



## 7.3 Communication processor 07 KP 93 R1161

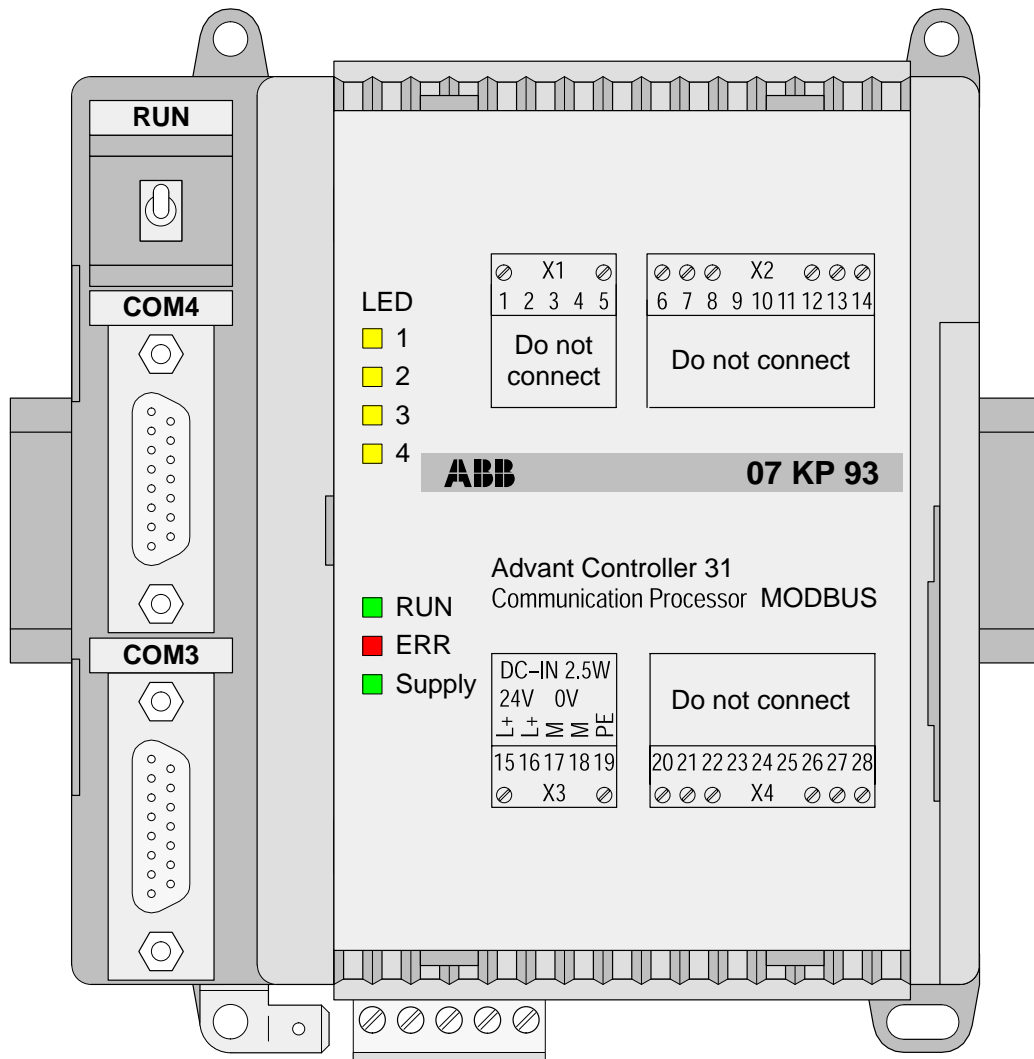


Fig. 7.3-1: Communication processor 07 KP 93 R1161

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### 7.3.1 Brief description

The 07 KP 93 communication processor is an interface module with 2 serial MODBUS RTU interfaces.

The communication processor allows external units to be connected to the Advant Controller 31 system using the MODBUS RTU protocol.

The most important features of the communication processor are:

- 2 serial interfaces:  
usable in accordance with EIA RS-232 or EIA RS-485 (COM3, COM4)  
  
Possible operating modes:  
COM3 COM4  
Master Slave (Master-master does not work)  
Slave Master  
Slave Slave
- Communication with AC 31 basic units is performed with function blocks / connection elements (see also programming software 907 KP 93).

#### Contact person

If you have any questions concerning the use of MODBUS, please contact our helpline:

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Internet: <http://www.abb-sst.de>

