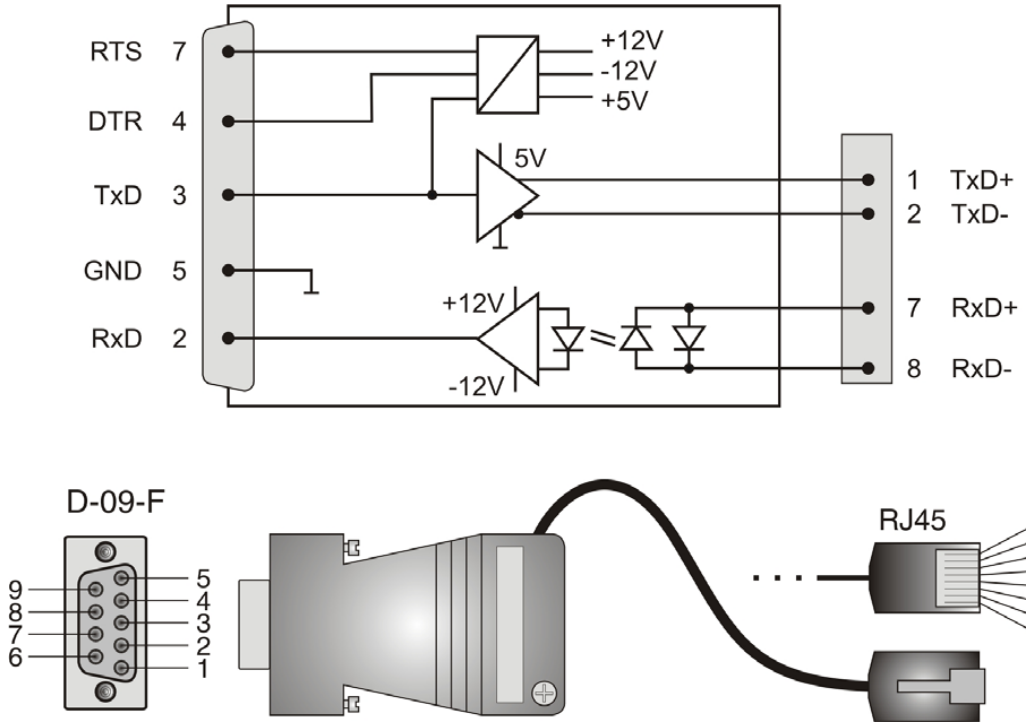


Image 4-44 Transmission kit for PC/Host

4.5.8 Transmission kit for OScAR to Printer

Order number: TNK:V2X-90-WPZ104

Function: Connection on the OScAR side to link-up a printer with a line extension, with the printer being connected to the OScAR server via USB/RS232 interface (see Section 4.4.4, "USB/RS232 interface").

Technical details:

- Cable length: 10 m

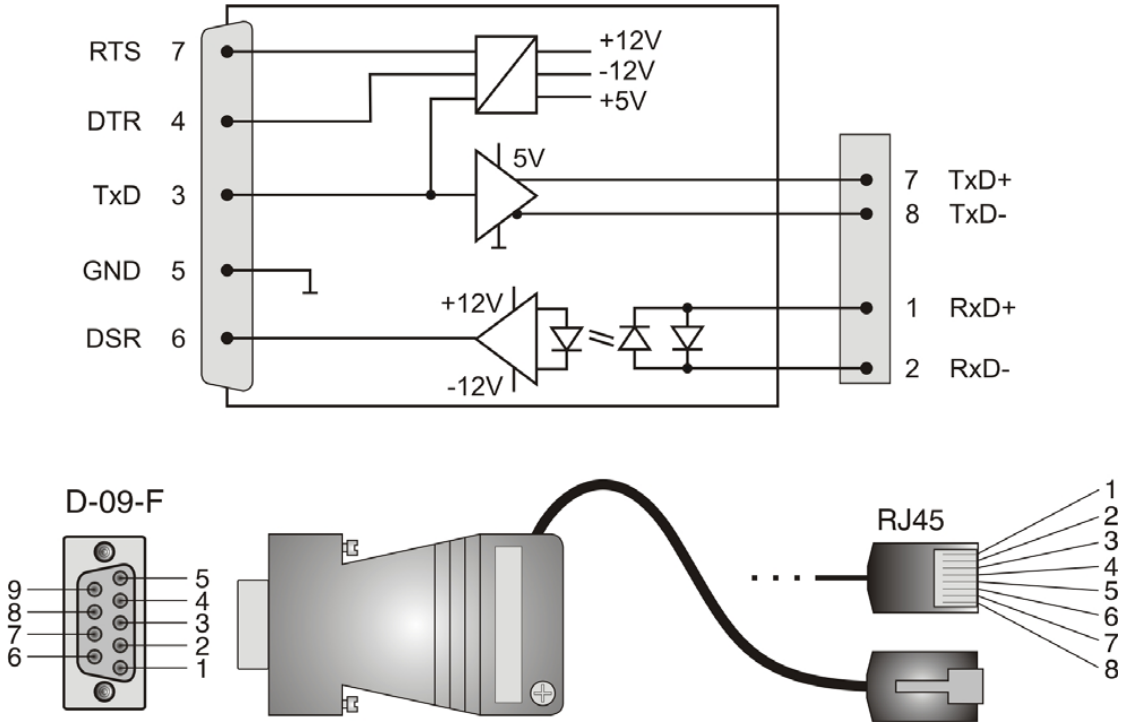


Image 4-45 Transmission kit for OScAR to Printer

4.5.9 Transmission kit for Printer

Order number: TNK:VX2-WPZ104

Function: Connection on the printer side to link-up a printer with a line extension, with the printer being connected to the OScAR server via USB/RS232 interface (see Section 4.4.4, "USB/RS232 interface").

Technical details:

- Cable length: 5 m

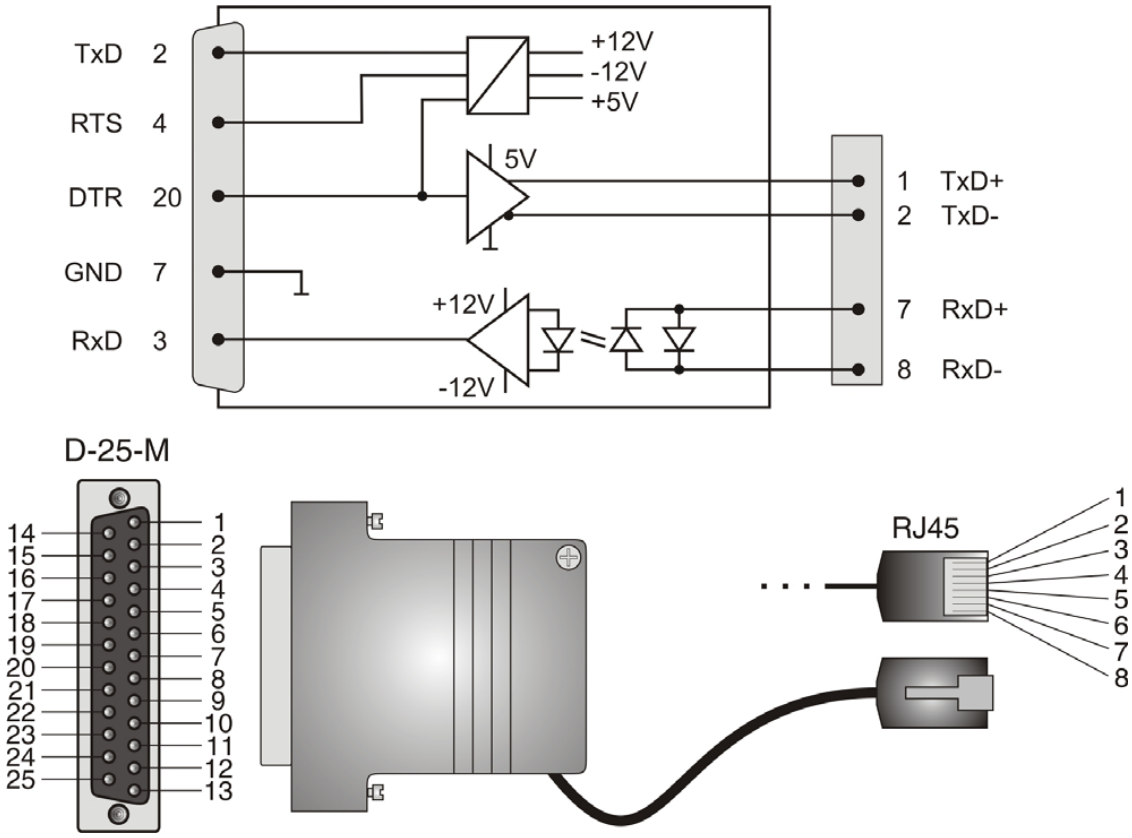


Image 4-46 Transmission kit for Printer

4.6 General adapters

4.6.1 DCE adapter

4.6.1.1 DCE-01

Order number: TNK:A-DCE-01

Function: Adapter to convert an RJ45 jack to a SUB D-09-F jack to connect the OScAR server to a DTE (e.g. a PC, see Chapter 6, “Wiring plans”), with a local handshake.

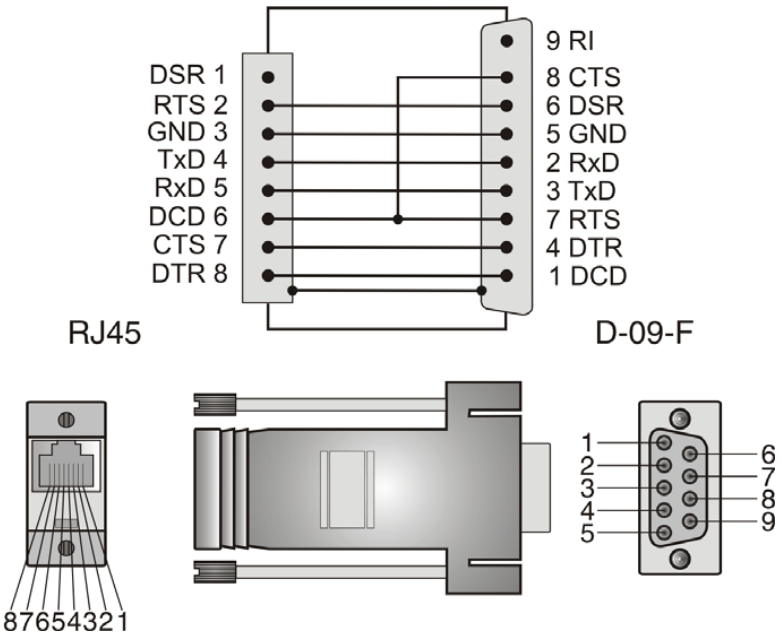


Image 4-47 DCE adapter with a local handshake

4.6.1.2 DCE-02

Order number: TNK:A-DCE-02

Function: Adapter to convert an RJ45 jack to a SUB D-09-F jack to connect the OScAR server to a DTE (e.g. a PC, see Chapter 6, “Wiring plans”), with a remote handshake

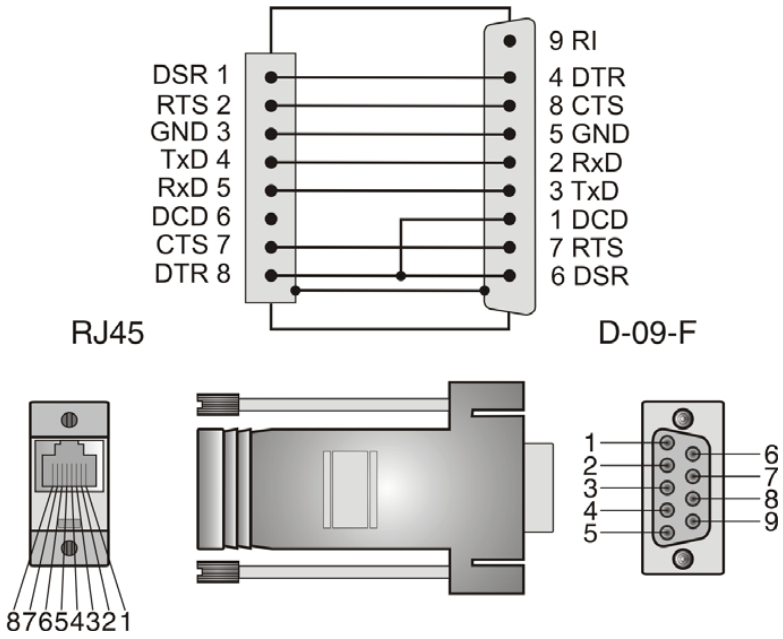


Image 4-48 DCE adapter with remote handshake

4.6.2 DTE adapter

Order number: TNK:A-DTE-0X

Function: Adapter to convert an RJ45 jack to a SUB D-09-M jack to connect the OScAR server to a DCE (for example to a modem)

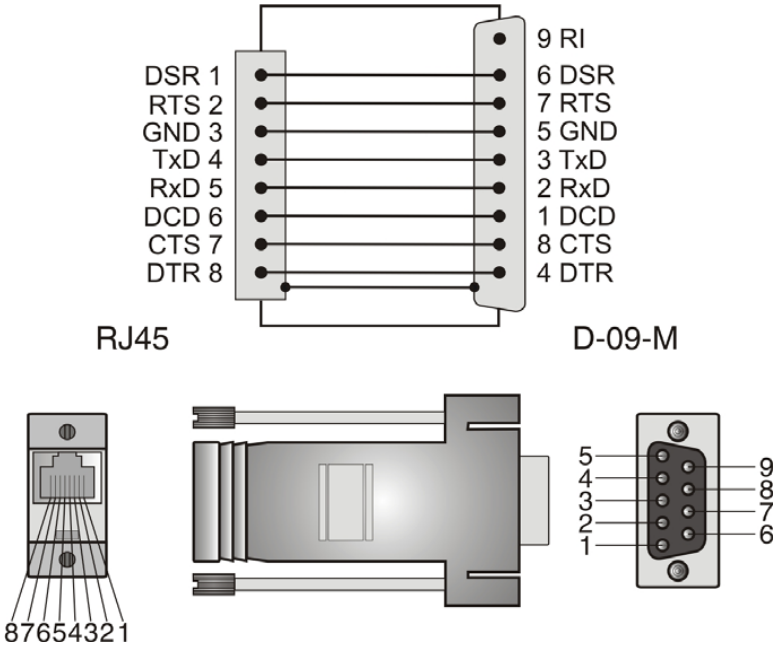


Image 4-49 DTE adapter

4.6.3 PRN adapter

Order number: TNK:A-PRN-0X

Function: Adapter to convert an RJ45 jack to a SUB D-15-M jack to connect the OScAR server to a Unify PBX (OpenScape) via the PRA-41 (see Chapter 4, “CPH-42: Controller board”, Chapter 6, “PRA-41”)

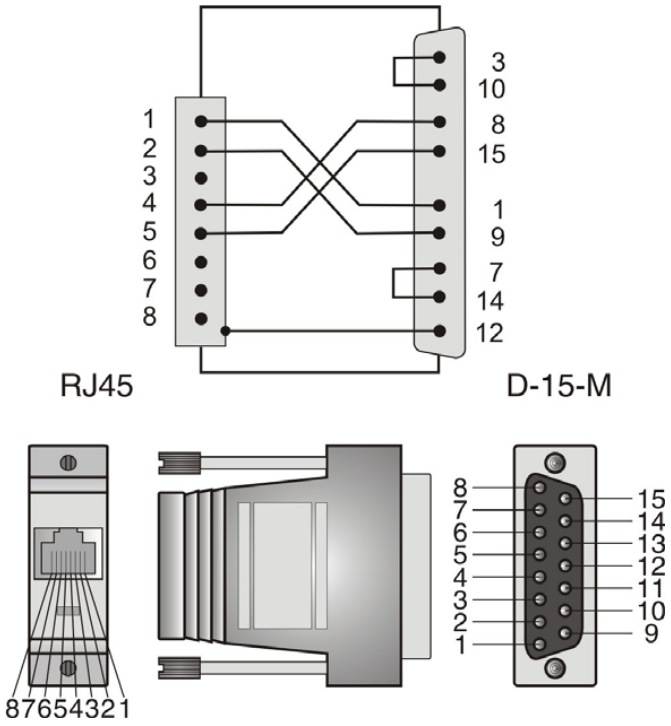


Image 4-50 PRN adapter

4.6.4 PRT adapter

Order number: TNK:A-PRT-0X

Function: Adapter to convert an RJ45 jack to a SUB D-15-M jack to connect the OScAR sever to a Unify PBX (OpenScape) via the PRA-41 (see Section 4.2.6, "CPH-42: Controller board", Section 6.2, "CPH-42"), with the help of a Unify S_{2M} cable cord 530267-Z88-A100.

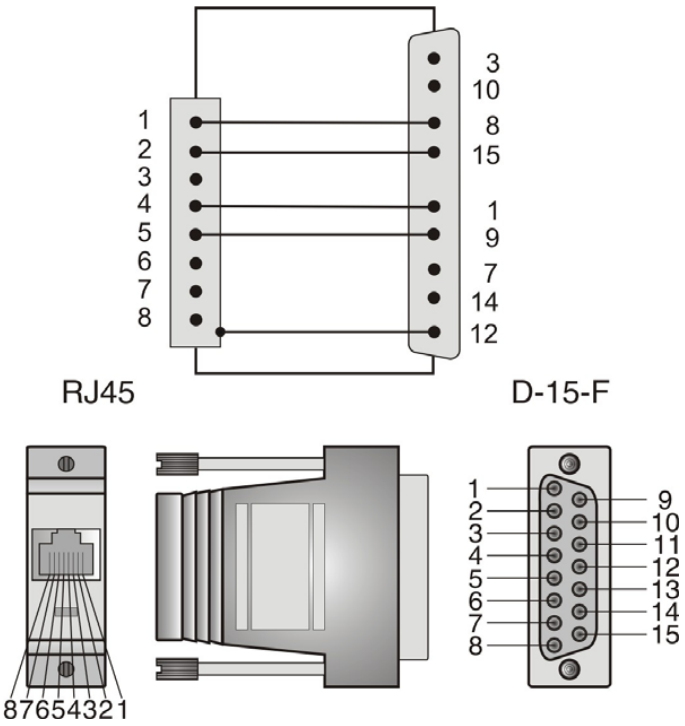


Image 4-51 PRT adapter

4.6.5 RJ45 socket

Order number: TNK:UAE/8/8/8AP

Function: Link-up external components to the OScAR server

The RJ45 socket can be used for the following functions:

- To connect a BRA-41 to a PBX (see Section 6.4, "BRA-41")
- As a line extension for serial interfaces (see: Section 6.7, "Line extension of the COM interface (CSA-01-0X)", Section 6.8, "Line extension of the Protocol printer for logging (Leiser)", Section 6.8, "Line extension of the Protocol printer for logging (Leiser)", Section 6.8, "Line extension of the Protocol printer for logging (Leiser)")

The Pin assignment of the RJ45 socket connectors results from the interface to which it is connected.

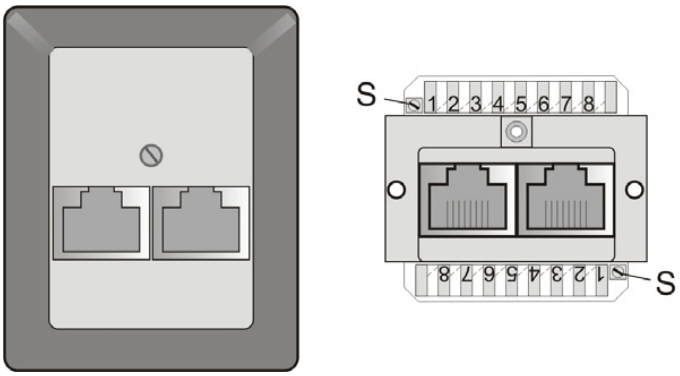


Image 4-52 The RJ-45 socket

4.6.6 Patch field

Order number: not available

Function: Link-up of external components to the OScAR server

The patch field can be used analogous to the RJ45 jack (see Section 4.6.5, "RJ45 socket").

4.6.7 Converter from RS422/RS485 to RS232

Order number: TNK:CV422-1

Function: Physical conversion of a RS422 signal to a RS232 signal. The CV422-1 is used to link-up a remote Sigmasys fire alarm system (see Section 6.11, "Line extension Sigmasys fire alarm system").

Technical details:

- Power supply 12 .. 24 VAC/DC
- Power consumption 150 mA at 12 VDC

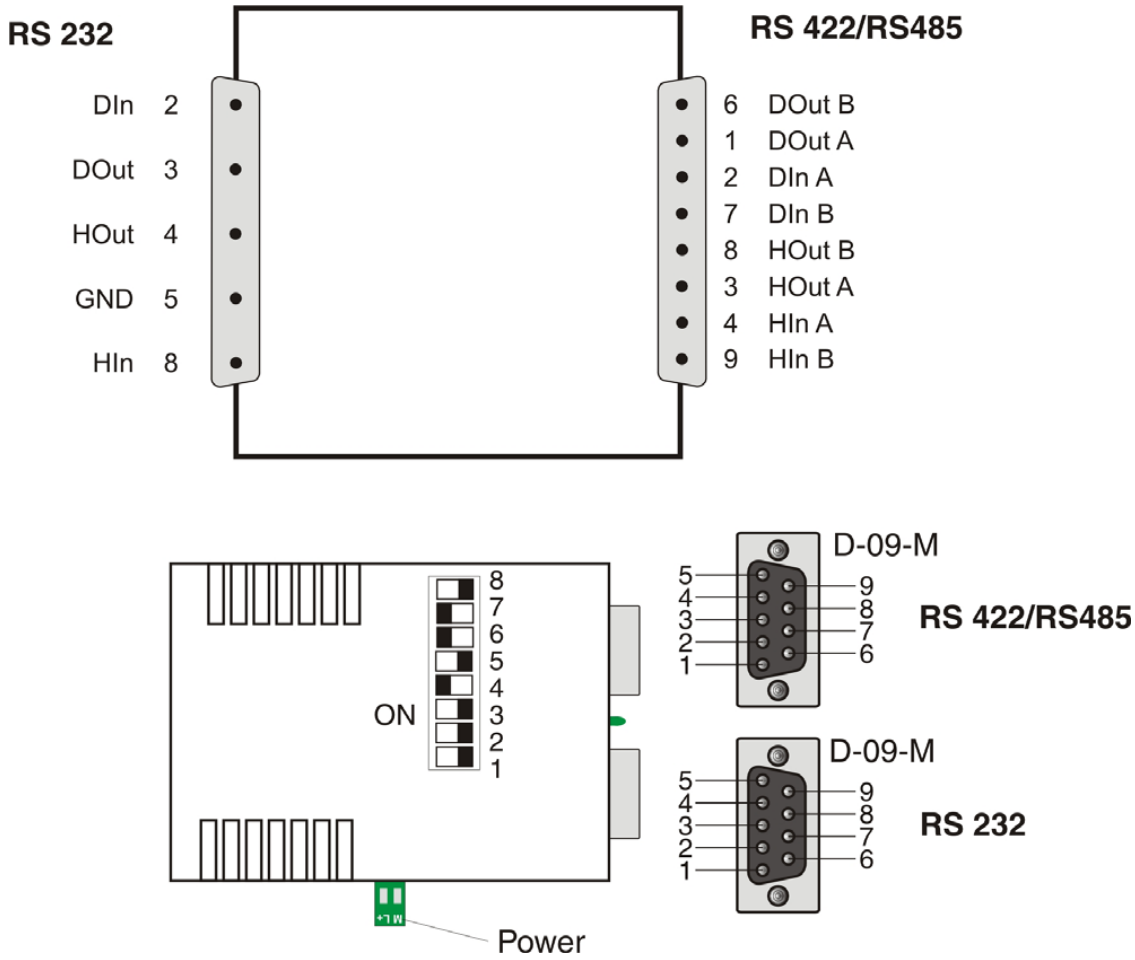


Image 4-53 Converter from RS422/RS485 to RS232

4.7 General cable cords

4.7.1 DC power cord

Order number: TNK:K-51001-0600

Function: DC connector cable for DCP-41

Technical details:

- Length 6 m

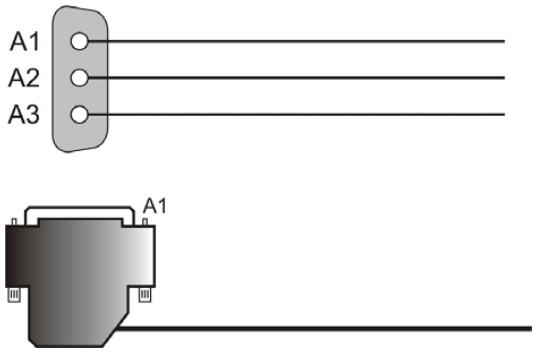


Image 4-54 DC power cord

Pin assignment

PIN	Function	Color
A1	-DC	blue
A2	Earth	green-yellow
A3	+DC	brown

Table 4-22 DC power cord - Pin assignment

4.7.2 AC connector cable

Order number: TNK:K-AC-D-0180

Function: AC connector cable for ACP-41/ACP-42

Technical details:

- Length 1.80 m
- Connection: Schuko safety plug

4.7.3 USB cable cord

Order number: TNK:K-USBAB-0300

Function: Cable cord to connect the following components:

- Printer
- DCF-77 receiver unit via DUA-41

Technical details:

- Length 3.00 m
- Connection: Plug type A/B

4.7.4 Patch cable

Order number:	TNK:K-CAT6-0300
Function:	Connector cable to connect different interfaces (LAN, S_0, S_{2M}, RS232, RS422, Profibus)

Technical details:

• Length	3.00 m
• Category:	CAT6
• PIN assignment	in keeping with EIA/TIA T568A or EIA/TIA T568B, respectively

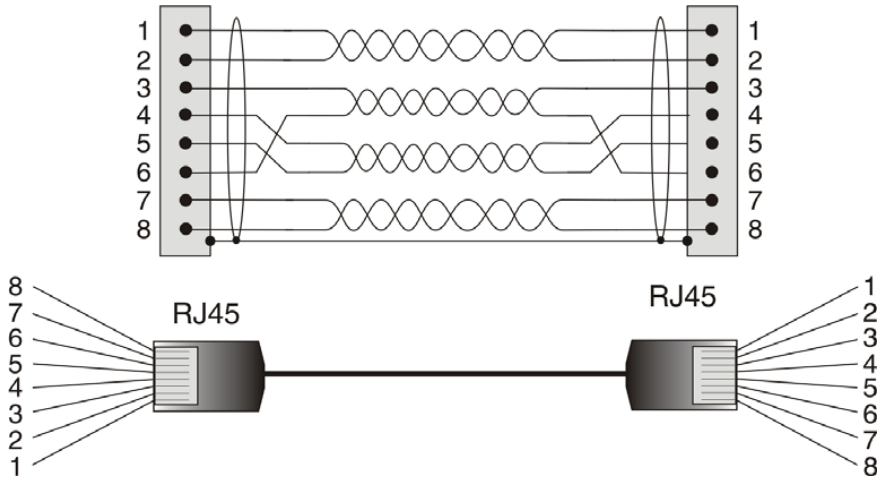


Image 4-55 Patch cable

4.7.5 Connector cable for digital inputs and outputs

Order number: TNK:K-31100-xxxx

Function: Link-up of the DIO-41 to connect digital inputs and outputs

Technical details:

- Length: 12 m - 25 m, standard length = 6 m
- Plus connection: SUB D-37-M

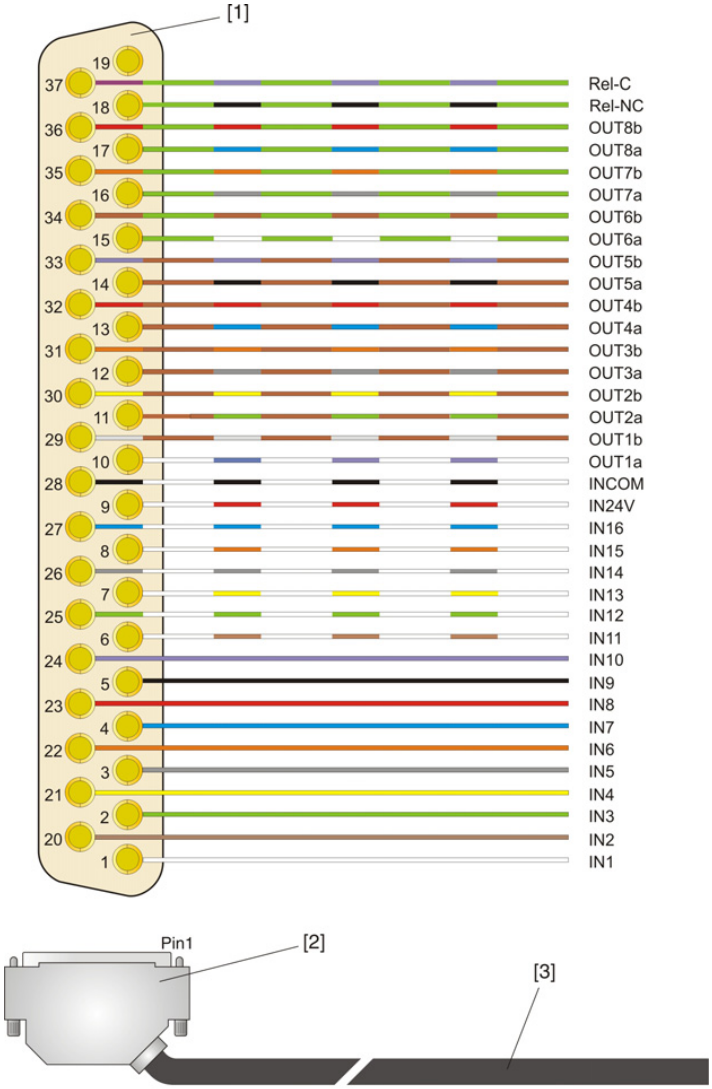


Image 4-56 DIO connector cable K-31100

Element	Description
[1]	SUB D-37-M, solder connection
[2]	Cable housing • shielded case • connect cable shield to case
[3]	Cable type: • AMW style 2464/1061 80°C 300V • UL no. E148702 • Cross section AWG26

Table 4-23 DIO connector cable K-31100

Pin assignment:

PIN	Function	Color	Description
1	IN1	white	Input 1
2	IN3	green	Input 3
3	IN5	gray	Input 5
4	IN7	blue	Input 7
5	IN9	black	Input 9
6	IN11	white brown	Input 11
7	IN13	white yellow	Input 13
8	IN15	white orange	Input 15
9	IN24V	white red	Internal feeding is possible to connect contacts directly.
10	OUT1a	white violet	Output 1a
11	OUT2a	brown green	Output 2a
12	OUT3a	brown gray	Output 3a
13	OUT4a	brown blue	Output 4a
14	OUT5a	brown black	Output 5a
15	OUT6a	green white	Output 6a
16	OUT7a	green gray	Output 7a
17	OUT8a	green blue	Output 8a
18	REL-NC	green black	Relay break contact
19	REL-NO		n. c.
20	IN2	brown	Input 2
21	IN4	yellow	Input 4
22	IN6	orange	Input 6
23	IN8	red	Input 8
24	IN10	violet	Input 10
25	IN12	white green	Input 12
26	IN14	white gray	Input 14
27	IN16	white blue	Input 16
28	INCOM	white black	Common reference point
29	OUT1b	brown white	Output 1b
30	OUT2b	brown yellow	Output 2b
31	OUT3b	brown orange	Output 3b
32	OUT4b	brown red	Output 4b
33	OUT5b	brown violet	Output 5b
34	OUT6b	green brown	Output 6b
35	OUT7b	green orange	Output 7b
36	OUT8b	green red	Output 8b
37	REL-C	green violet	Relay change-over contact

Table 4-24 DIO connector cable - PIN assignment

4.7.6 RS232 data cable

Bestellnummer: TNK:K-10401-0300

Funktion: Cabel to connect the RS232-jack of the CSA-converter (see Section 4.5.1, "CSA-Converter") including the DC-Connector for the connection of a a mains power supply (TNK:NT-CSA-0X) for the CSA-Converter.

Technische Daten:

- Länge: 3 m

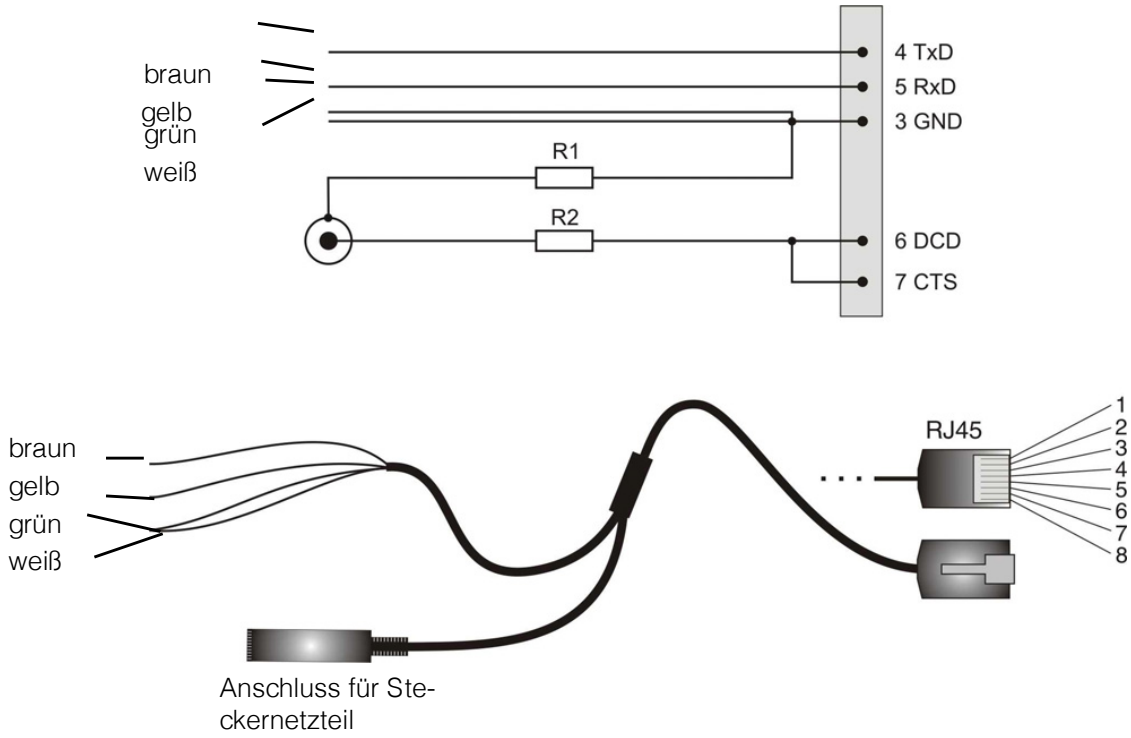


Image 4-57 RS232 data cable

4.7.7 Connector cable OScAR to CV422-1

Order number: TNK:K-10225/2-XXXX

Function: Connection of the Sigmasys fire alarm system to the CV422-1 converter (see Section 4.6.7, "Converter from RS422/RS485 to RS232") to link-up a remote Sigmasys fire alarm system (see Section 6.8, "Line extension of the Protocol printer for logging (Leiser)").

Technical details:

- Length 5.00 m
- Plug connection: SUB D-09-F

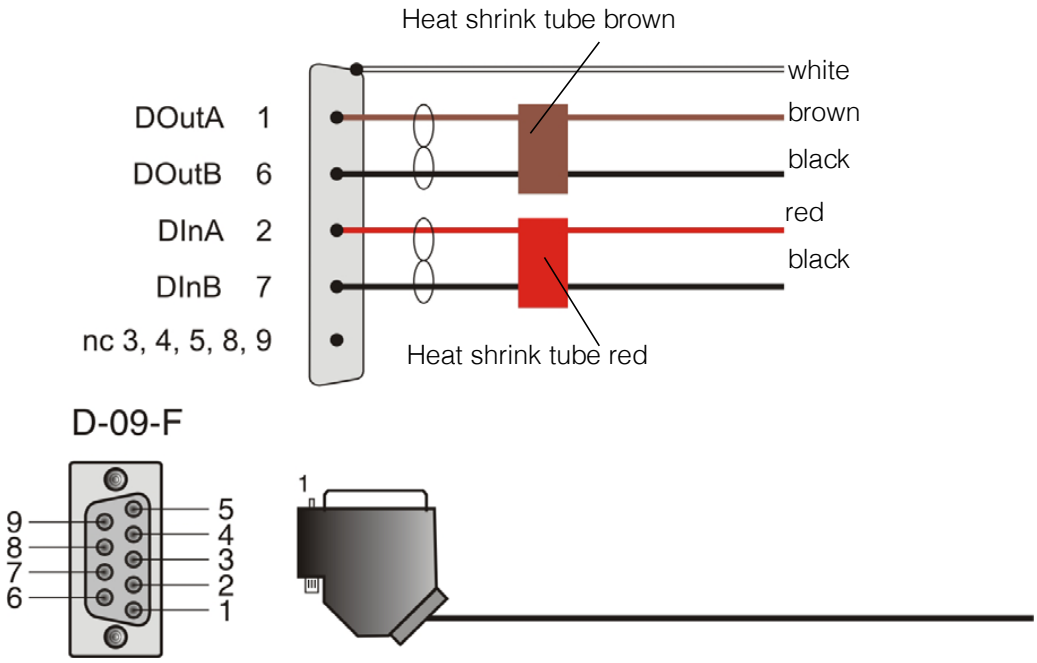


Image 4-58 Connector cable OScAR to CV442-1

4.7.8 Connector cable Sigmasys to CV422-1

Order number: TNK:K-10209/2-XXXX

Function: Connection of the OScAR server to the the CV422-1 converter (see Section 4.6.7, "Converter from RS422/RS485 to RS232") to link-up a remote Sigmasys fire alarm system (see Section 6.11, "Line extension Sigmasys fire alarm system").

Technical details:

- Length 5.00 m
- Plug connection: SUB D-09-F

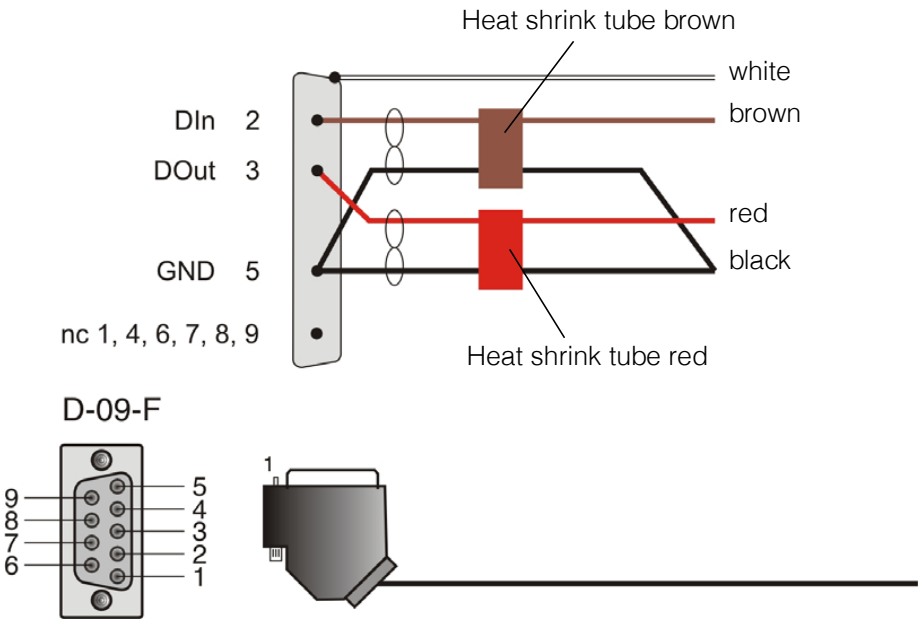


Image 4-59 Connector cable Sigmasys to CV442-1

4.8 Profibus-DP with ET 200

Whenever standalone actuators or sensors need to be connected to one or more central locations, for example input contacts, we recommend the Profibus technology (Process field bus).

Here, a two-wire data shielded and twisted data cable is needed to connect the different Profibus components.

In combination with OScAR the total length of the Profibus cable, based on a maximum data rate of 93.75 kbit/s, may not exceed 1200 meters.

Up to 22 standalone line trunk units with an overall maximum of 704 inputs can be connected to the OScAR server.

Each line trunk unit can support 32, 64, 96 or 128 inputs.