## 7.3.2 Structure of the front panel

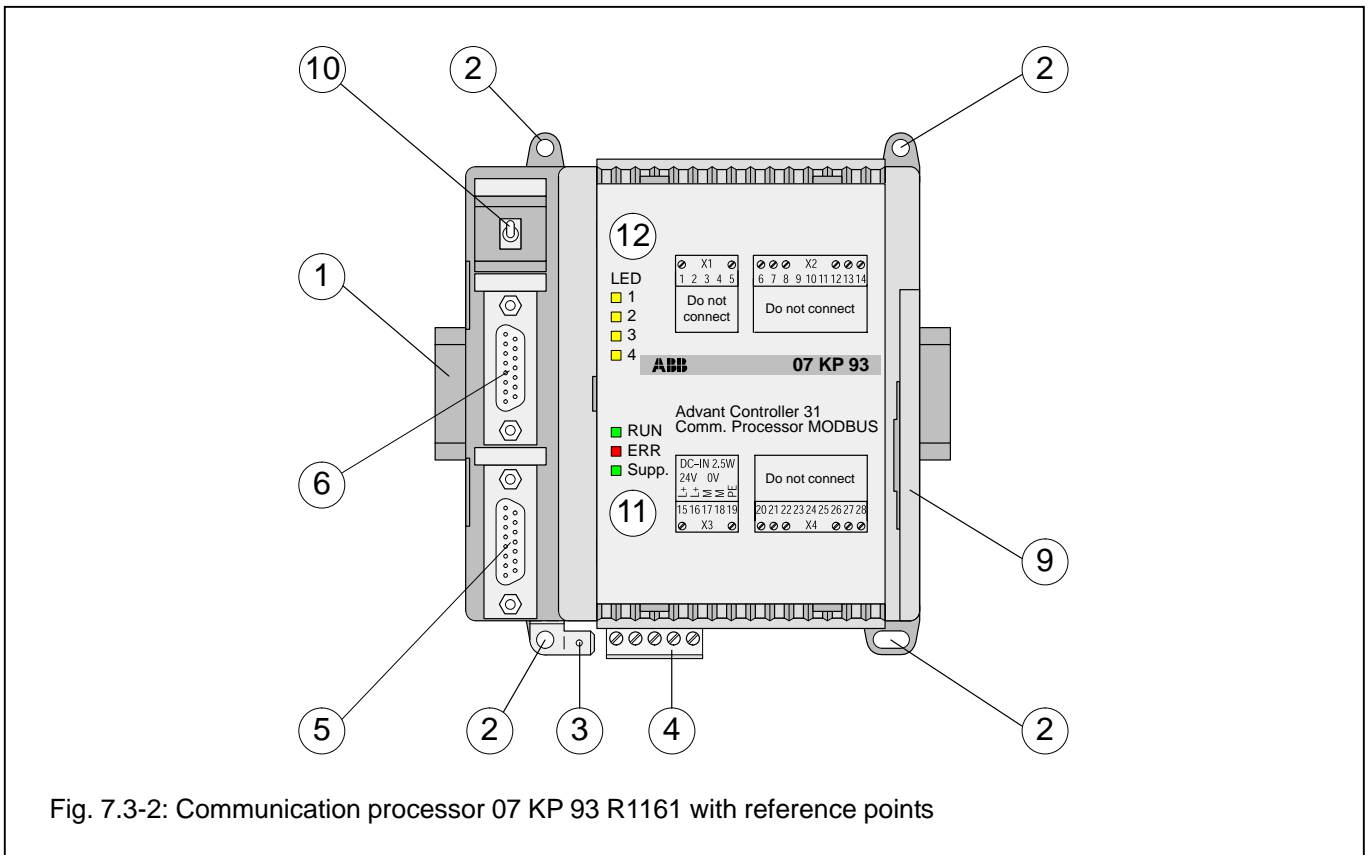


Fig. 7.3-2: Communication processor 07 KP 93 R1161 with reference points

- 1 Mounting the unit on a DIN rail**
- 2 Mounting the unit with screws**
- 3 6.3 mm Faston earthing terminal**
- 4 24 V DC supply voltage**
- 5 Serial interface COM3**
- 6 Serial interface COM4**
- 9 Networking interface for the Advant Controller 31 basic unit**
- 10 Switch not used**
- 11 LED displays for system messages**  
Refer to chapter 7.3.4 Diagnosis for further information
- 12 LED displays for system messages**  
Refer to chapter 7.3.4 Diagnosis for further information

<p><b>12</b></p> <p>gelb</p> <p>gelb</p> <p>gelb</p> <p>gelb</p>	<p><input type="checkbox"/> LED1</p> <p><input type="checkbox"/> LED2</p> <p><input type="checkbox"/> LED3</p> <p><input type="checkbox"/> LED4</p>
<p><b>11</b></p> <p>grün</p> <p>rot</p> <p>grün</p>	<p><input type="checkbox"/> RUN</p> <p><input type="checkbox"/> ERR</p> <p><input type="checkbox"/> Supply</p>

## 7.3.3 Electrical connection

### 7.3.3.1 Application example

The following illustration shows an application example with the 07 KT 97 basic unit.

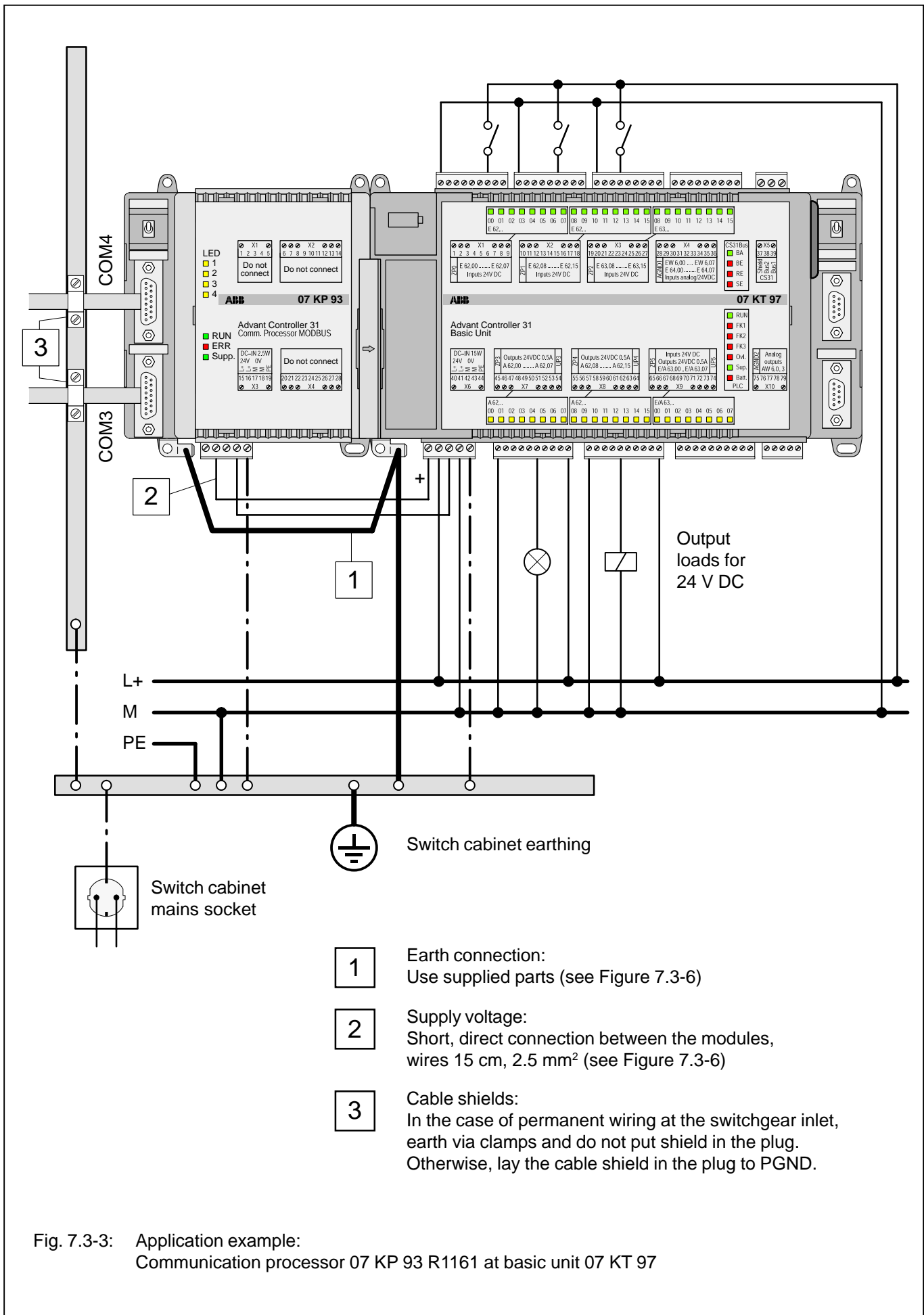


Fig. 7.3-3: Application example:  
Communication processor 07 KP 93 R1161 at basic unit 07 KT 97

### 7.3.3.2 Connecting the 24 V DC supply voltage

The supply voltage is fed in via a 5-pole detachable terminal block.