4.8.1 Input module

Order number: TNK:ET200L32DI

Technical details:

- Number of inputs 32

4.8.2 Terminal block

Order number: TNK:TB32L

4.8.3 Electric power supply

Order number: TNK:ML50.100

Technical details:

- Input voltage: U_{in} = 115/230 VAC
- Output voltage: U_{out} = 24 V DC

4.8.4 Profibus adapter

Order number: TNK:A-PFB-0X

Function: Adapter to connect the OScAR server to a Profibus

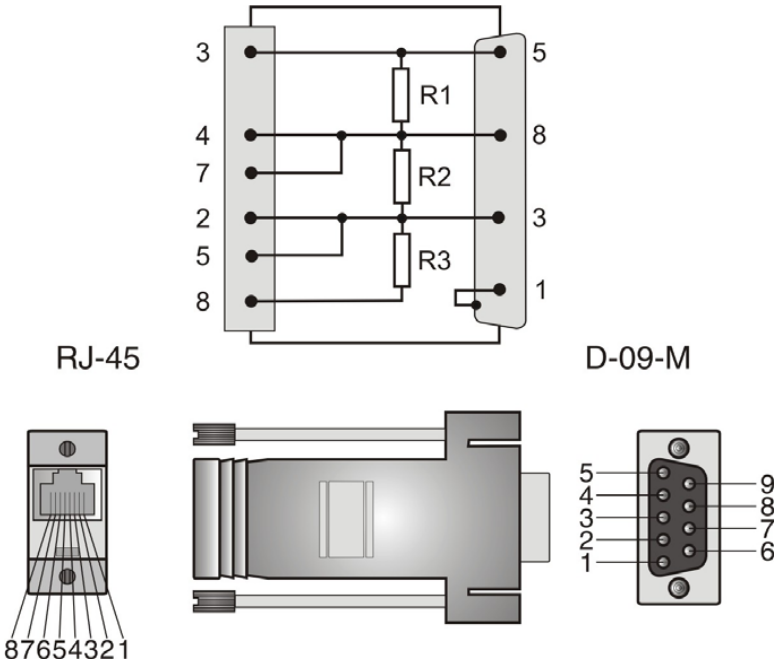


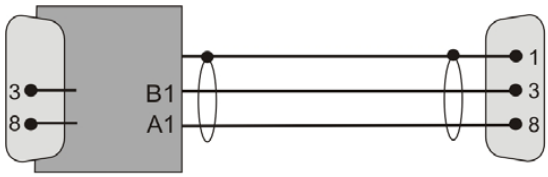
Image 4-60 Profibus adapter

4.8.5 Profibus-Server connector cable

Order number: TNK:K-10221-XXXX

Technical details:

- Standard length: 3 m
- Max. length: 990 m



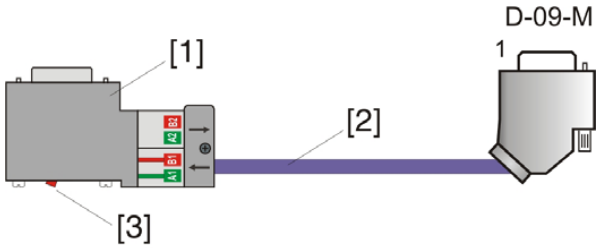


Image 4-61 Profibus-Server connector cable

Element	Description
[1]	1.Bus connector 6ES7 972-0BA50-0XA0
[2]	1.Connector cable FC 6XV1 830-0EH10
[3]	1.Bus terminator switch

Table 4-25 Profibus-Server connector cable

Pin assignment

PIN	Function	Color
1	Shield	
3	RxD/TxD-N	red
8	RxD/TxD-P	green

Table 4-26 Profibus-Server connector cable - PIN assignment

4.8.6 Profibus extension cables

Order number: TNK:K-10222-XXXX

Technical details:

- Standard length: 0.6 m
- Max. length: 990 m

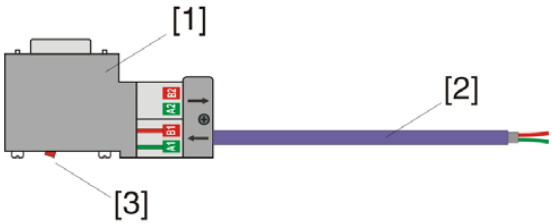


Image 4-62 Profibus extension cables

Element	Description
[1]	Bus connector 6ES7 972-0BA50-0XA0
[2]	Connector cable FC 6XV1 830-0EH10
[3]	Bus terminator switch

Table 4-27 Profibus extension cables - PIN assignment

Pin assignment

PIN	Function	Color
1	Shield	
3	RxD/TxD-N	red
8	RxD/TxD-P	green

Table 4-28 Profibus extension cables - PIN assignment

4.8.7 Installation of the bus connector

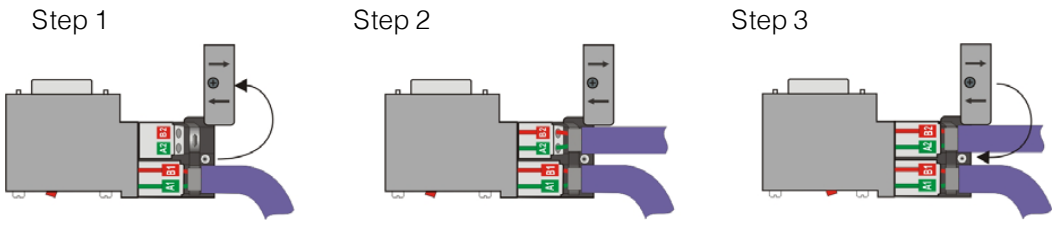


Image 4-63 Installation of the bus connector

Step by step instruction how to install the bus connector:

Step 1	Unfasten the screws of the strain relief lid or flip open the strain relief lid, and swing the lid to the side. Keep the screws for later use. Lift the translucent wire guide
Step 2	Slide the Profibus cables into the wire guide path: Green -> A2, Red -> B2 Now press the translucent wide guide back down
Step 3	Slide the strain relief lid back into its original position or close the lid with a snap, and fasten the screws. Put the switch to Off

Table 4-29 Installation of the bus connector

4.8.8 Top-hat rail for Profibus modules

Order number: TNK:HS00055

Technical details:

- Length 0.55 m

5 Hardware Operations on the OScAR Server

Overview

The first section of this chapter covers the global safety instructions that need to be followed when putting the OScAR system into operation. The sections thereafter offer step-be-step instructions for the different hardware operations on the OScAR server.

Contents

5.1 General safety instructions

Note:
Fire security and life safety features were not evaluated by UL.

Warning!
Make sure you read the installation instructions carefully before you connect the system to the electric power source.

Warning!
The OScAR server may only be put into operation by service engineers trained on OScAR.

Warning!
Make sure you follow the general safety instructions and the ESD protection measures.

Warning!
The OScAR server may not be operated in explosion-risk areas or rooms.

Warning!
The OScAR server you are working on might be connected with more than one power cord. Please make sure that ALL power cords are removed before you carry out any servicing work.

Warning!
The OScAR server may only be operated in buildings that have a short circuit or overload protection. Please always make sure that no fuse protection or interrupter with over 240 V AC, 16 A (in the US with 120 V AC, 20 A, respectively) is used on the phase conductors (all current-carrying conductors).

Warning!
After disconnecting the DC power cord, make sure that no current-carrying parts of the DC power plug come into contact with metallic objects.

Warning!
Do not perform any operations on the system during a thunderstorm; do not connect or pull any cords.

Warning!
The jacks marked "Ethernet", "USB Q", "USB B", "RS232", "COM A", "COM B", "COM C", "COM D", "Digital I/O", "IN 1", "IN 2", "N 3", "IN 4", "OUT 1", "OUT 2", "OUT 3", and "OUT 4" are safety switches with extra low voltage (Safety Extra Low Voltage, SELV). Please be careful to connect SELV switches only to other SELV switches.

Warning!
The jacks marked "E1/T1 A", "E1/T1 B", "E1/T1 C", "E1/T1 D", "S0 A", "S0 B", "S0 C", and "S0 D" are safety switches with TNV-1 circuits.

Warning!
If the system runs on AC power supply please be sure to connect the OScAR server only to schuko sockets that are fully earthed and in keeping with the legal provisions of the country in which is it used.

Warning!
If the system runs on DC power supply please be sure to connect the OScAR server only to DC voltage sources that are fully earthed and in keeping with the legal provisions of the country in which is it used.

Warning!
Make sure that the vent holes of the OScAR server are not covered.

Warning!
The OScAR server can be operated as a tabletop solution or installed in a rack in a EDP or laboratory environment, and requires a dry, clean, well-ventilated and air conditioned surrounding. The system is cooled exclusively by way of convection, i.e. there are no fans in the OScAR server. For more details on the required ambient temperature and the humidity please see Chapter 3, “Server Specification”.

Warning!
Switch fuses are safety-relevant system components and may not be exchanged or replaced by the user.

Warning!
The OScAR server may only be repaired or serviced by the producer and with the original parts. No components or parts of the boards may be replaced or exchanged by the user.

Warning!
This product may only be disposed in keeping with the pertinent statutory laws and regulations.

Note:
The OScAR server has no batteries.

Warning!
This product must be connected and grounded through a grounded power socket.

5.2 Country-specific safety instructions

5.2.1 Denmark

Vigtigt!
Lederen med grøn/gul isolation må kuntilsluttes en klemme mærket
(IEC 417, No. 5019) eller (IEC 417, No. 5017).
For tilslutning af de øvrige ledere, se medfølgende installationsvejledning".

Vigtigt!
Apparatets stikprop skal tilsluttes en stikkontakt med jord, som giver forbindelse til stikproppens jord.

5.2.2 Finland

Variotus!
Laite on liitettävä suojamaadoituskoskettimilla varustettuun pistorasiaan.

5.2.3 Sweden

Varning!
Apparaten skall anslutas till jordat uttag.

5.2.4 Norway

Advarsel!
Apparatet må tilkoples jordet stikkontakt.

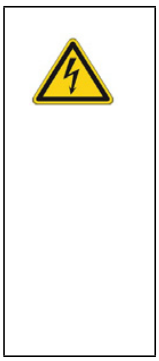
5.2.5 Ukraine

попередження!
Апарати класу I повинні бути обов'язково заземлені.

5.3 Rack installation

Warning!
If additional devices are installed in the rack (e.g. other apparatus, drawers or cables), please make sure that they do not in any way obstruct the venting of the OScAR server. In particular, the vent holes located the socket and at the top of the OScAR server housing may not be obstructed or closed.

Warning!
If extractable shelves or drawers are used, make sure their dimension and nominal load is properly calculated. Also always make sure the dimension of your rack is calculated with pulled-out drawer, to ensure that the rack will not topple if a drawer is extracted.



Warning!
To avoid accidents or injuries during the installation of the OScAR server in a rack or while carrying out servicing work, special precautionary measures must be taken to safeguard the stability of the system. The below guidelines serve to ensure your safety:

- If the OScAR server is the only installation in the rack, make sure you place the OScAR server at the bottom of the rack.
- If the OScAR server is mounted together with other installations in the rack, make sure the rack is filled from bottom to top with the heaviest installation placed at the bottom.

If the original rack comes with stabilizer accessories, all stabilizers must be mounted before the OScAR server is placed in the rack or serviced.

Warning!
The OScAR server may not be installed in a rack if this causes interference or impairs the functions of the other installations in the same rack (e.g. if it covers the vent holes of other housings or blocks the vent holes of the rack itself etc.).

Warning!
Due to the convection ventilation of the system, please make sure you always leave an opening of 1 HU both above and below the OScAR server in the rack.

The OScAR server can be installed in any standard 19-inch rack with the following technical data:

- Width of rack opening — 19”
- Depth of rack opening — min. 300 mm
- Height dimension — 5 HU
  Note: Due to the convection ventilation of the system, please make sure that you always leave an opening of 1 HU both above and below the OScAR server in the rack to ensure sufficient airing (see: Warning).

To install the OScAR server in a rack you need the rack installation kit (order number: TNK:GHG-R-01) containing the grab handles with the fastening screws, and a TORX wrench.

Attention!
Do not remove the feet of the subrack.

Step-by-step instruction how to install the OScAR server in a rack:

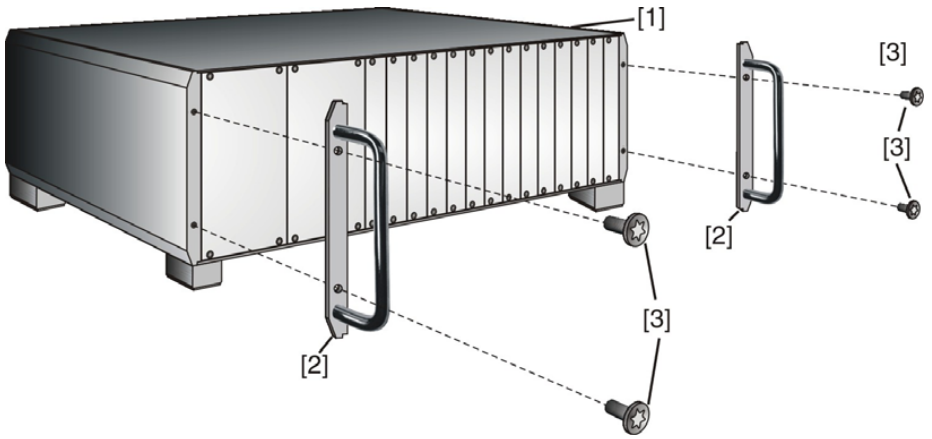
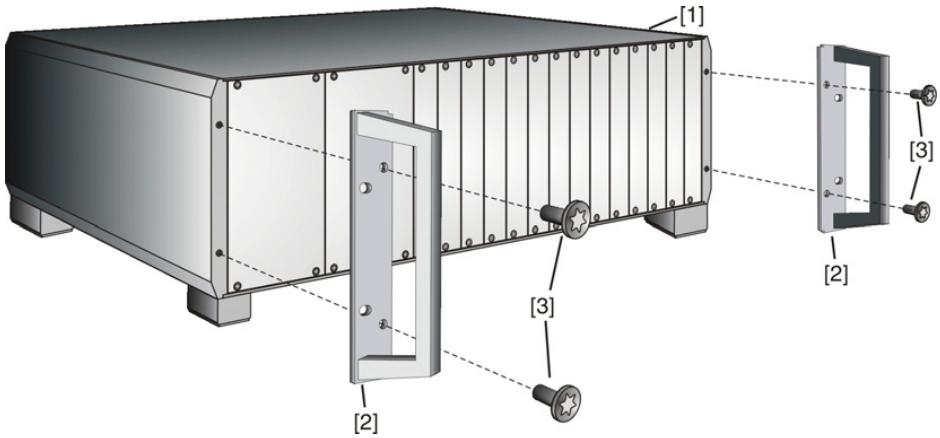
Step	Description
1.	 First, remove the grab handles of the tabletop [2] from the subrack [1] by unfastening the fastening screws [3] (use the TORX wrench included in the delivery).
2.	 Now fasten the grab handles for the rack case [2] with the fastening screws [3] at the subrack [1]

Table 5-1 Step-by-step instruction how to install the OScAR server in a rack

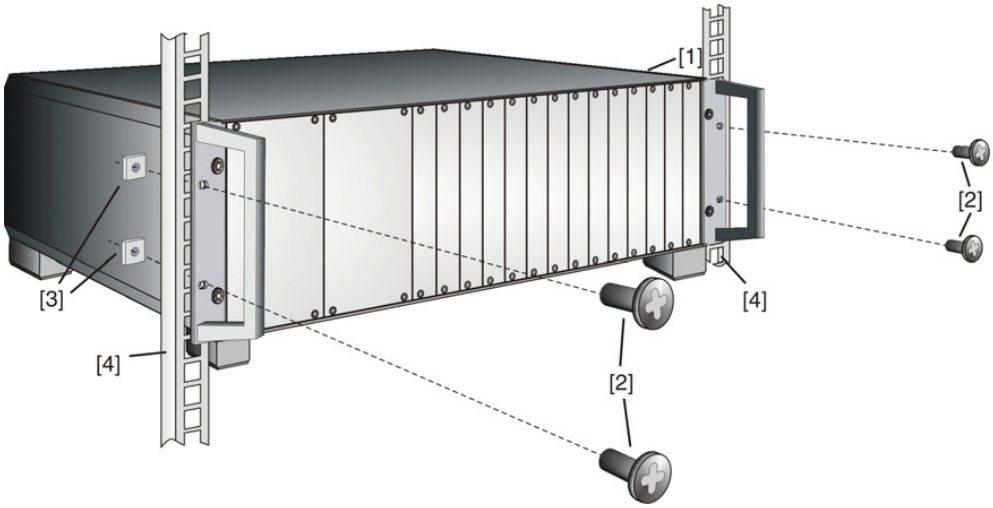
Step	Description
3.	 Now attach OScAR server (subrack with grab handles) [1] to the rack [4] with the fastening screws [2] and cage nuts [3]. Note: The fastening screws[2], cage nuts [3] and Rack [4] are not included in the delivery.

Table 5-1 Step-by-step instruction how to install the OScAR server in a rack

5.4 Convert to tabletop solution

To convert the OScAR server to a tabletop solution, please use the retrofit kit (order number: TNK:GHG-S-01) containing the grab handles, fastening screws and a TORX wrench.

To convert the OScAR server to a tabletop solution, please follow the step-by-step instructions of section Section 5.3, "Rack installation" (how to install the OScAR server in a rack) in the reverse order.

5.5 Install boards

Warning!
Make sure ALL power cords (ACP-41/ACP-42 and DCP-41) are disconnected before you carry out any service work on the OScAR server.

Warning!
Make sure you pull all connections to the bus boards you want to remove.

Attention!
Bus boards can be mounted and removed during the ongoing operation of the system without the risk of causing defects. However, to safeguard the proper operation of the system after a modification you need to reset the system first.

The boards (power supply boards, bus boards) may not be installed arbitrarily.

For details on the rules governing the configurations that are supported, please refer to the sections:

- Configuration of PSUs: Section 4.2.1.1, "Power supply boards"
- Configuration of bus boards: Section 4.2.1.2, "Bus boards"

If a different board is already inserted in one of the slots in question, please make sure you start by removing it by following the instructions in Section 5.6, "Remove boards".

Step-by-step instruction how to install a board:

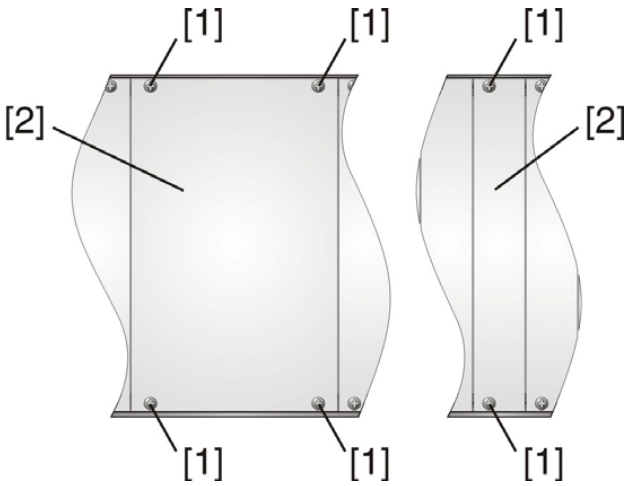
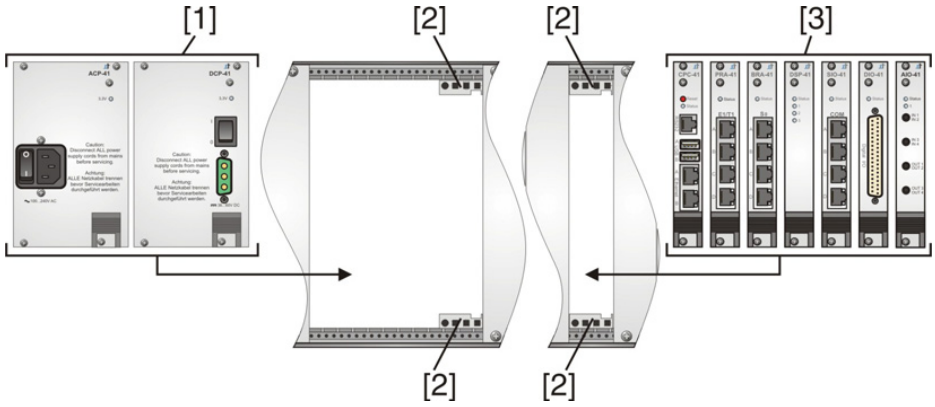
Step	Description
1.	Switch the OScAR server to OFF
2.	• Disconnect all power cords (see: Warning) • Cut all connections to the board you want to insert (see: Warning)
3.	 Remove the empty slot cover [2] from the slot: First remove the fastening screws [1] Then remove the empty slot cover [2]
4.	 Plug the PSU [1] or bus board [3] in the vacant slot: • Insert the board into the guide bar [2]

Table 5-2 Step-by-step instruction how to install a board

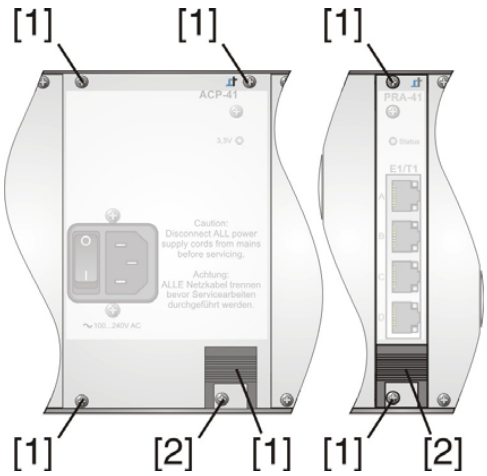
Step	Description
5.	 Attach the board: • Press safety lever [2] up until it locks • Pull the fastening screws [1] tight
6.	If needed, connect external connections to the mounted bus board
7.	Connect all power cables, including to the newly inserted PSU if needed
8.	Finally, switch the OScAR server back ON

Table 5-2 Step-by-step instruction how to install a board

5.6 Remove boards

Warning!
Make sure ALL power cords (ACP-41/ACP-42 and DCP-41) are disconnected before you carry out any service work on the OScAR server.

Warning!
Make sure you pull all the connections to the bus boards you want to remove.

Warning!
Please be sure to close all subrack slots that are not filled with boards with empty slot covers.

Step-by-step instruction how to remove a board:

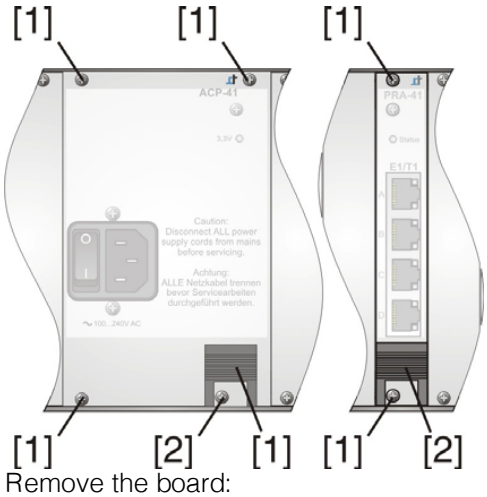
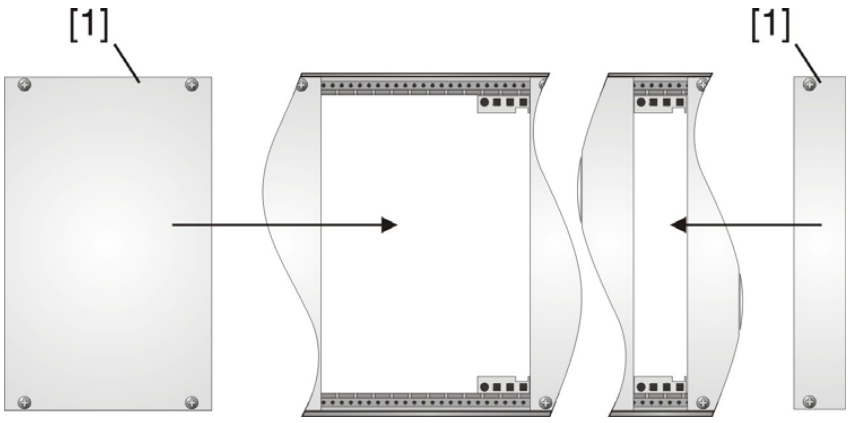
Step	Description
1.	Switch the OScAR server to OFF
2.	• If you want to remove a PSU, make sure all power cords are disconnected (see Warning) • Cut all connections to the bus board you want to remove (see: Warning)
3.	 Remove the board: • Remove the fastening screws [1] • Press down the safety lever [2] to unlock the board • Now remove the board from the slot
4.	 After the PSU or bus board has been removed, be sure to close the vacant slot with an empty slot cover: • Place the empty slot cover [1] over the vacant slot

Table 5-3 Step-by-step instruction how to remove a board

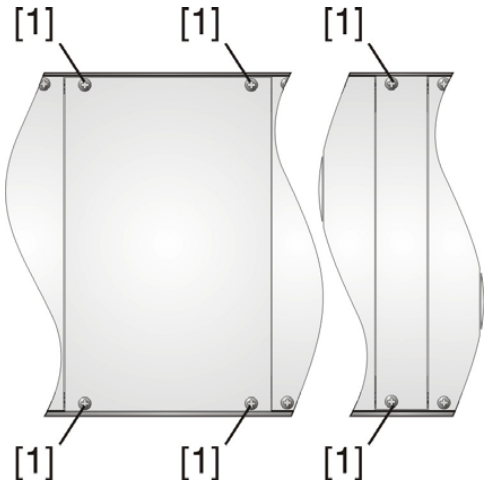
Step	Description
5.	 Attach the empty slot cover: • Pull the fastening screws [1] tight
6.	Now connect all power cords again
7.	Finally, switch the OScAR server back ON

Table 5-3 Step-by-step instruction how to remove a board

5.7 Insert and Remove the CompactFlash card

Normally the CompactFlash card does not need to be replaced unless there is a defect on the card itself.

insert and remove a CompactFlash card step-by-step:

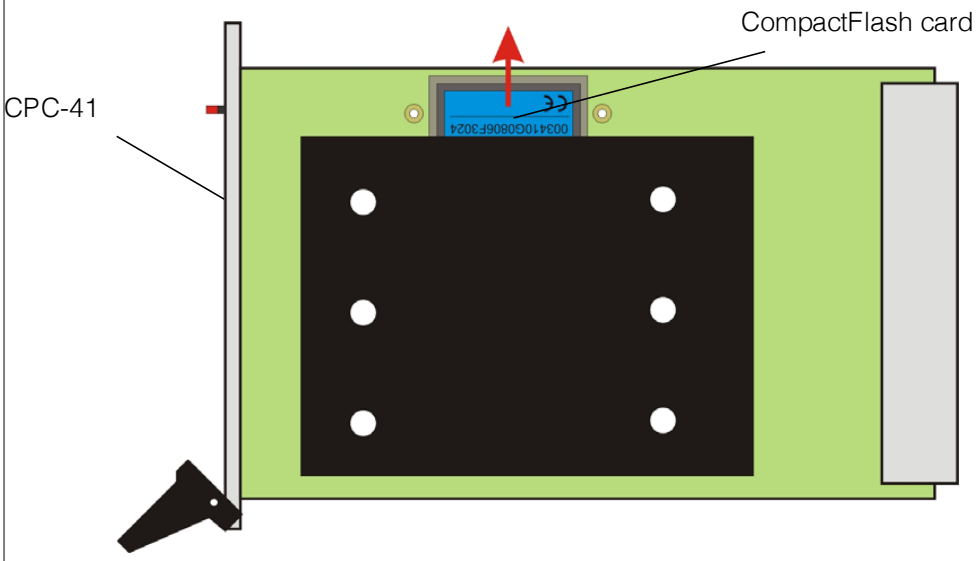
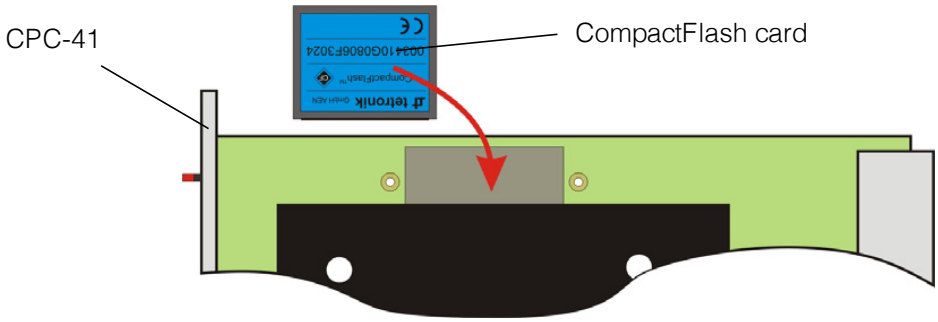
Step	Description
1.	First remove the bus board CPC-41: ➤ see Section 5.6, "Remove boards"
2.	 Now pull the CompactFlash card you want to remove from the CPC-41
3.	 Next insert the new CompactFlash card: • The contacts must be face down • Be careful that the narrow lead on the side of the card points to the left • Be careful that the wide lead on the side of the card points to the right
4.	Now install the bus board CPC-41 again: see Section 5.5, "Install boards"

Table 5-4 Step-by-step instruction how to insert and remove a CompactFlash card

5.8 Insert and Remove the Micro-SD card

Changing the Micro SD card is generally only necessary if the card is defective.

insert and remove a MicroSD card step-by-step:

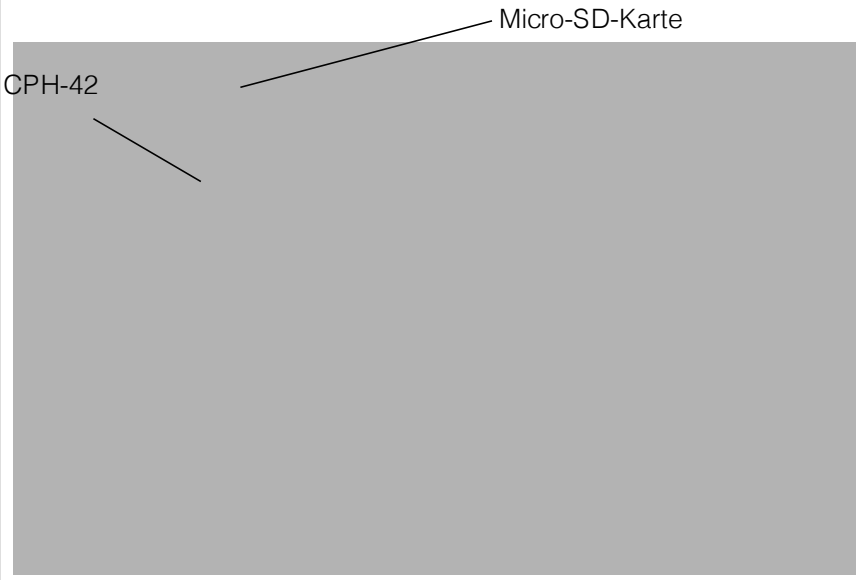
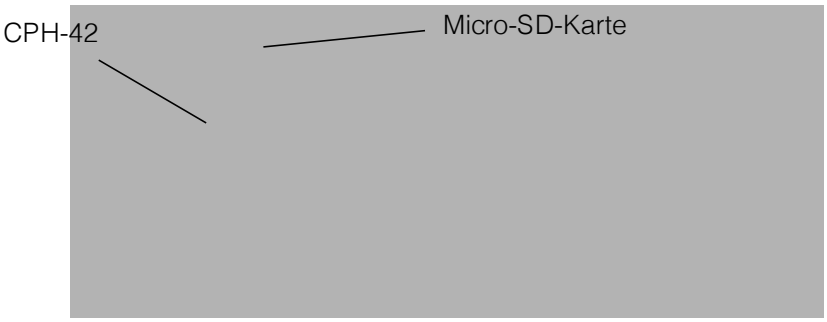
Schritt	Beschreibung
1.	Remove the bus module CPH-42: ➤ see Section 5.6, "Remove boards"
2.	 Press the Micro-SD card for the card snaps out and can be removed from the CPH-42.
3.	 Insert the Micro SD card: • The contacts must point downwards. • Short press on the Misco SD card so that it clicks into place
4.	Insert the bus module CPH-42: ➤ see Section 5.5, "Install boards".

Table 5-5 insert and remove a MicroSD card step-by-step

5.9 Install a bus expansion

Warning!
Make sure ALL power cords (ACP-41/ACP-42 and DCP-41) are disconnected before you carry out any service work on the OScAR server.

Warning!
Make sure ALL connections to ALL bus boards are pulled (CPC-41, PRA-41, BRA-41, SIO-41, DIO-41 and AIO-41).

Attention!
To install the bus expansion, all bus- and power supply boards must be removed from the subrack.

The bus expansion adds another 5 slots to the standard bus that consists of 7 slots.

Step-by-step instruction how to install a bus expansion:

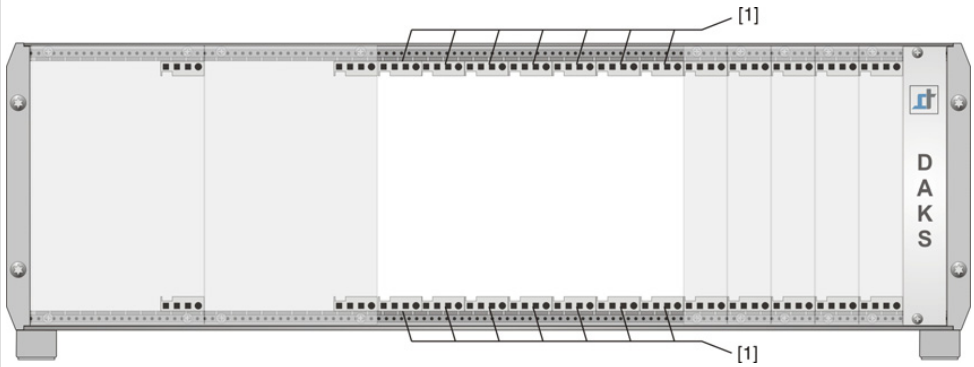
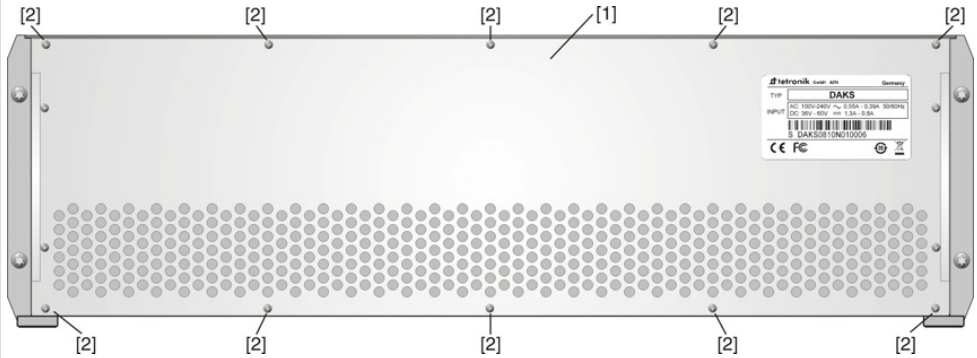
Step	Description
1.	Switch the OScAR server to OFF
2.	Make sure all power cords of the OScAR server are pulled (see Warning)
3.	Make sure all connections to the other boards are cut (see above Warning)
4.	Now remove all bus boards and PSUs from the subrack (see Section 5.6, "Remove boards",also see above Warning)
5.	 Attention! Attach the 14 guide bars [1] for the bus boards. Make sure that the grounding springs face to the front side.
6.	 Remove the back plate [1]: • Remove the fastening screws [2] • Lift off the back plate

Table 5-6 Step-by-step instruction how to install a bus expansion

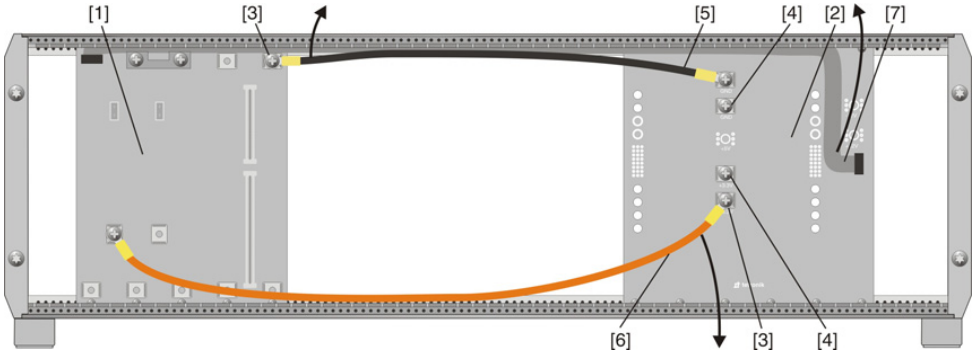
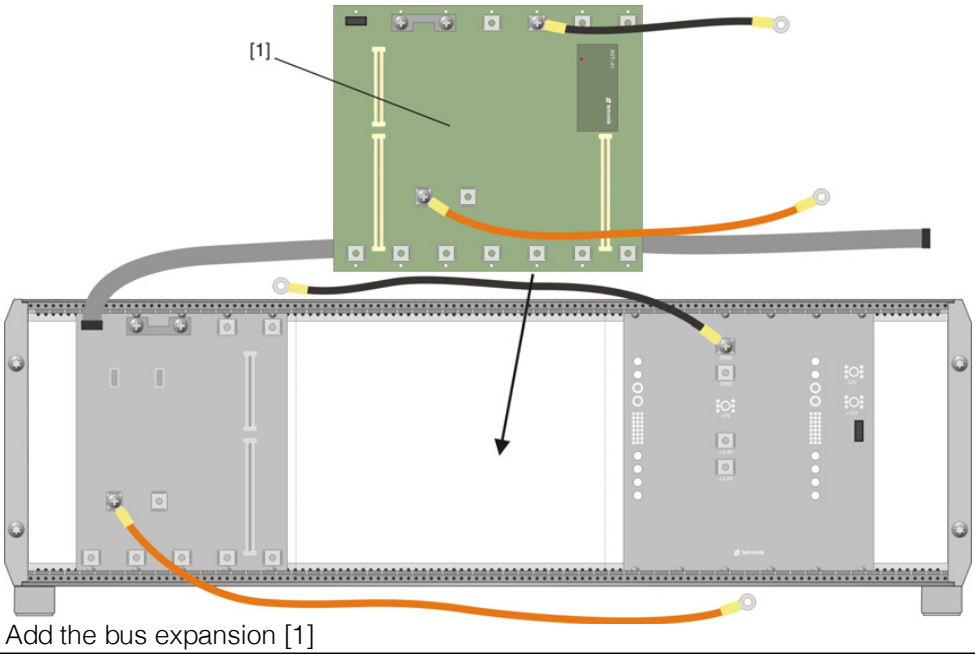
Step	Description
7.	You will see the standard bus [1] for 5 slots and the circuit board for the power supply [2].  Disconnect the connecting wires: • Remove the fastening screws [3] from the relevant printed circuit board to disconnect the black [5] and orange [6] power supply lines • Remove the fastening screws [4] • Disconnect the signal transmission line [7] Attention! Put the fastening screws and the wafers aside for later use in Step 11 when you will to re-connect the power supply lines.
8.	 Add the bus expansion [1]

Table 5-6 Step-by-step instruction how to install a bus expansion

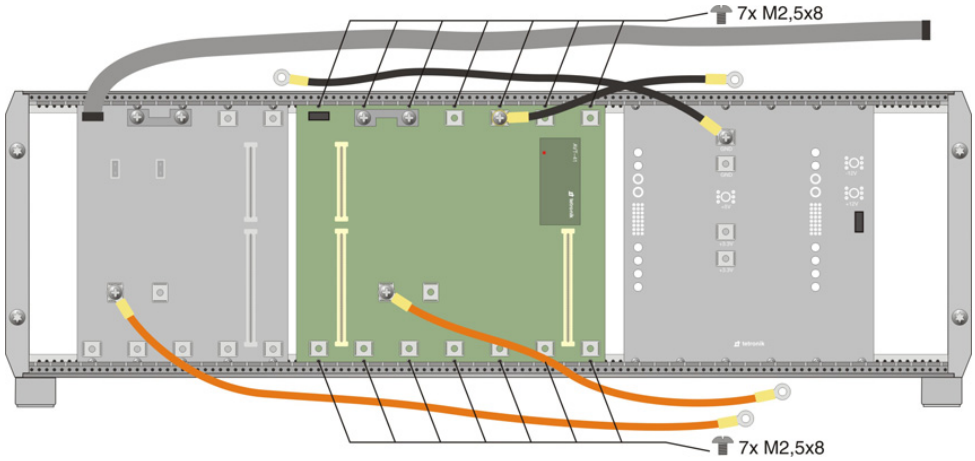
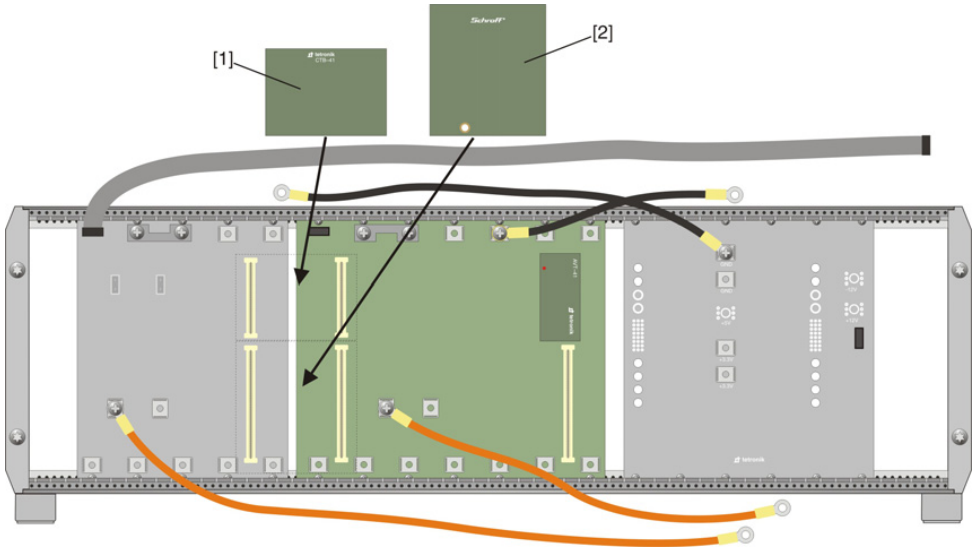
Step	Description
9.	 Attention! Attach and loosely connect the 14 fastening screws M2.5x8 for alignment. Do not yet pull tight the fastening screws (see Step 10)!
10.	 Plug in the bus components: • H.110 Bridge [1] • cPCI-Bridge [2] Attention! o align the bus expansion insert one bus board (any) each in slot 5 and slot 12. Insert and pull tight the 14 fastening screws M2.5x8. Now remove the bus boards from slots 5 and 12 again.