**Important:**

**Plug and unplug terminal block only with power is off!**

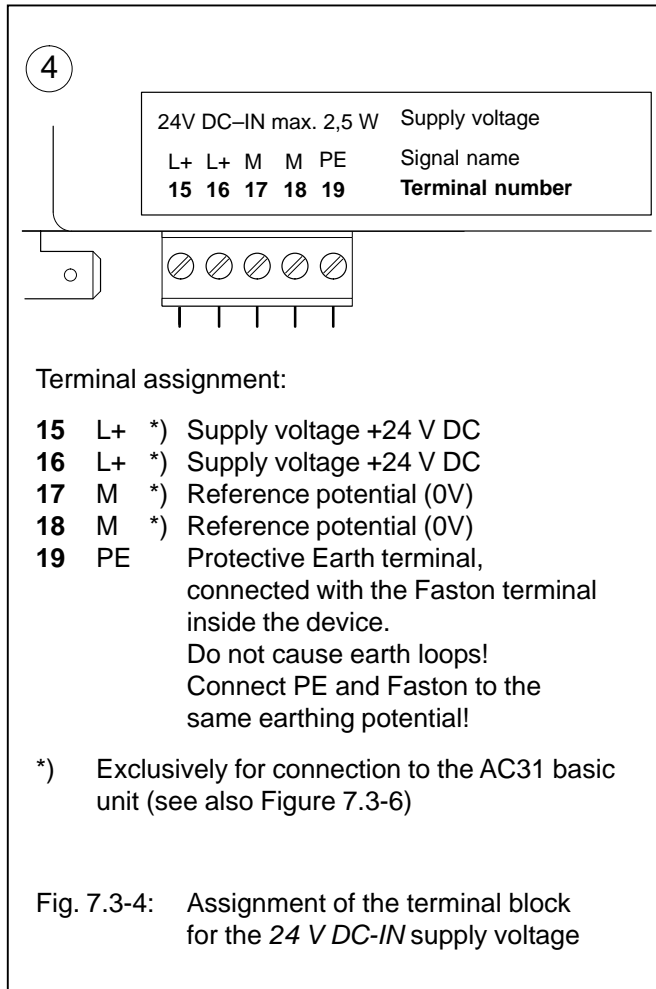


Fig. 7.3-4: Assignment of the terminal block for the 24 V DC-IN supply voltage

### 7.3.3.3 Electrical isolation and notes on earthing

The Protective Earth is connected to the 6.3 mm Faston terminal via a wire with a cross section of 6 mm<sup>2</sup> (maximum length 25 cm).

The signals of the interfaces COM3 and COM4 are electrically isolated from each other and also from the internal electronics of the unit.

The following illustration shows which parts of the unit are connected to PE/PGND.

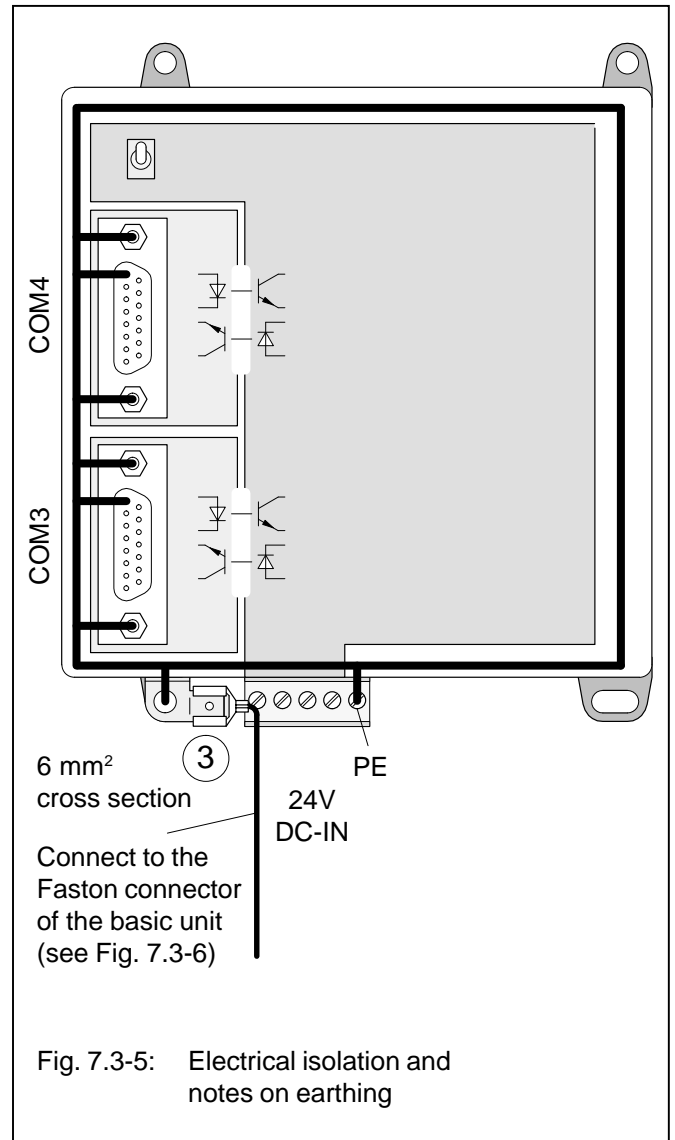


Fig. 7.3-5: Electrical isolation and notes on earthing

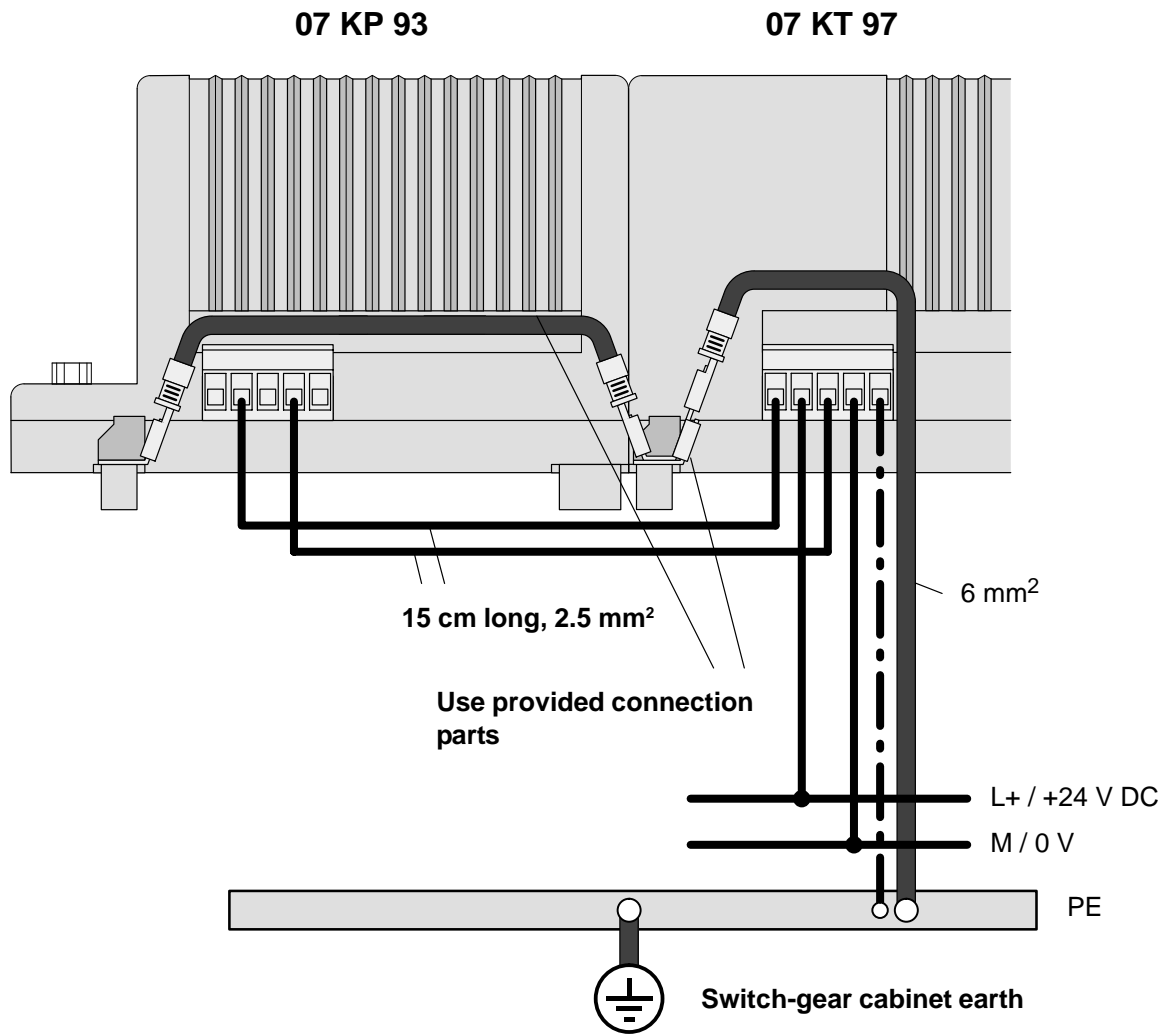


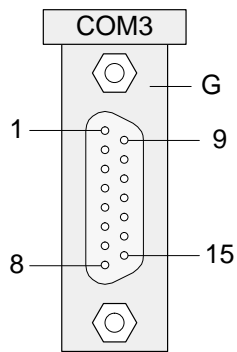
Fig. 7.3-6: Earthing connections and voltage supply for 07 KP 93 R1161



### 7.3.3.4 Serial interfaces COM3 and COM4: Pin assignment

Interface standard: EIA RS-232, EIA RS-422, EIA RS-485

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<b>G</b>	Housing	Protective Ground	(Shield)	
<b>1</b>	PGND	Protective Ground	(Shield)	
<b>2</b>	TxD	Transmit Data	(Output)	(EIA RS-232)
<b>3</b>	RxD	Receive Data	(Input)	(EIA RS-232)
<b>4</b>	RTS	Request To Send	(Output)	(EIA RS-232)
<b>5</b>	CTS	Clear To Send	(Input)	(EIA RS-232)
<b>6</b>	not used			
<b>7</b>	SGND	Signal Ground	(0V)	(EIA RS-232)
<b>8</b>	not used			
<b>9</b>	not used			
<b>10</b>	TxD-P/RxD-P	Transmit Data / Receive Data		(EIA RS-485)
<b>11</b>	TxD-N/RxD-N	<u>Transmit Data / Receive Data</u>		(EIA RS-485)
<b>12</b>	not used			
<b>13</b>	not used			
<b>14</b>	not used			
<b>15</b>	not used			

Fig. 7.3-7: Pin assignment of the serial interfaces COM3 and COM4

### 7.3.3.5 Networking interface

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The communication processor can be connected to AC31 basic units of the 90 series which have a networking interface. The housing of the communication processor is is

connected to the housing of the AC31 basic unit by a snap-fit connection. The electrical connection is via a 40-pole ribbon cable with socket connector, soldered onto the 07 KP 93 side.

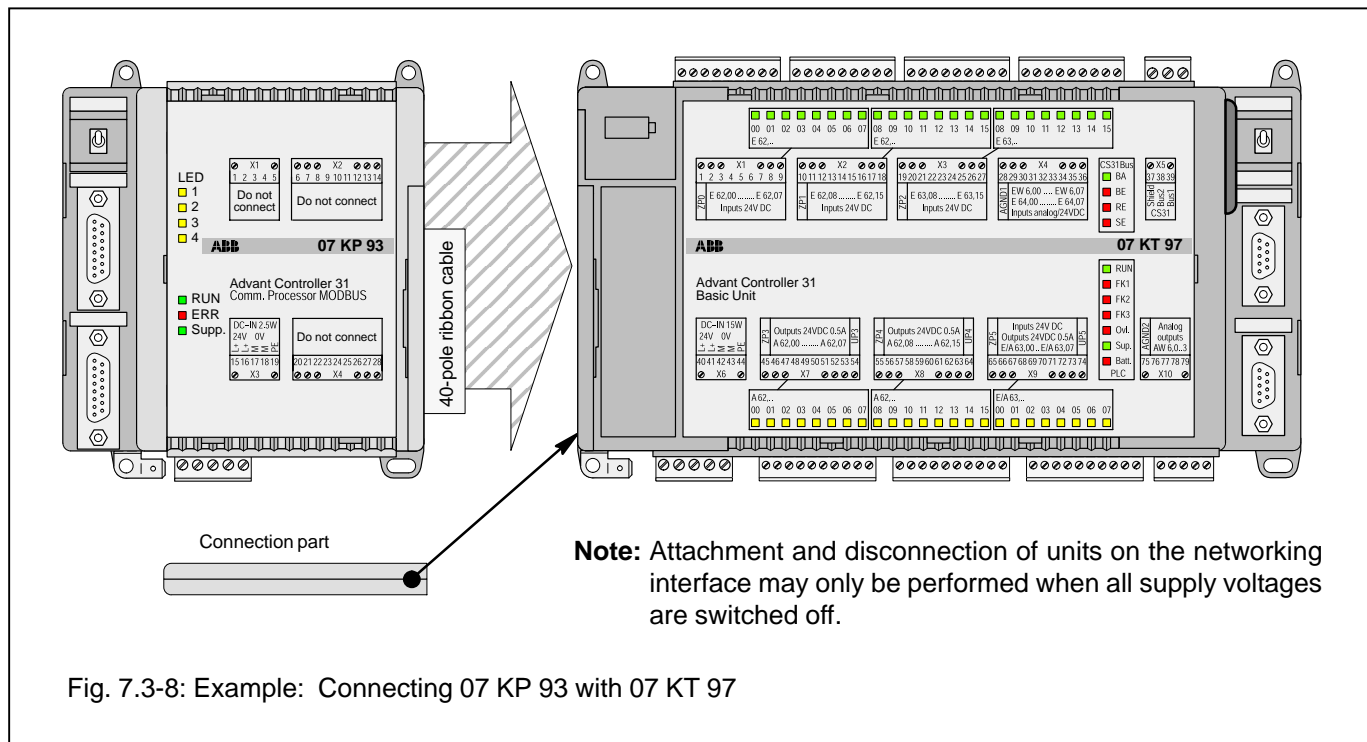


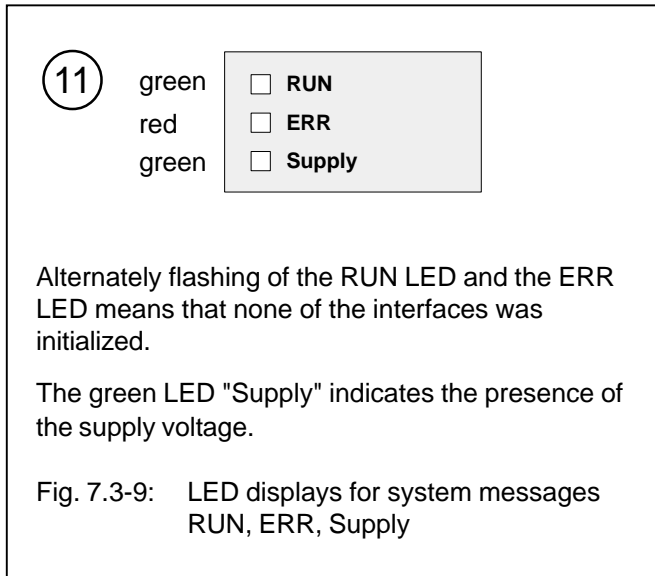
Fig. 7.3-8: Example: Connecting 07 KP 93 with 07 KT 97