Table 5-6 Step-by-step instruction how to install a bus expansion

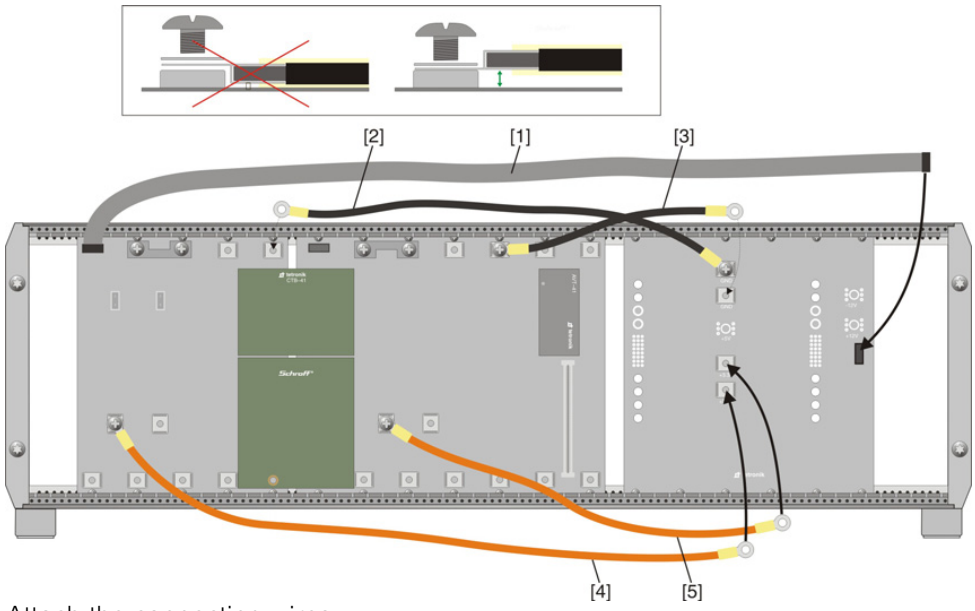
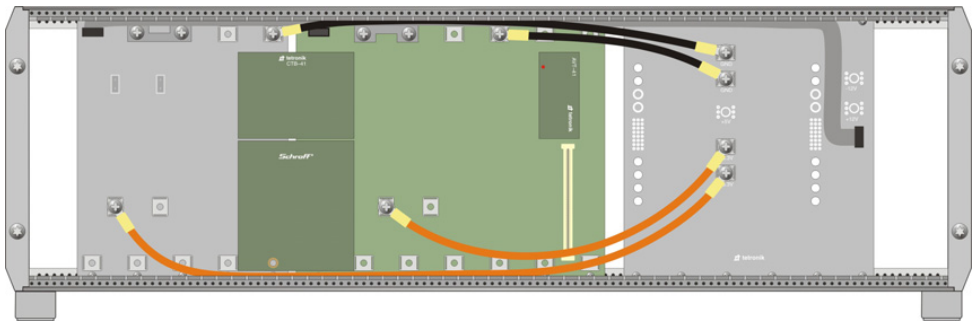
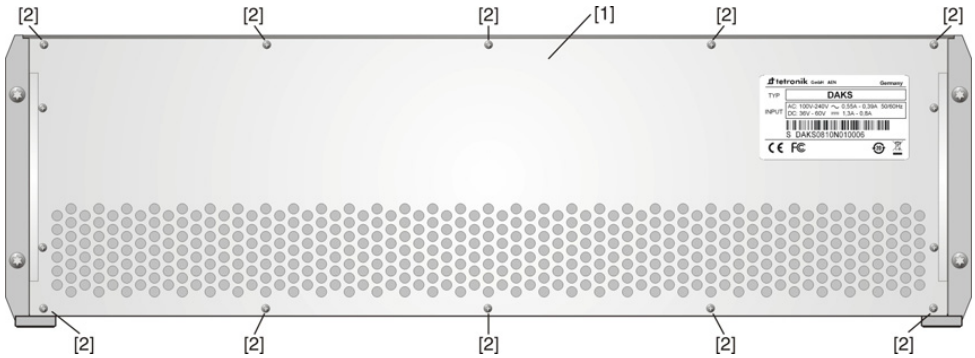
Step	Description
11.	 Attach the connecting wires: • Mount the signal transmission line • Attach the power supply lines black [2][3] and orange [4][5] using the fastening screws and wafers (see Step 7)
12.	The bus expansion with 7 extra slots is now installed  Place the back plate back onto the housing to close the housing
13.	 To attach the back plate [1] pull tight the fastening screws [2]

Table 5-6 Step-by-step instruction how to install a bus expansion

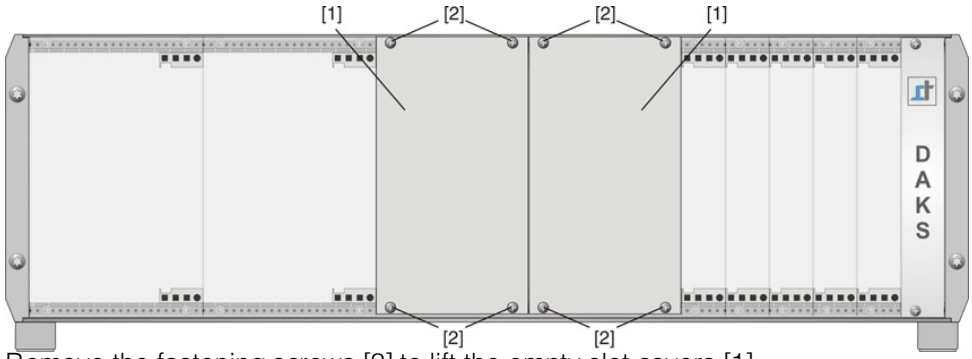
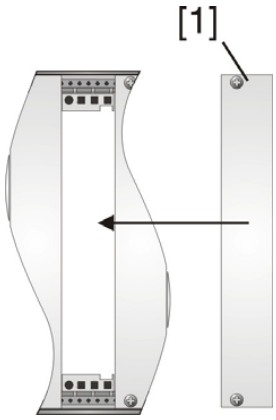
Step	Description
14.	 Remove the fastening screws [2] to lift the empty slot covers [1]
15.	Now plug in all bus boards and PSUs in the subrack: see Section 5.5, "Install boards"
16.	 Close all vacant slots with empty slot covers [1] (7 slot covers included in the delivery)
17.	Link up all external connections to the bus boards
18.	Now connect all power cords again
19.	Finally, switch the OScAR server back ON

Table 5-6 Step-by-step instruction how to install a bus expansion

6 Wiring plans

Overview

This chapter covers the ways in which the boards of the OScAR server can be connected to the various external components.

Contents

6.1 CPC-41

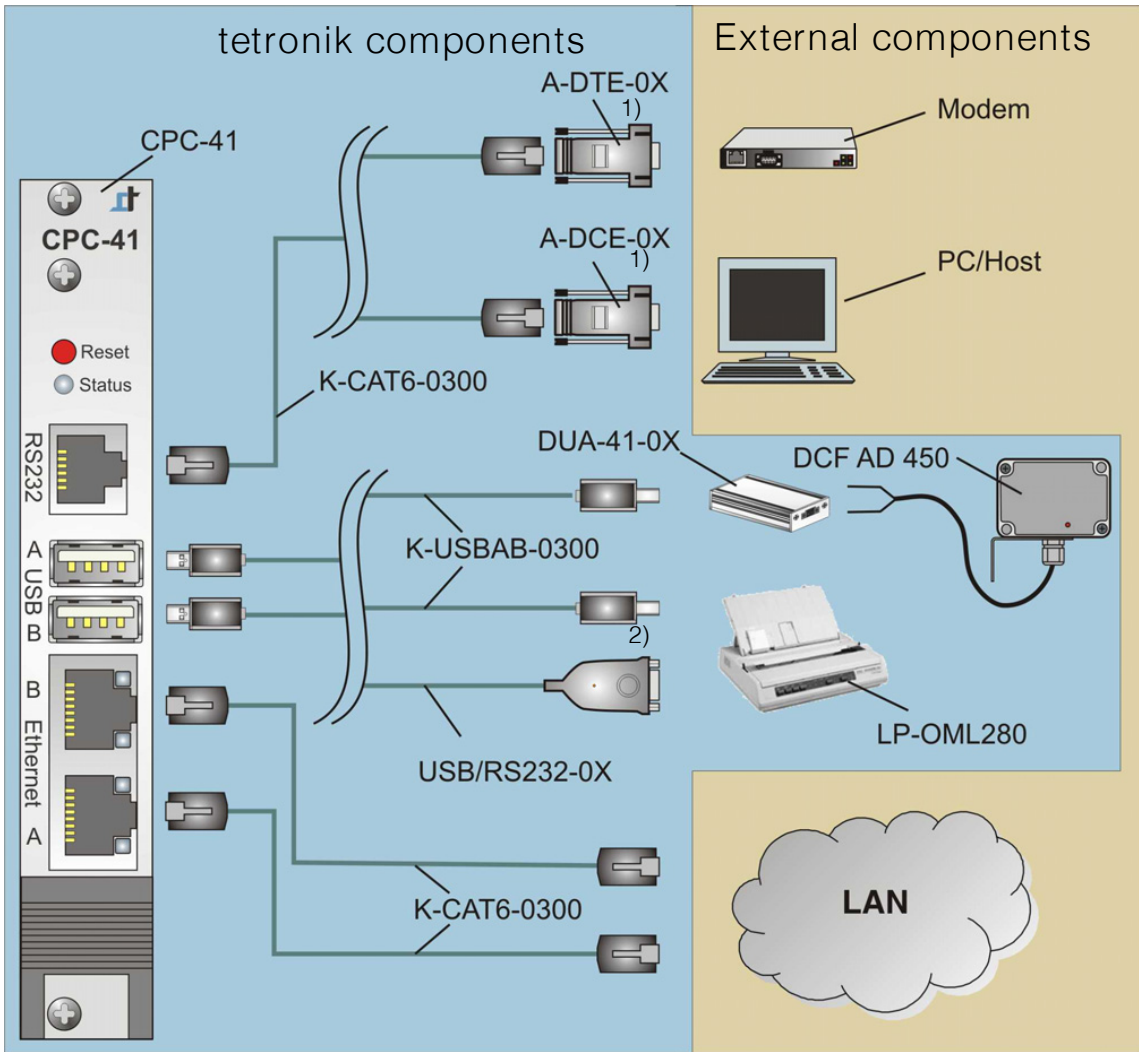


Image 6-1 Wiring plan: CPC-41

Note:

1) For details on the extension of serial connections for the host and modem see
Section 6.7, "Line extension of the COM interface (CSA-01-0X)"
Section 6.8, "Das folgende Bild zeigt den Verdrahtungsplan der Leitungsverlängerung des Protokolldruckers mit der CPH-42 Baugruppe:" and
Section 6.10, "Line extension via E-Link"

2) For details on the extension of serial connections for the logging printer see
Section 6.8, "Line extension of the Protocol printer for logging (Leiser)" and
Section 6.10, "Line extension via E-Link"

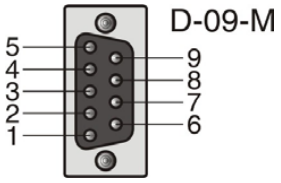
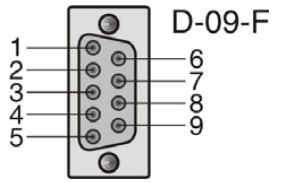
Element	Description
CPC-41	Control computer
K-CAT6-0300	Standard patch cable
K-USBAB-0300	USB connector cable
Modem	Data Communication Equipment (short DCE)/modem e.g. telephone modem, E-Link
A-DTE-0X	Adapter to connect the CPC-41 to a DCE device  Pin 1: DCD Pin 2: RxD Pin 3: TxD Pin 4: DTR Pin 5: GND Pin 6: DSR Pin 7: RTS Pin 8: CTS Pin 9: RI
PC/Host	Data Terminal Equipment (DTE)
A-DCE-0X	Adapter to connect the CPC-41 to a DTE device  Pin 1: DCD Pin 2: RxD Pin 3: TxD Pin 4: DTR Pin 5: GND Pin 6: DSR Pin 7: RTS Pin 8: CTS Pin 9: RI
USB/RS232-0X	Adapter to convert from USB to RS232
LP-OML280	Protocol printer for logging
DUA-41-0X	Adapter to connect a DCF-77 Radio receiver
DCF AD 450	DCF-77 radio receiver

Table 6-1 Wiring plan: CPC-41

6.2 CPH-42

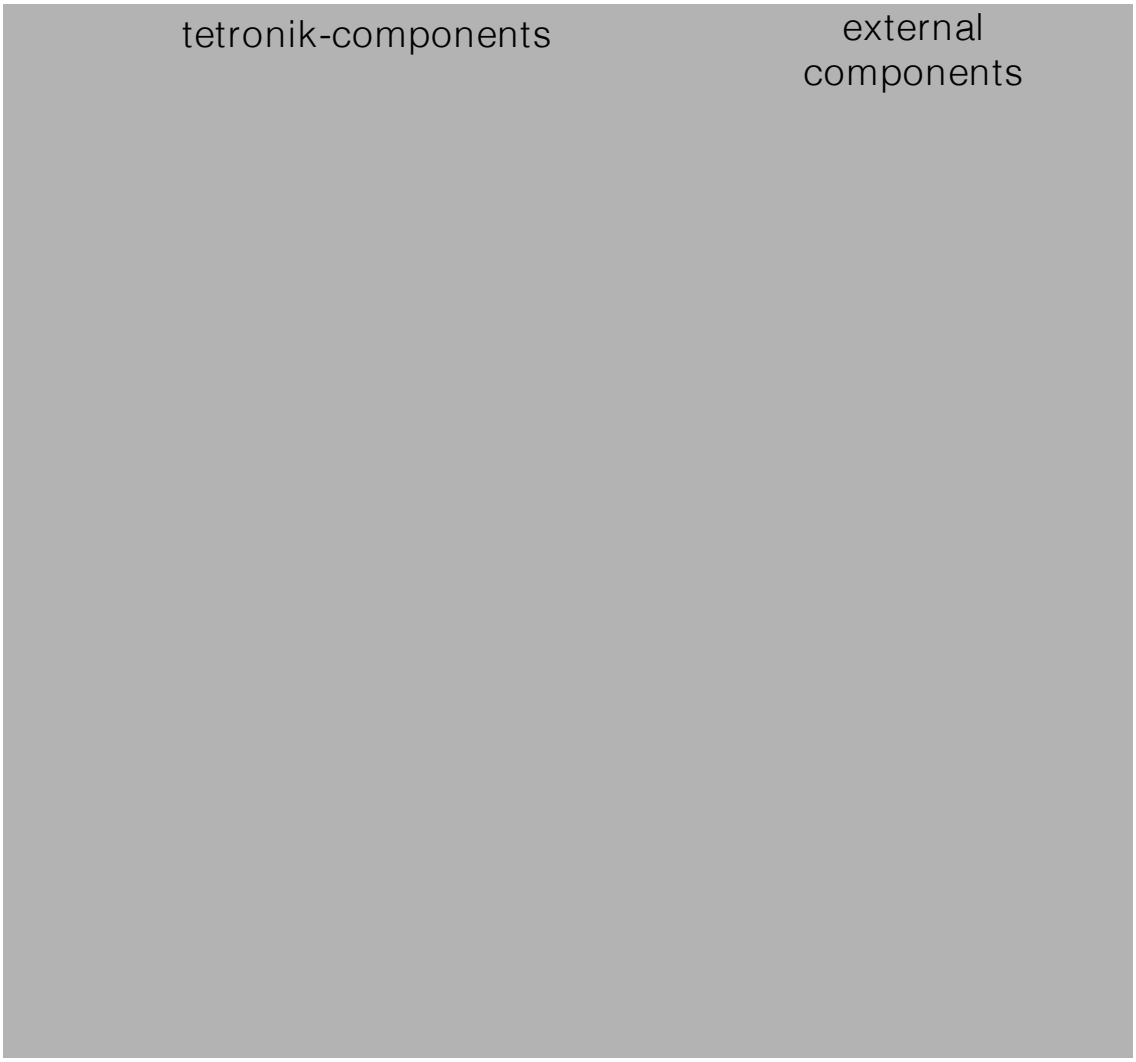


Image 6-2 wiring plan: CPH-42

Extension of the serial connections for protocol printers see:
Section 6.8, "Line extension of the Protocol printer for logging (Leiser)"
Section 6.10, "Line extension via E-Link"

Element	Beschreibung
CPH-42	Steuerrechner
K-CAT6-0300	Standard-Patchkabel
K-USBAB-0300	USB-Anschlusskabel
USB-Host	Data Terminal Equipment (DTE)
USB/RS232-0X	Adapter von USB nach RS232
LP-OML280	Protokolldrucker
DUA-41-0X	Adapter zum Anschluss eines DCF-77-Funkempfänger
DCF AD 450	DCF-77-Funkempfänger

Tabelle 6-2 Verdrahtungsplan: CPH-42

6.3 PRA-41

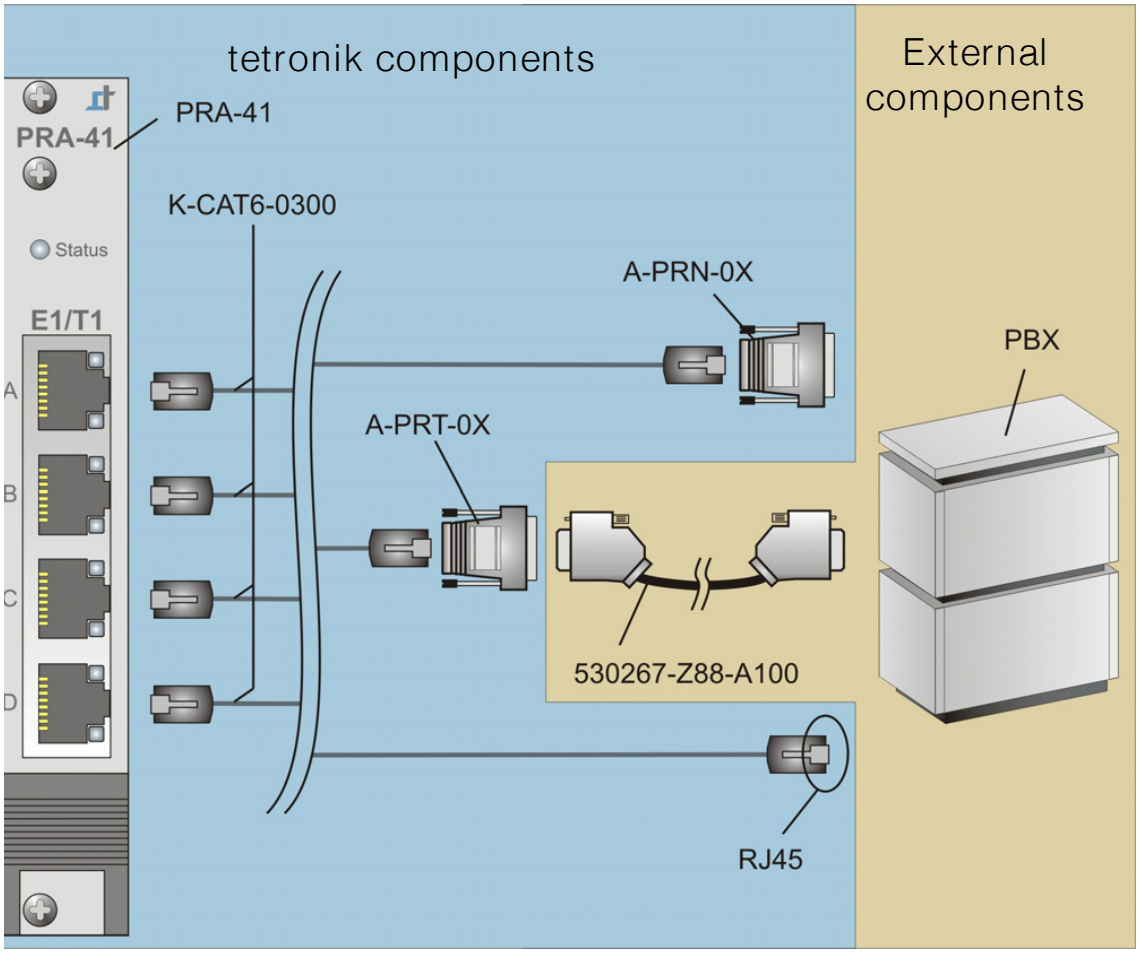


Image 6-3 Wiring plan: PRA-41

Warning!
For ISDN connections install connection cables with a diameter of at least 0.4 mm (AWG26 or superior).