### Mounting the expansion housing

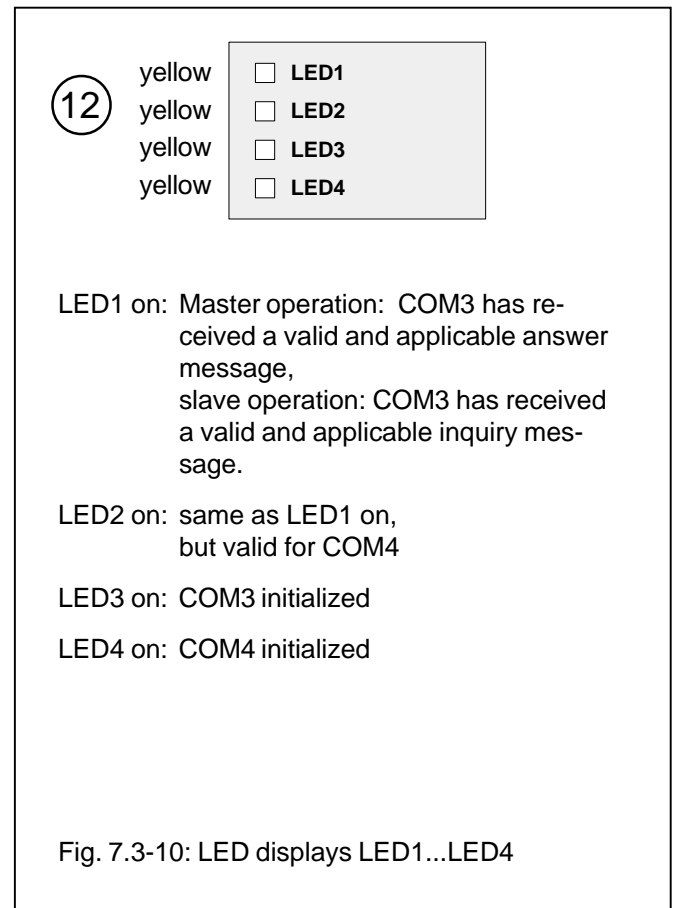
1. Detach the cover on the basic unit from the networking interface.
2. Plug the socket strip of the 40-pole ribbon cable secured to the 07 KP 93 onto the networking connector of the basic unit.
3. Place both units on a level surface and slide them together so that they engage.
4. Slide in the connection part to fix the housing in position.

## 7.3.4 Diagnosis

### LED displays for system messages RUN, ERR, Supply



### LED displays LED1...LED4



## 7.3.5 Technical data

In general, the details in section 1 "System data and system structure" of volume 2 of the system description "Advant Controller 31" apply as technical data. Supplementary and deviating data is listed below.

### 7.3.5.1 General data

Number of serial interfaces	2
Number of parallel interfaces	1 networking interface for connecting to the Advant Controller 31 basic unit
Diagnosis	4 LEDs: LED1...LED4
Operating and error displays	3 LEDs: RUN, ERR, Supply
Conductor cross section for the removable terminal blocks	max. 2.5 mm <sup>2</sup>

### 7.3.5.2 Supply voltage for 07 KP 93 R1161

Rated supply voltage	24 V DC
Power dissipation	typ. 2.5 W (max. 5W)
Max. current consumption with rated voltage	210 mA
with supply voltage 30 V	170 mA
Protection against reversed terminal connection	yes

### 7.3.5.3 Connection serial interface COM3, COM4

Interface standard	EIA RS-232 or EIA RS-485
Electrical isolation	yes, interfaces with respect to each other and with respect to the rest of the unit (also see Figure 7.3-5)
Terminal assignment and description of the interfaces COM3, COM4	see page 7.3-7

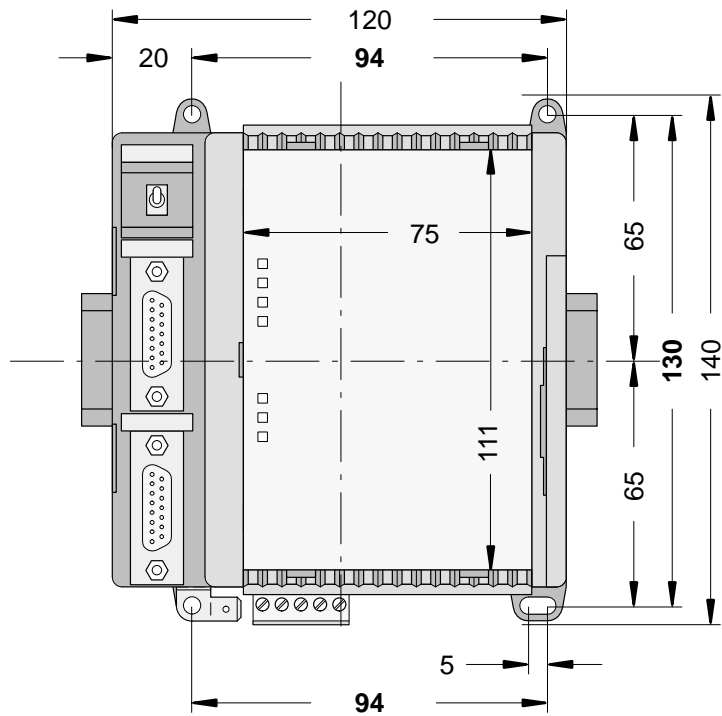
### 7.3.5.4 LED displays

– Supply	1 green LED
– ERR	1 red LED
– RUN	1 green LED
– LED1...LED4	4 yellow LEDs

description see chapter 7.3.4 Diagnosis

### 7.3.5.5 Mechanical data

Mounting on DIN rail	in accordance with DIN EN 50022–35, 15 mm deep. The DIN rail is located in the middle between the upper and the lower edges of the module.
Fastening by screws	using 4 M4 screws.
Width x height x depth	140 x 120 x 85 mm
Wiring method	by removeable terminal blocks with screw-type terminals, max. 2.5 mm <sup>2</sup>
Weight	450 g
Dimensions for mounting	see the following drawing



All dimensions in mm.

**The device is 85 mm deep.** The interface connectors COM3 and COM4 are set deeper so that the mounting depth required does not become any larger even with detachable interface cables. If, however, a DIN rail is used, the mounting depth is increased by the overall depth of the rail.

Fig. 7.3-11: Dimensions of the communication processor module 07 KP 93, front view, **the dimensions for assembly bore holes are printed in bold**

### 7.3.5.6 Mounting hints

Mounting position	vertical, terminals above and below
Cooling	The natural convection cooling must not hindered by cable ducts or other material mounted in the switch-gear cabinet.

### 7.3.5.7 Ordering data

Communication processor

07 KP 93 R1161 Order No. GJR5 2532 00 R1161

Scope of delivery

Communication processor 07 KP 93 R1161  
1 5-pole terminal block (5.08 mm grid),  
cable including terminals for making the  
earth connection

#### Further literature

System description Advant Controller 31, English

Order No. 1SAC 1316 99 R0201

System description ABB Procontic T200

Order No. GATS 1314 99 R2001

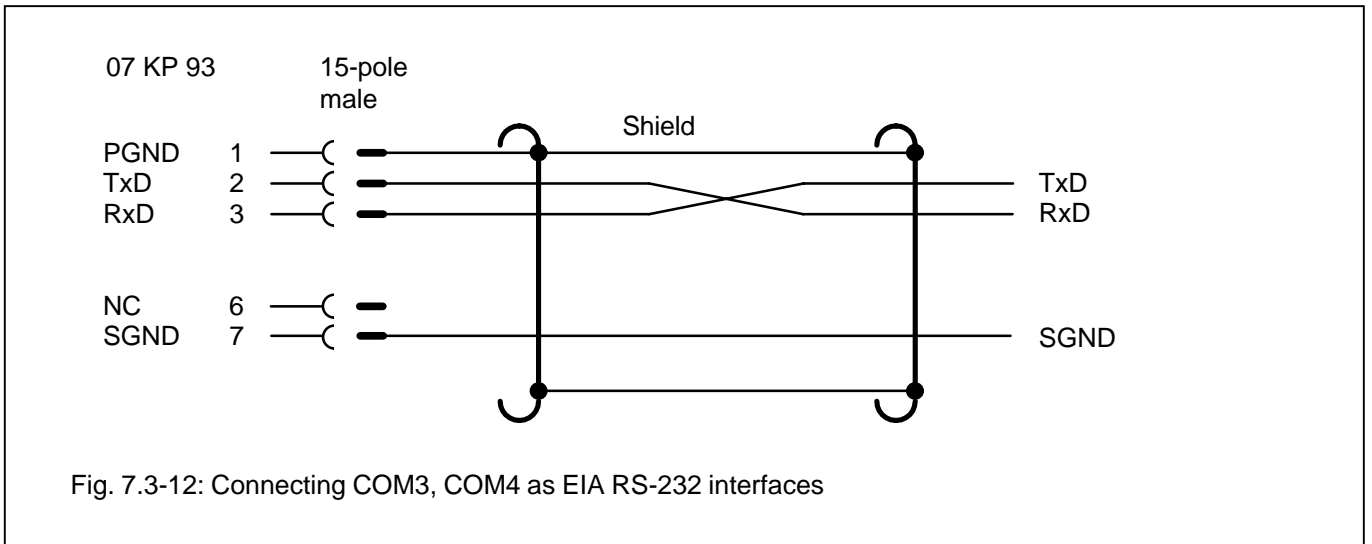
#### Software

Software 907 KP 93

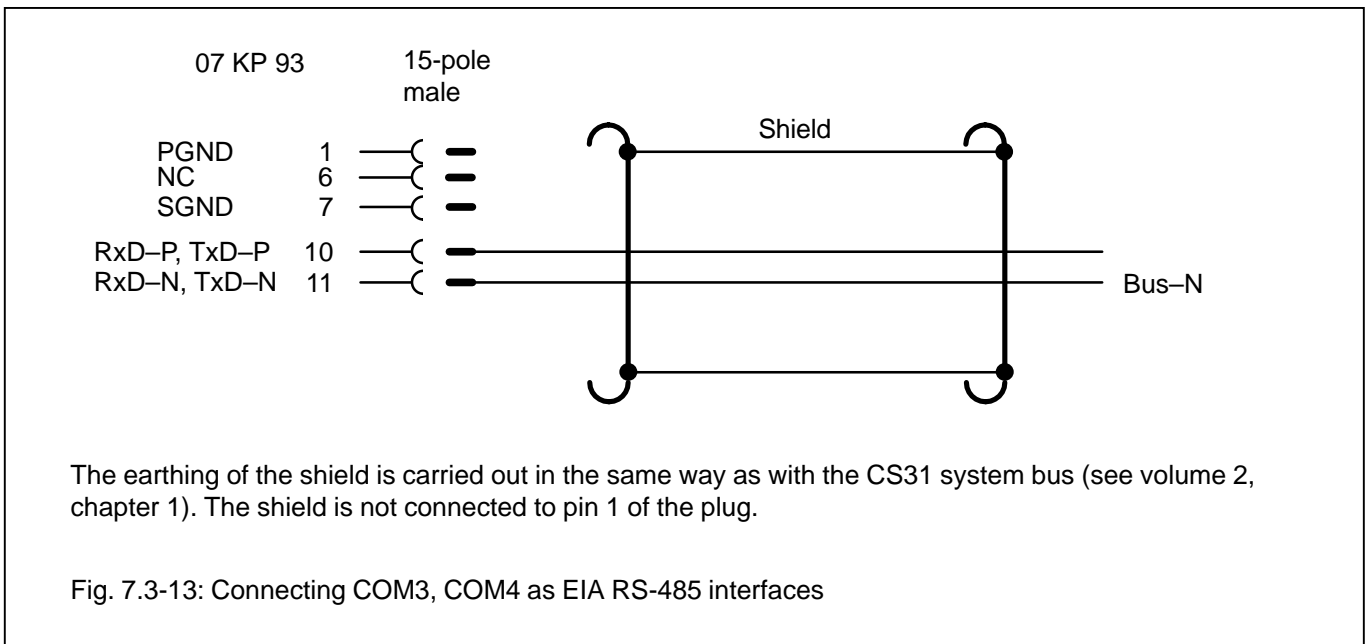
Order No. GJP5 2072 00 R0102

## 7.3.6 System cables

### 7.3.6.1 COM3, COM4 as EIA RS-232 interfaces



### 7.3.6.2 COM3, COM4 as EIA RS-485 interfaces



## 7.3.7 MODBUS-RTU

### Overview

#### Brief description, field of application

MODBUS-RTU is an international widely known standard. The main application is the coupling in the local area for:

- Automation systems and PLCs,

- Operating terminals

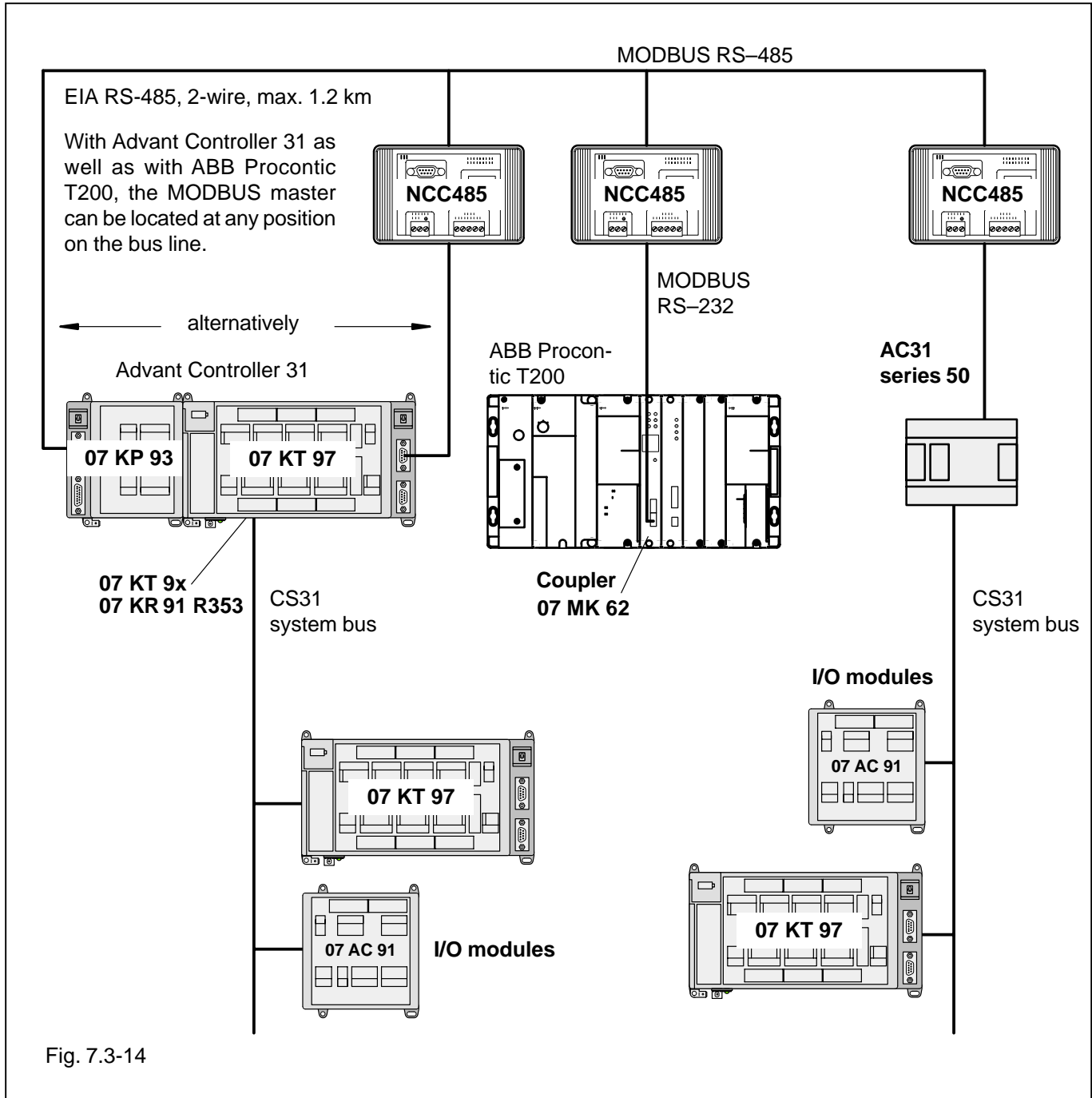
- PC operating stations / master terminals

#### Short data

- Number of user stations with EIA RS-485: 32
- Distance with EIA RS-485: max. 1.2 km
- Connection of dedicated-line modems is possible