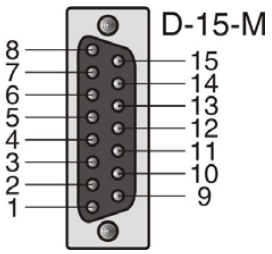
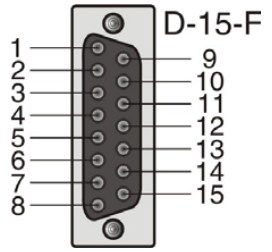
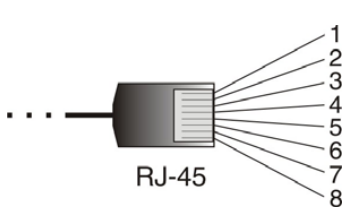
Element	Description
PRA-41	Primary-Rate Adapter
K-CAT6-0300	Standard patch cable
530267-Z88-A100	Unify S_{2M} cable 530267-Z88-A100 to network several PBX systems
PBX	Private branch exchange
A-PRN-0X	Adapter to enable direct connectivity of the PRA-41 to a Unify PBX (OpenScape)  Pin 8: Rx+ Pin 15: Rx- Pin 1: Tx+ Pin 9: Tx- Pin 3: connected to Pin 10 Pin 7: connected to Pin 14 Pin 2, 4-6, 11-13: n. c.
A-PRT-0X	Adapter to enable connectivity of the PRA-41 to a Unify PBX (OpenScape) via a Unify S_{2M} cable 530267-Z88-A100  Pin 8: Tx+ Pin 15: Tx- Pin 1: Rx+ Pin 9: Rx- Pin 2-7, 10, 11-14: n. c.
RJ45	Pin assignment of the patch cable plug to connect the PRA-41 to a PBX (any).  Pin 1: Rx+ Pin 2: Rx- Pin 4: Tx+ Pin 5: Tx- Pin 3, 6-8: n. c

Table 6-3 Wiring plan: PRA-41

6.4 BRA-41

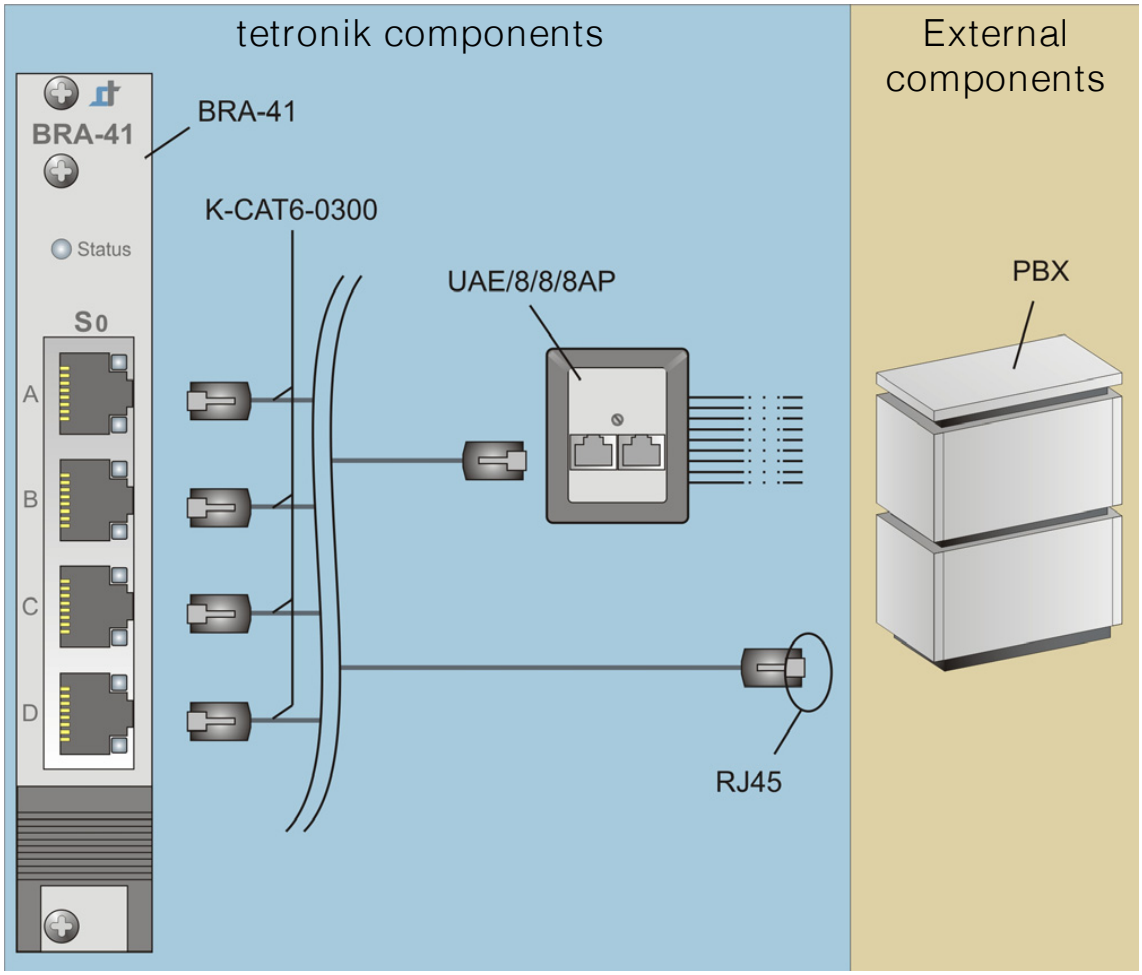


Image 6-4 Wiring plan: BRA-41

Warning!
For ISDN connections install connection cables with a diameter of at least 0.4 mm (AWG26 or superior).

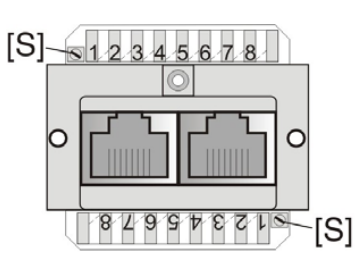
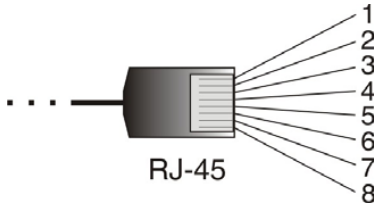
Element	Description
PRA-41	Primary-Rate Adapter
K-CAT6-0300	Standard patch cable
PBX	Private branch exchange
UAE/8/8/8AP	Universal jack for S_0 to connect the BRA-41 to a PBX  Pin 4: Rx- Pin 5: Rx+ Pin 3: Tx+ Pin 6: Tx- Pin 1,2 7, 8: n. c [S] Shield
RJ45	Pin assignment of the patch cable plug to connect the PRA-41 to a PBX (any).  Pin 4: Rx- Pin 5: Rx+ Pin 3: Tx+ Pin 6: Tx- Pin 1,2 7, 8: n. c

Table 6-4 Wiring plan: BRA-41

6.5 SIO-41

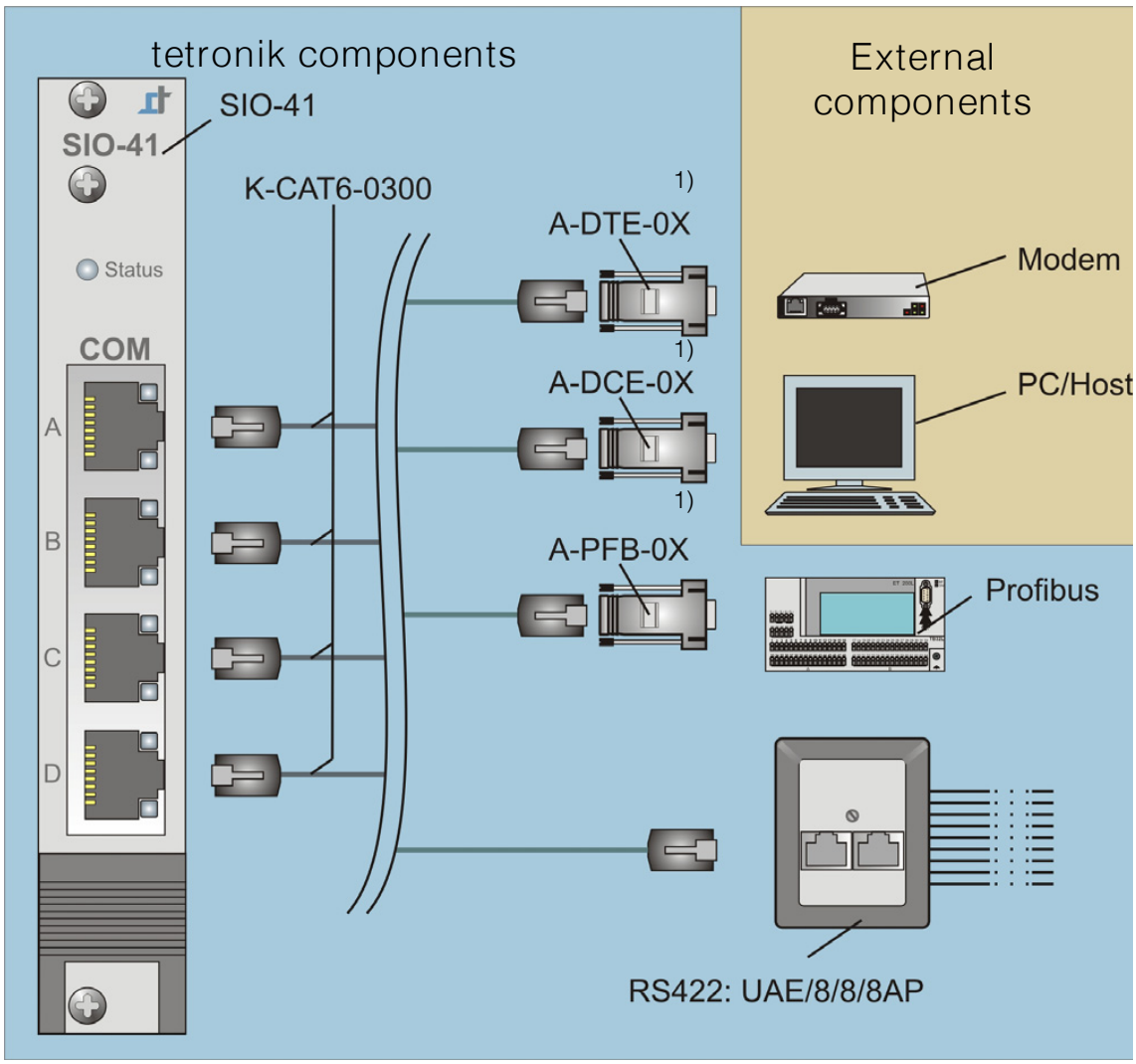


Image 6-5 Wiring plan: SIO-41

Note:
1) For details on the extension of serial connections please Section 6.7, "Line extension of the COM interface (CSA-01-0X)", see Section 6.8, "Das folgende Bild zeigt den Verdrahtungsplan der Leitungsverlängerung des Protokolldruckers mit der CPH-42 Baugruppe:", Section 6.10, "Line extension via E-Link"

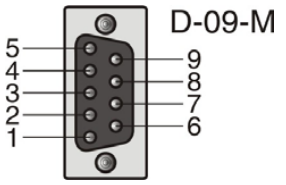
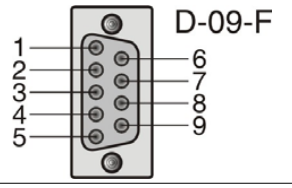
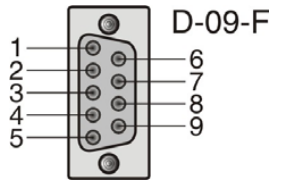
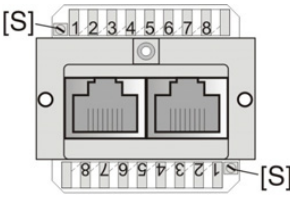
Element	Comment
SIO-41	Serial Interface
K-CAT6-0300	Standard patch cable
Modem	Data Communication Equipment (DCE)/modem e.g. telephone modem, E-Link
A-DTE-0X	Adapter to connect the CPC-41 to a DCE device  Pin 1: DCD Pin 6: DSR Pin 2: RxD Pin 7: RTS Pin 3: TxD Pin 8: CTS Pin 4: DTR Pin 9: RI Pin 5: GND
PC/Host	Data Terminal Equipment (DTE) e.g. a PC, nurse call system, host computer etc.
A-DCE-0X	Adapter to connect the CPC-41 to a DTE device  Pin 1: DCD Pin 6: DSR Pin 2: RxD Pin 7: RTS Pin 3: TxD Pin 8: CTS Pin 4: DTR Pin 9: RI Pin 5: GND
Profibus	Profibus terminal block as connector element at the OScAR server
A-PFB-0X	Adapter to connect the SIO-41 to Profibus-DP  Pin 1: SHLD Pin 3: RxD/ TxD-P Pin 8: RxD/ Txd-N Pin 5: DGND Pin 2, 4, 6, 7, 9: n. c.
UAE/8/8/8AP	Socket for an RS422 interface.  Pin 2: Tx+/Y Pin 3: GND Pin 4: Tx-/Z Pin 5: Rx+/A Pin 7: Rx-/B Pin 1, 6, 8: n. c.
IOG-11A, IOM-02A IOM-11A	➤ Abschnitt 4.4.5 „IOG-11A“ ➤ Abschnitt 4.4.6 „I/O-Modul Standard“ ➤ Abschnitt 4.4.7 „I/O-Modul Secure“

Table 6-5 Wiring plan: SIO-41

Element	Comment
ADX-42	Adapter RS-422 / RS-485 Pin assignment:  RS485 Pin 1: Pin 2: Pin 3: Pin 4: Pin 5: Pin 6: Pin 7: A+ Pin 8: B-

Table 6-5 Wiring plan: SIO-41

6.6 DIO-41

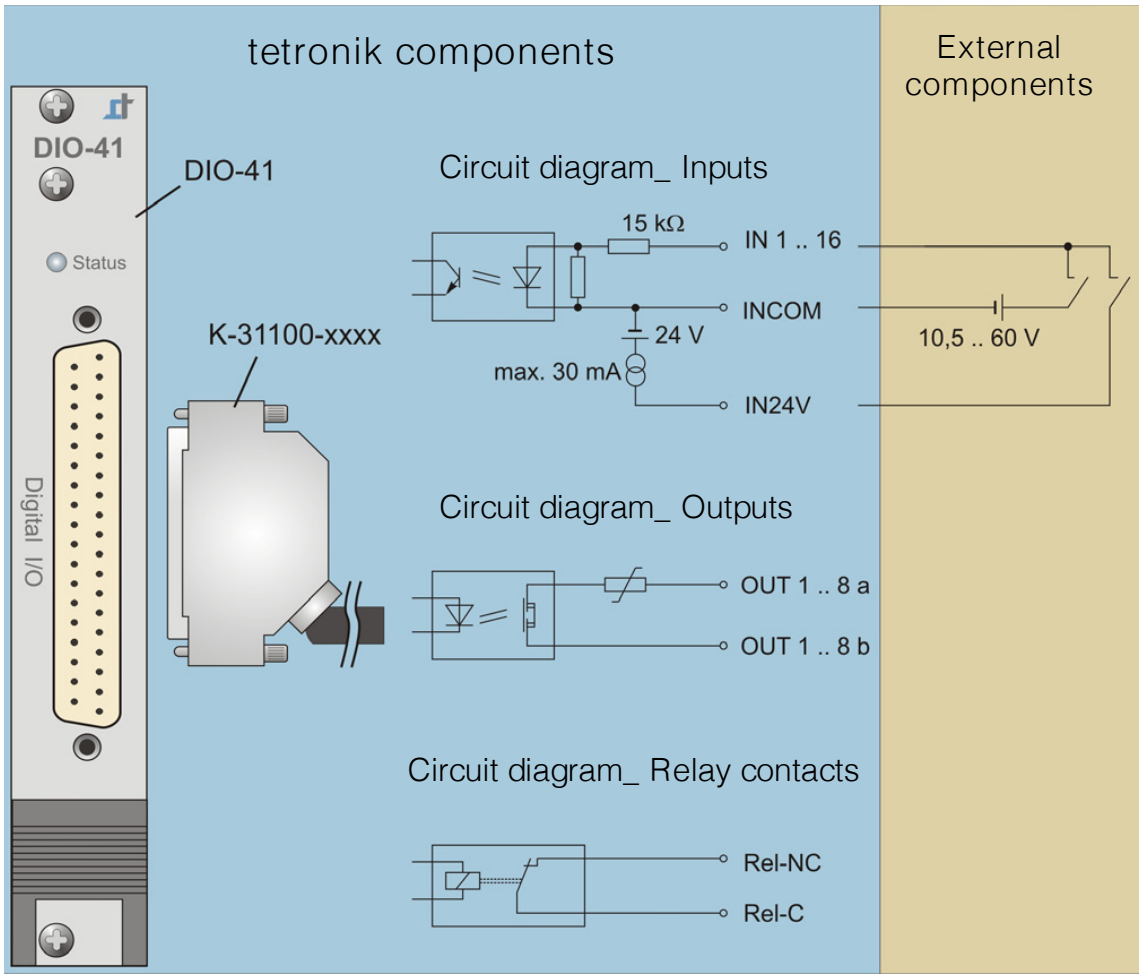


Image 6-6 Wiring plan: DIO-41

Element	Comment
DIO-41	Digital inputs and outputs
K-31100-xxxx	DIO connector cable

Table 6-6 Wiring plan: DIO-41

Element	Comment
Technical data	37 pin Sub-D jack to connect different inputs and outputs via the DIO connector cable cord K-31100 (see Section 4.7.5, "Connector cable for digital inputs and outputs") 16 electrically isolated inputs Technical data: • Internal feeding possible to connect contacts directly • External power supply: U_{in} 10.5 .. 60V DC R_{in} 15 kΩ 8 electrically isolated outputs, also isolated from each other Technical data: • U_{max} 60 V DC • I_{max} 0.1 A • R_{ON} 11 Ω 1 Relay output Technical data: • U_{max} 60 V DC • I_{max} 1 A • P_{max} 30 W

Table 6-6 Wiring plan: DIO-41

6.7 Line extension of the COM interface (CSA-01-0X)

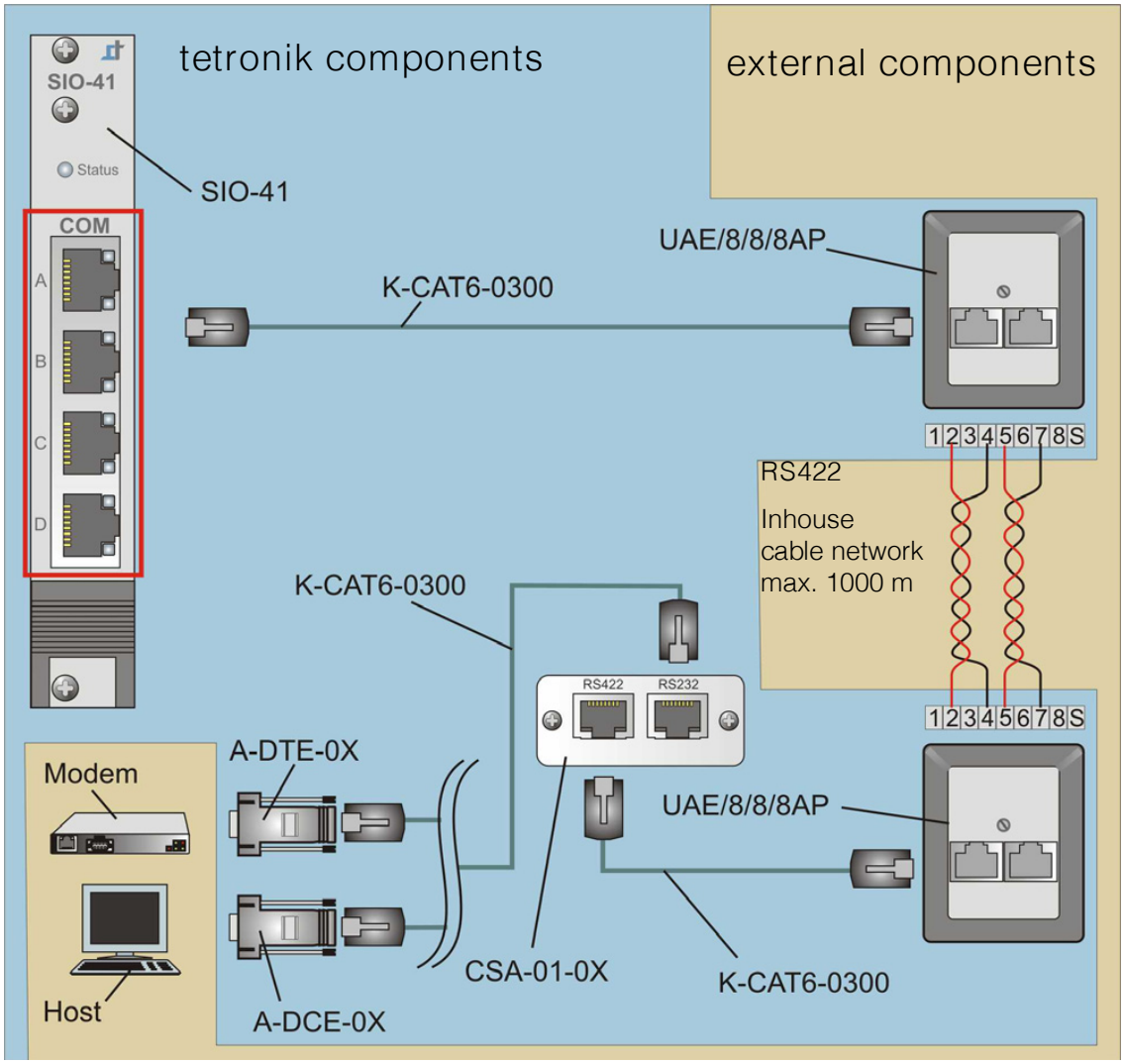


Image 6-7 Wiring plan: Line extension of the COM interface (CSA-01-0X)

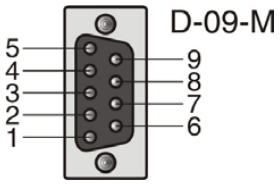
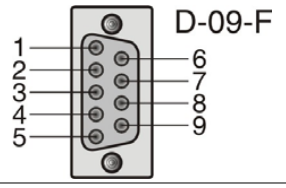
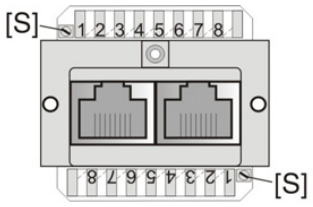
Element	Comment
SIO-41	Serial Interface card Ports utilized: • COM A • COM B • COM C • COM D
Modem	Data Communication Equipment (DCE)/Modem e.g. GSM radio modem
A-DTE-0X	Adapter to connect the OScAR server to a DCE device  Pin 1: DCD Pin 6: DSR Pin 2: RxD Pin 7: RTS Pin 3: TxD Pin 8: CTS Pin 4: DTR Pin 9: n. c. Pin 5: GND
PC/Host	Data Terminal Equipment (DTE) e.g. a nurse call system
A-DCE-0X	Adapter to connect the OScAR server to a DTE device  Pin 1: DCD Pin 6: DSR Pin 2: RxD Pin 7: RTS Pin 3: TxD Pin 8: CTS Pin 4: DTR Pin 9: n. c. Pin 5: GND
K-CAT6-0300	Standard patch cable
UAE/8/8/8AP	Socket for an RS422 interface.  Pin 2: Tx+/Y Pin 3: GND Pin 4: Tx-/Z Pin 5: Rx+/A Pin 7: Rx-/B Pin 1, 6, 8: n. c.
CSA-01-0X	Conversion from RS422 to RS232

Table 6-7 Wiring plan: Line extension of the COM interface (CSA-01-0X)

6.8 Line extension of the Protocol printer for logging (Leiser)

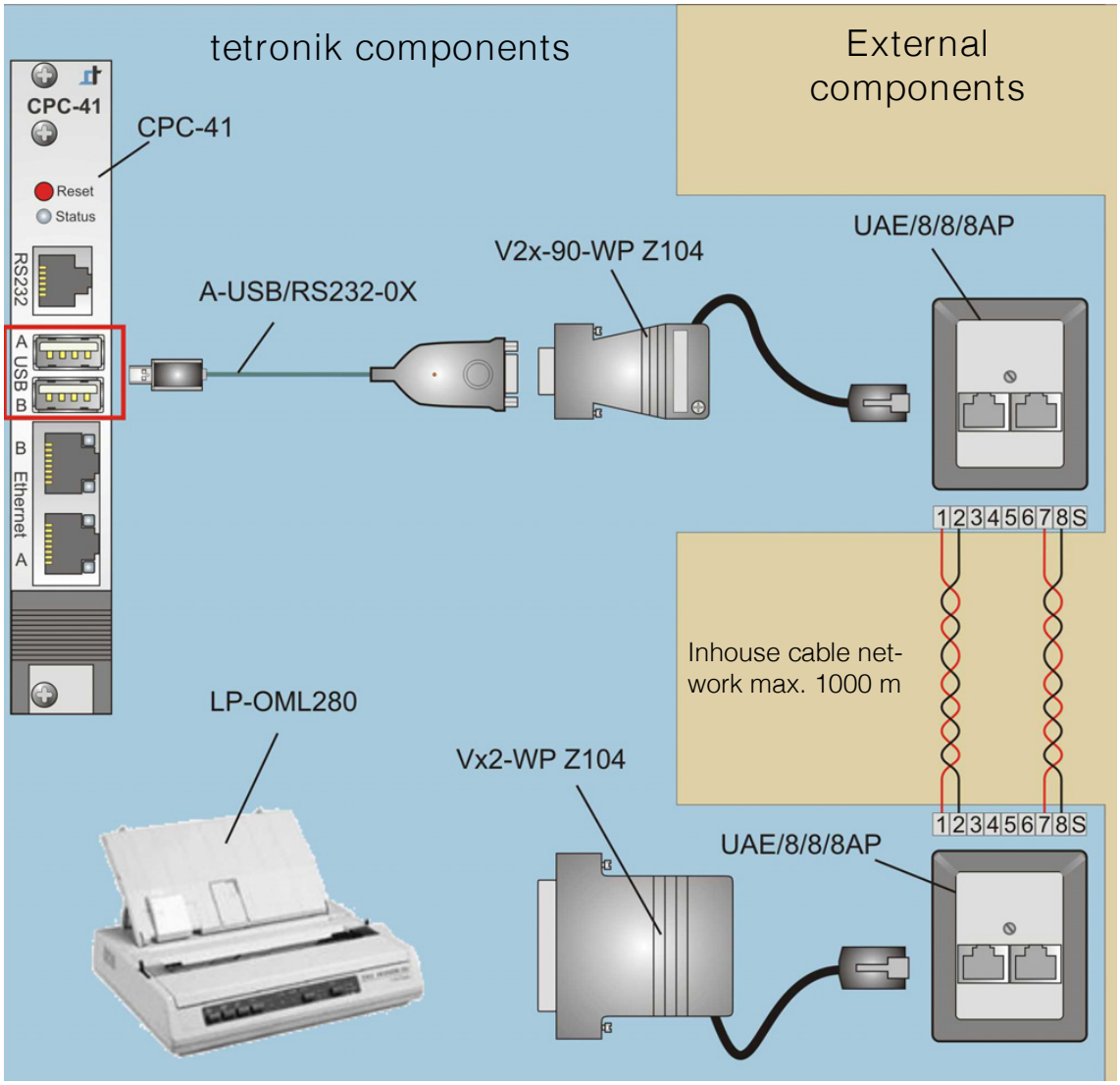


Image 6-8 Wiring plan: Line extension of the protocol printer for logging (Leiser)

Das folgende Bild zeigt den Verdrahtungsplan der Leitungsverlängerung des Protokolldruckers mit der CPH-42 Baugruppe:

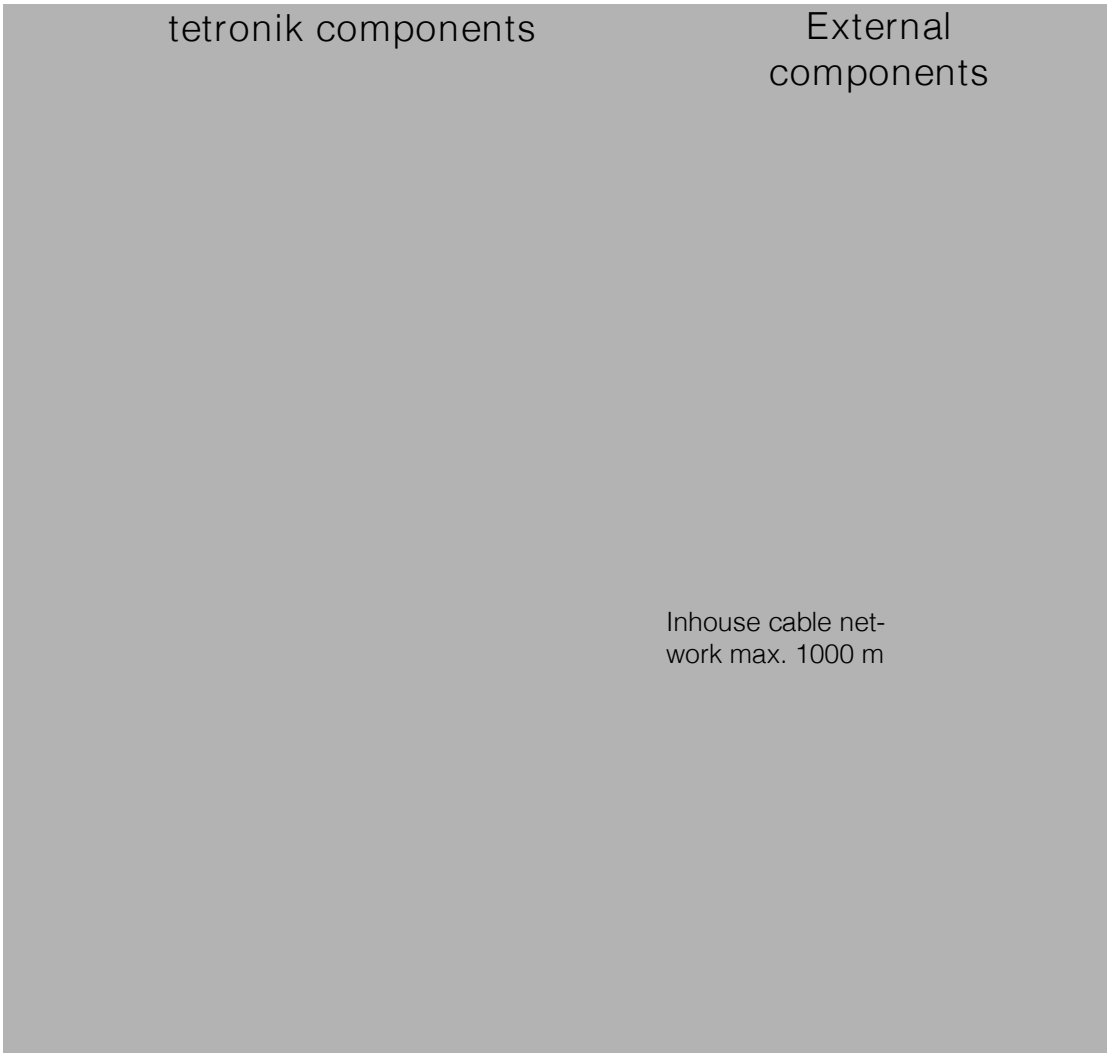


Image 6-9 wiring plan: Cable extension Protocol printer (Leiser) - CPH-42

Element	Anmerkungen
CPC-41/CPH-42	Controller board Ports utilized: • USB A • USB B
USB/RS232-0X	Adapter from USB to RS232
Leiser V2x-90-WP Z104	Transmission kit for OScAR to the printer
Leiser Vx2-WP Z104	Transmission kit for the printer
UAE/8/8/8AP	Junction box for extending the RS422 interface.
LP-OML280	protocol printer

Table 6-8 wiring plan: Cable extension Protocol printer (Leiser)

6.9 Line extension of the Host interface (Leiser)

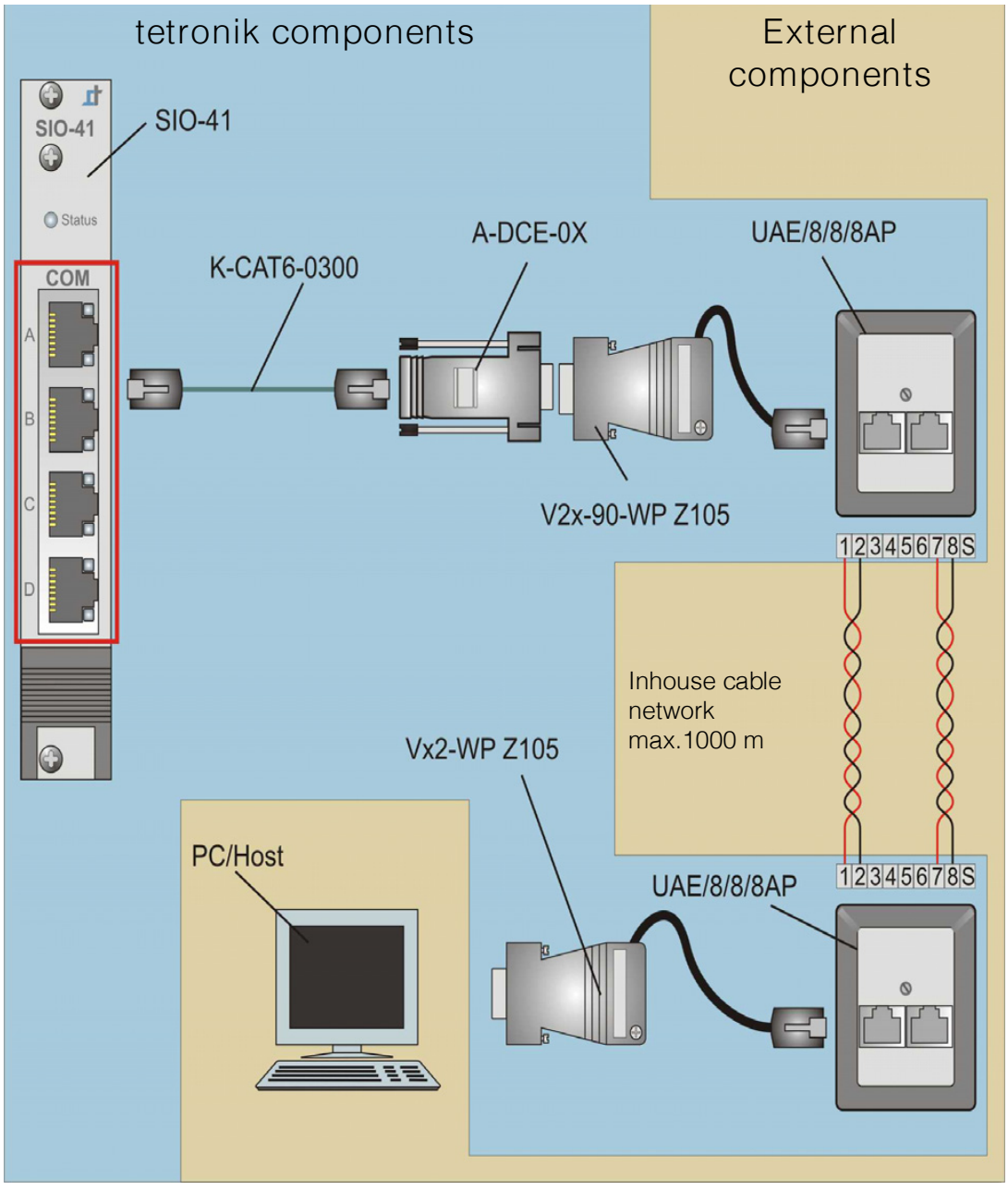


Image 6-10 Wiring plan: Line extension of the host interface (Leiser)

Element	Comment
SIO-41	Serial Interface card Ports utilized: COM A COM B COM C COM D
K-CAT6-0300	Standard patch cable
Leiser V2x-90-WP Z105	Transmission kit for OScAR to PC/Host
Leiser Vx2-09-WP Z105	Transmission kit for PC/Host
PC/Host	Data Terminal Equipment (DTE) e.g. a PC, nurse call system, host computer etc.

Table 6-9 Wiring plan: Line extension of the Host interface (Leiser)

6.10 Line extension via E-Link

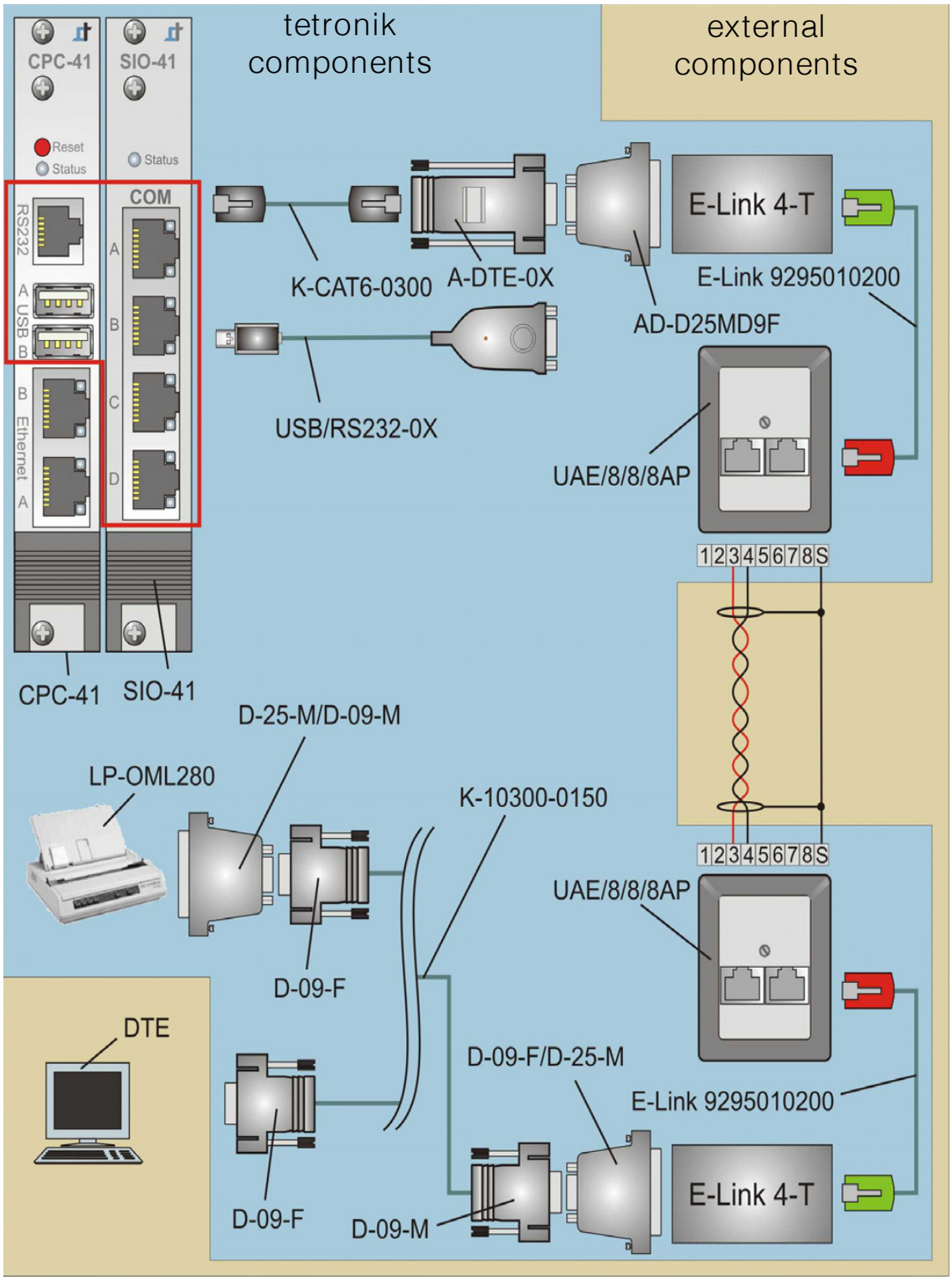


Image 6-11 Wiring Plan: Line extension E-Link

Das folgende Bild zeigt den Verdrahtungsplan der Leitungsverlängerung über E-Link mit der CPH-42 und der SIO-41 Baugruppe:

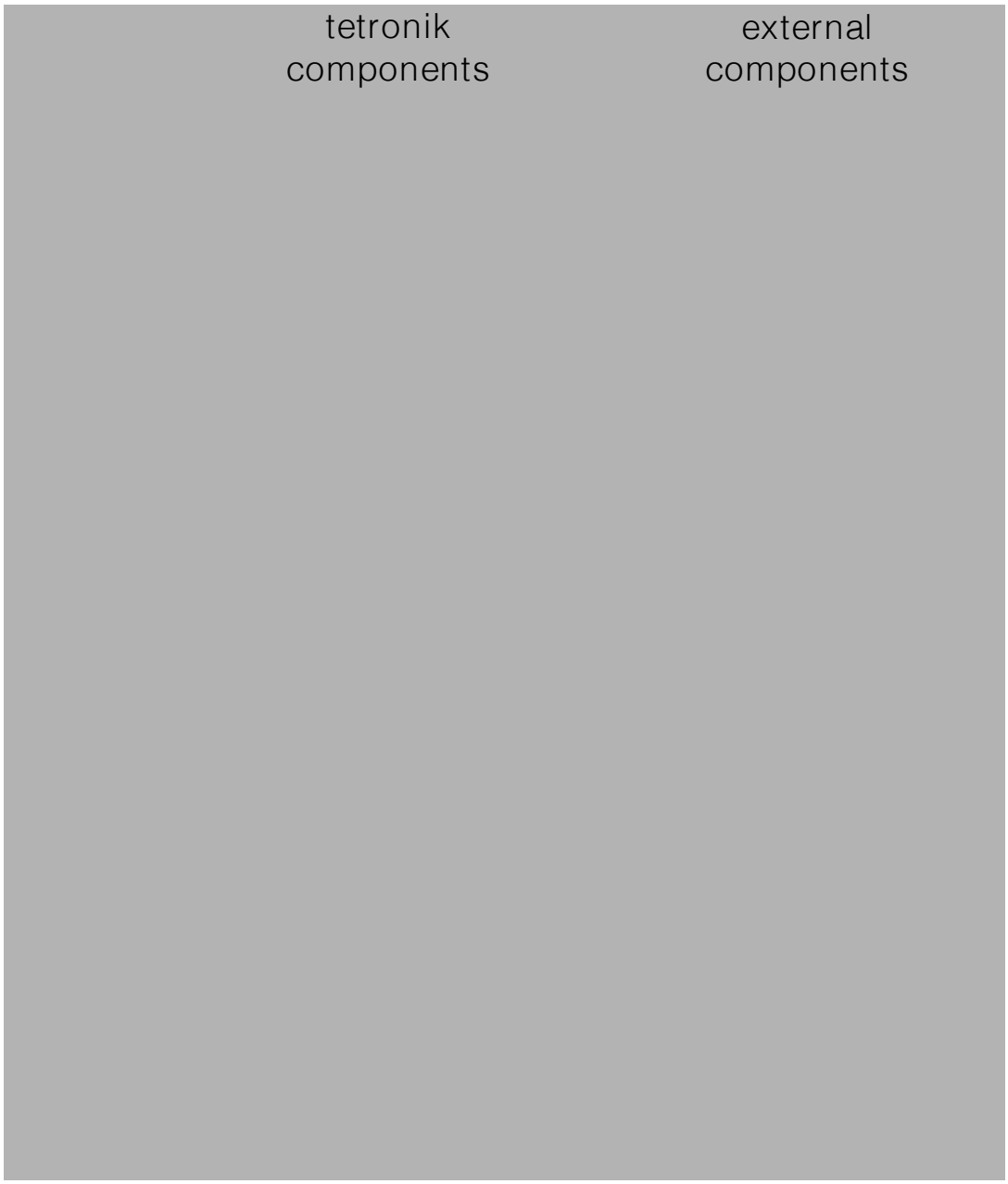


Image 6-12 wiring plan: Line extension E-Link - CPH-42 and SIO-41

Element	Comment
CPC-41/CPH-42	Control computer Ports utilized: RS232 via USB/RS232-Adapter

Table 6-10 Wiring Plan: Line extension E-Link

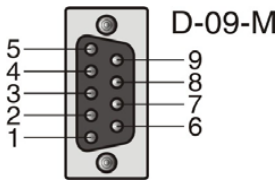
Element	Comment
SIO-41	Serial Interface card Ports utilized: COM A COM B COM C COM D
K-CAT6-0300	Standard patch cable
USB/RS232-0X	Adapter to convert from USB to RS232
K-10300-0150	Extension and connector cable D-09-M to D-09-F
UAE/8/8/8AP	junction box for the line extension
E-Link 4-T	E-Link modem for line extension
E-Link 9295010200	E-Link special cable cord to connect the E-Link modem to the junction box (UAE/8/8/8AP)
AD-D25MD9F	Adapter between SUB D-09-F and SUB D-25-M
D-09-M/D-25-M	Adapter between SUB D-09-M and SUB D-25-M
A-DTE-0X	Adapter to connect the CPC-41 to a DCE device  Pin 1:DCD Pin 6:DSR Pin 2:RxD Pin 7:RTS Pin 3:TxD Pin 8:CTS Pin 4:DTR Pin 9:RI Pin 5:GND
DTE	Data Terminal Equipment (DTE) e.g. a PC, nurse call system, host computer or other
LP-OML280	Protocol printer for logging

Table 6-10 Wiring Plan: Line extension E-Link

6.11 Line extension Sigmasys fire alarm system

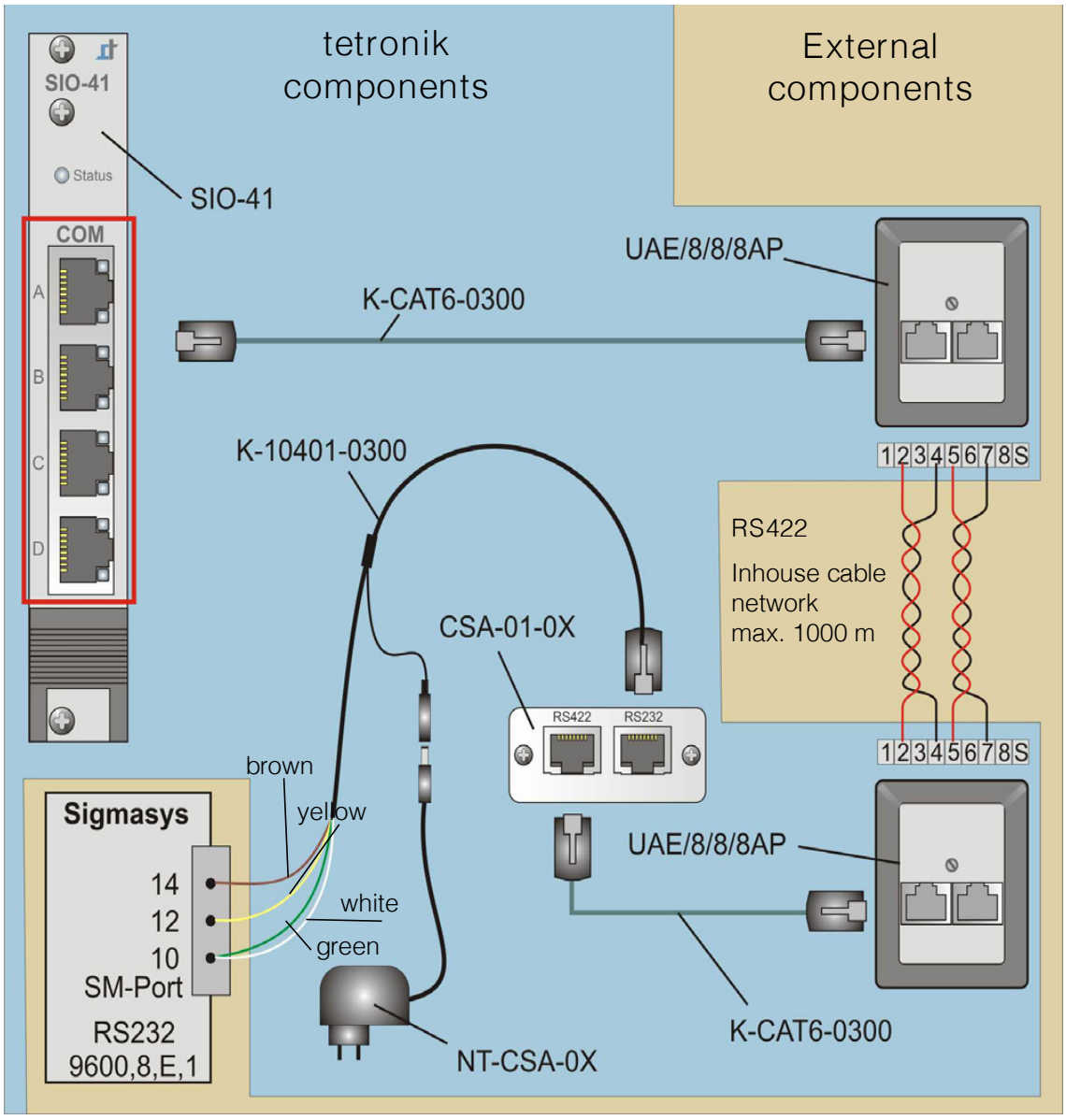


Image 6-13 Wiring Plan: Line extension Sigmasys fire alarm system

Element	Comment
SIO-41	Serial Interface card Ports utilized: COM A COM B COM C COM D
K-CAT6-0300	Standard patch cable
UAE/8/8/8AP	Female half connector for the line extension.
CSA-01-0X	Conversion from RS422 to RS232

Table 6-11 Wiring Plan: Line extension Sigmasys fire alarm system

Element	Comment
K-10401-0300	Adapter to connect the CSA-Converter to the power supply and to Sigmasys.
NT-CSA-0X	Power supply for the CSA-Converter input voltage230 V output voltage9 V max. output current250 mA
Sigmasys	Fire alarm system

Table 6-11 Wiring Plan: Line extension Sigmasys fire alarm system

6.12 Contact inputs via Profibus-DP with ET 200L

6.12.1 Overall wiring plan

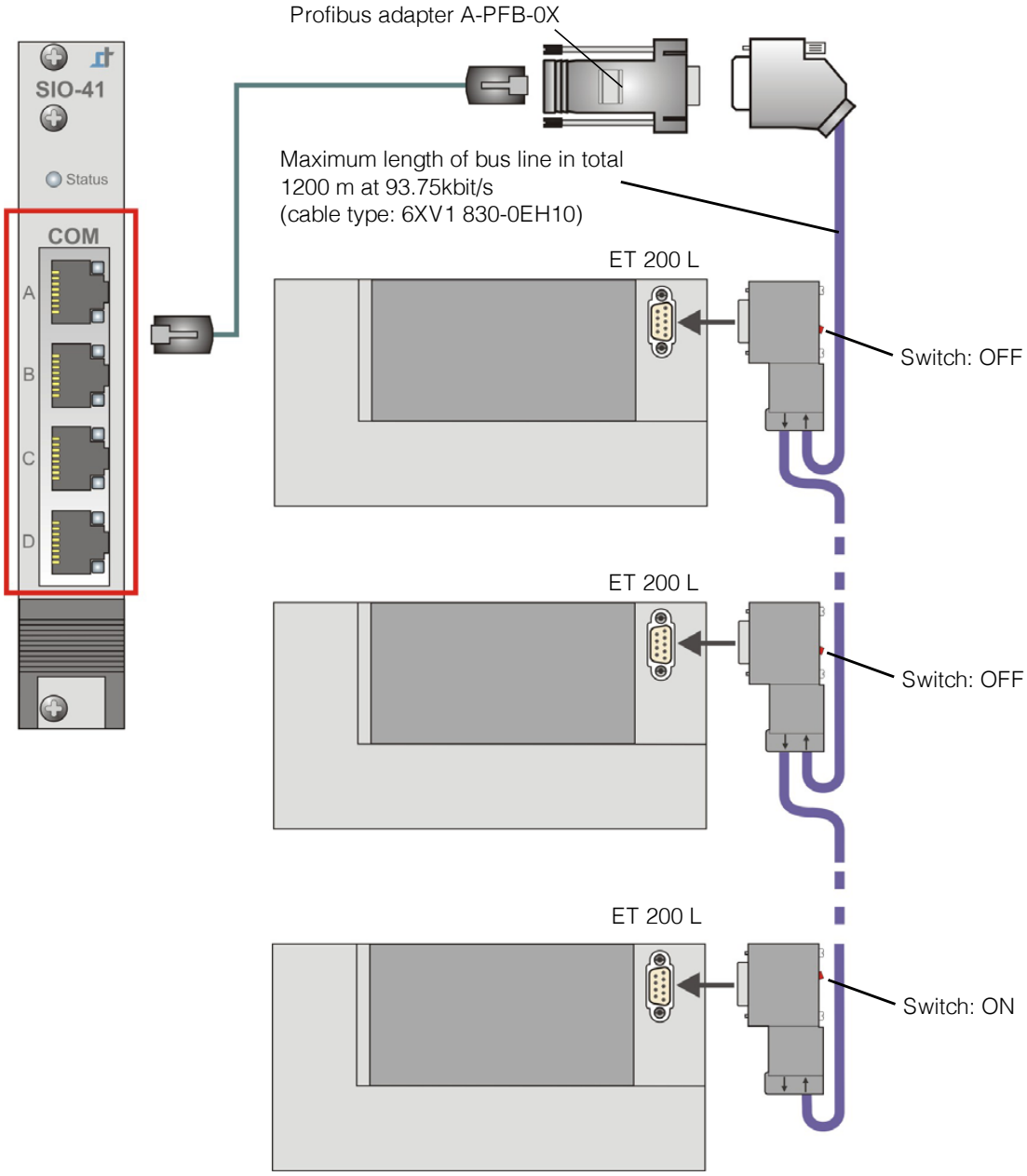


Image 6-14 Overall wiring plan

Switch the bus termination resistor switch at the Bus ends to "ON"

6.12.2 Module and power supply for make contacts

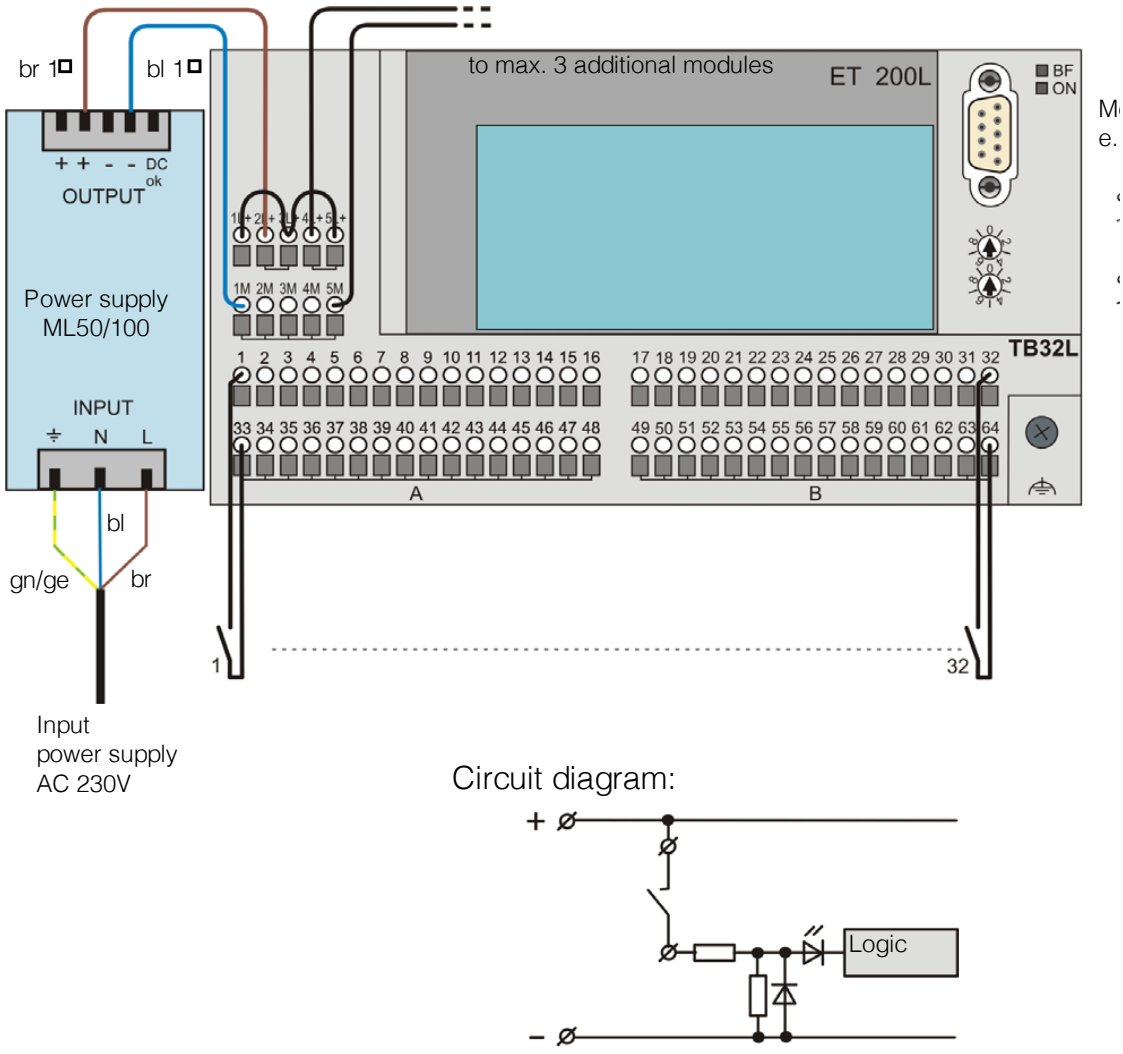


Image 6-15 Modules and power supply for make contacts

6.12.3 Module wiring for break contacts

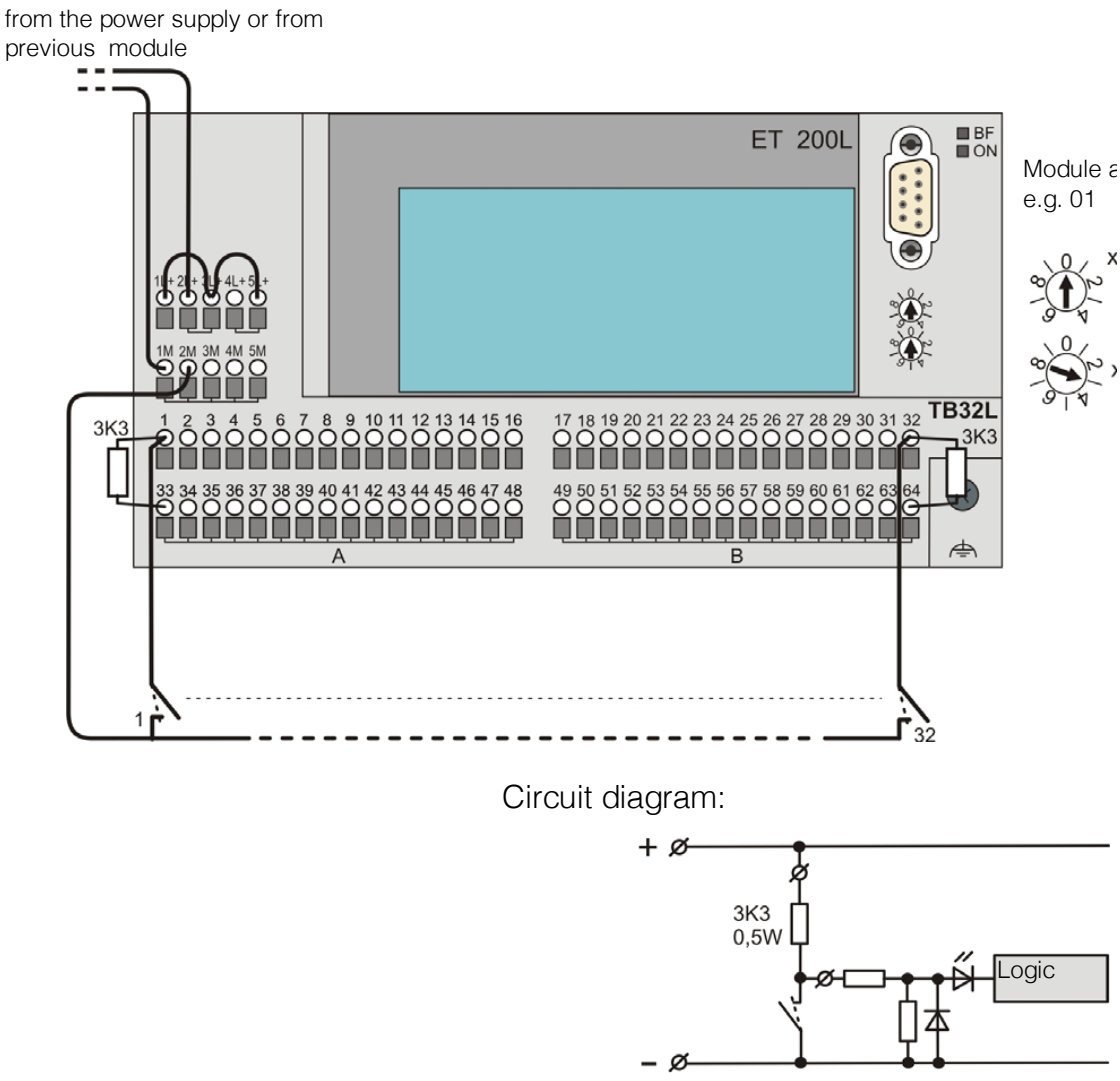


Image 6-16 Module wiring for break contacts