### Networking alternatives

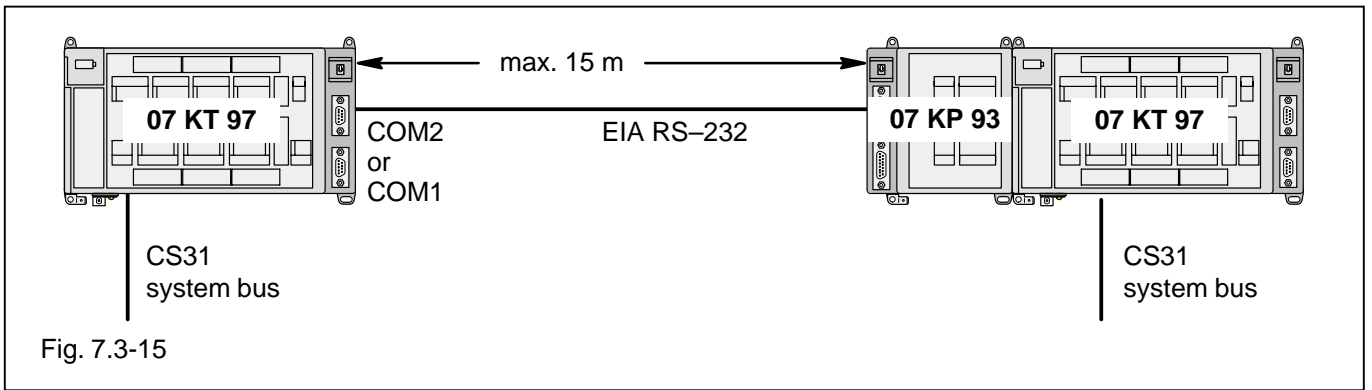
#### Multi-point line up to 1.2 km



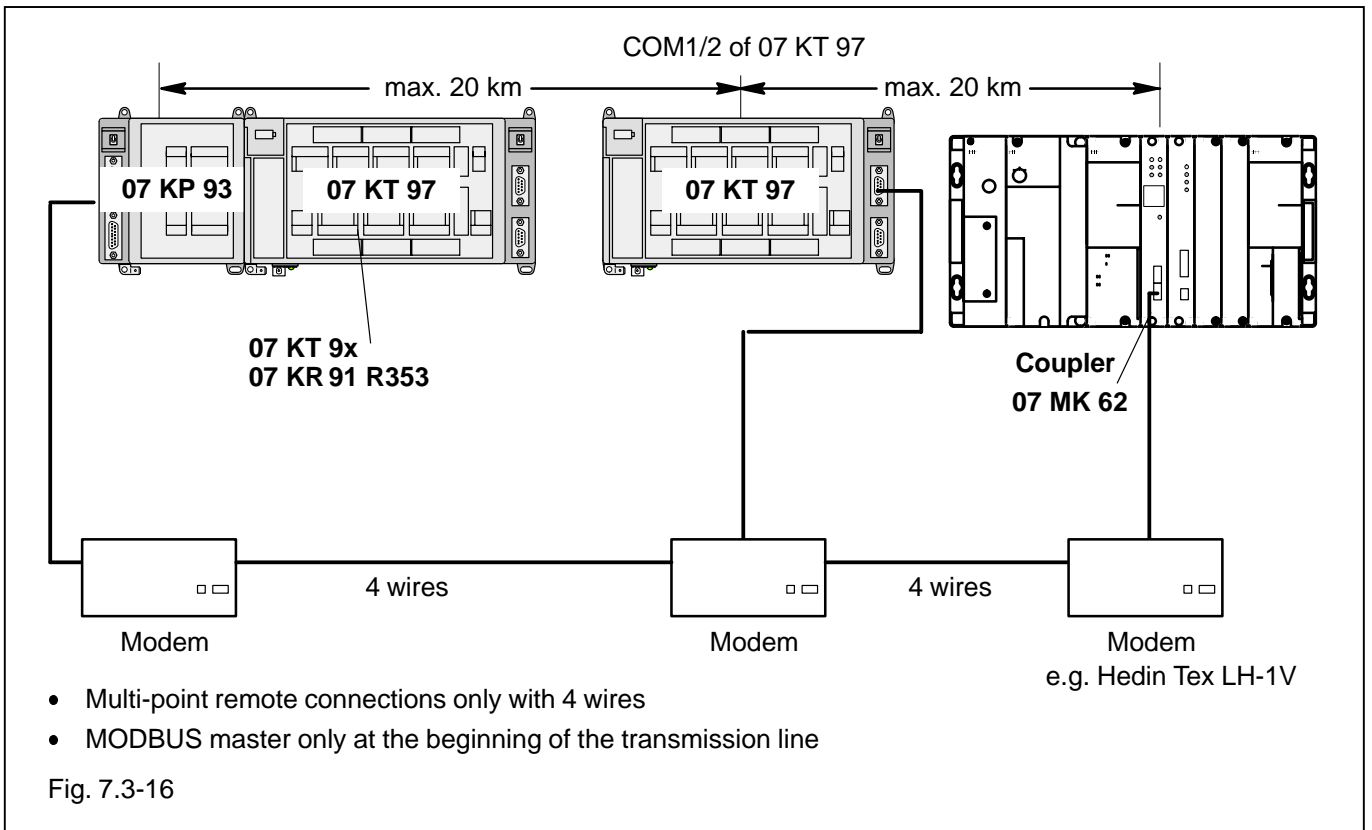


## Installation example

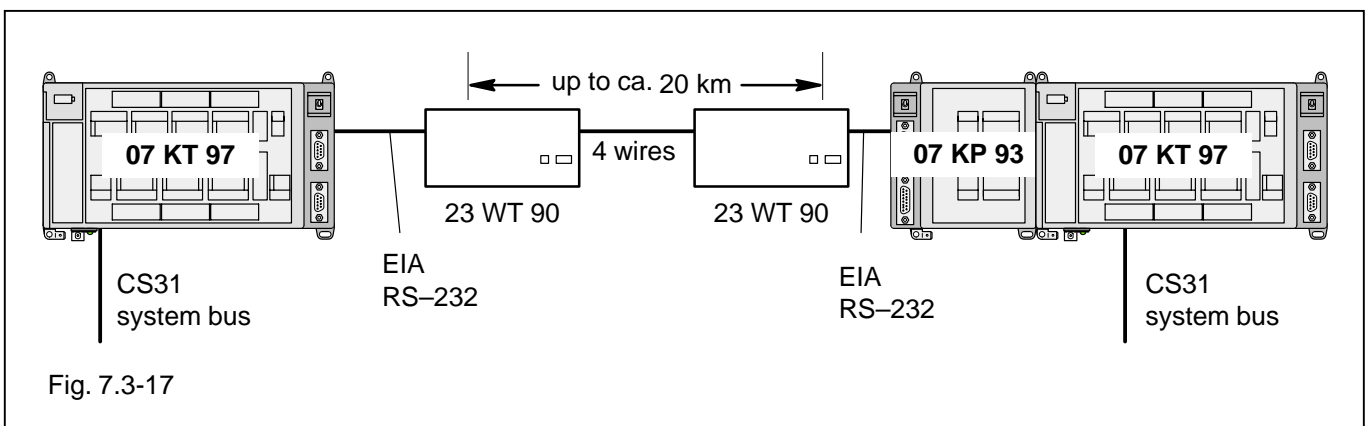
### Point-to-point without converter



### Multi-point line

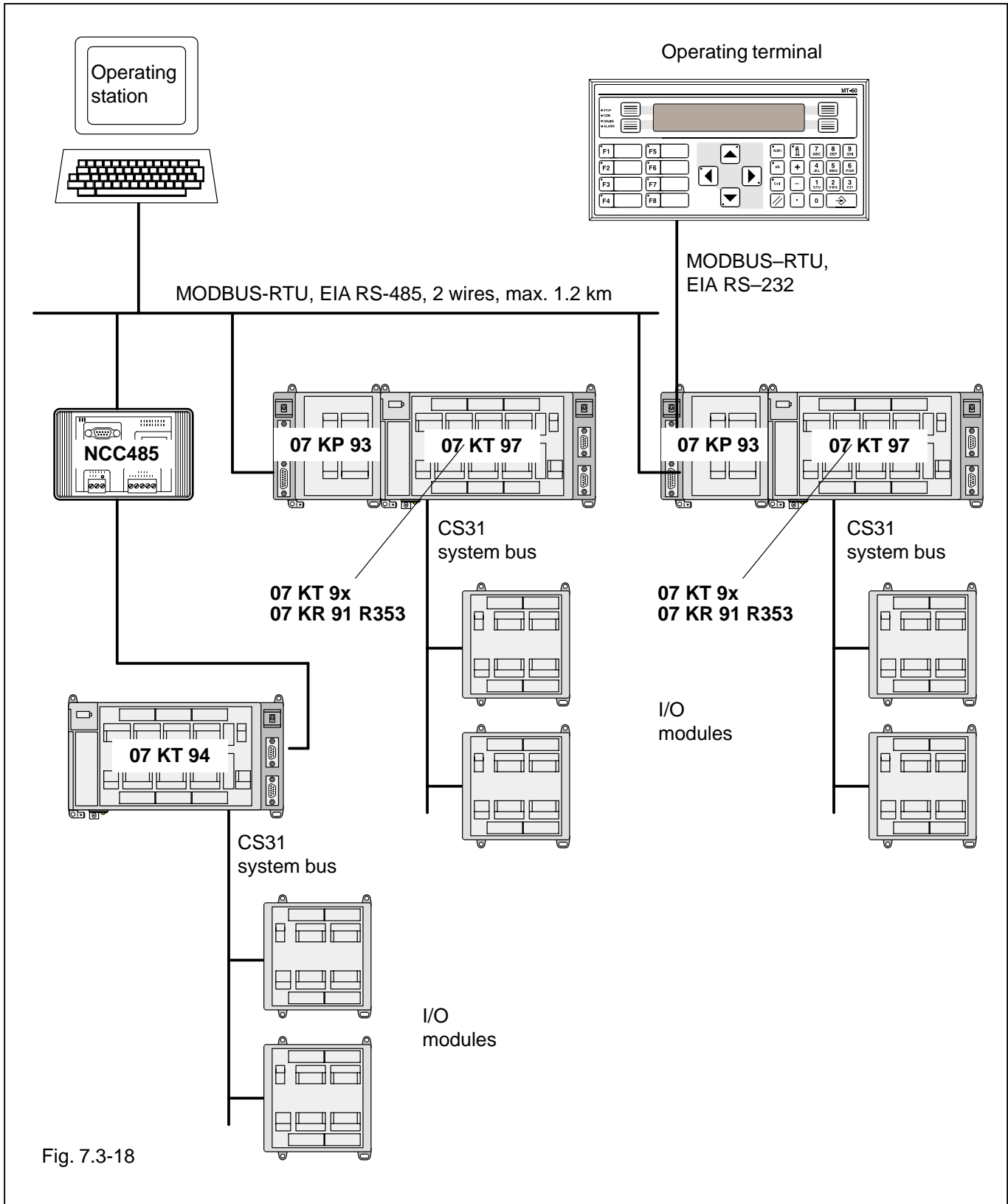


### Point-to-point, max. 1200 bits/s, 4 wires



## Separate connection of an operating terminal and an operating station via MODBUS

Use is made of the fact that the coupler 07 KP 93 R1161 has 2 MODBUS interfaces when used as slave (only as slave)







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