



# Interface Converters

FO Converter  
Programming Adapter  
Accessory  
RK512- and HMI-Adapter

## OPTopus, PROFIBUS Optical Link



OPTopus, PROFIBUS Optical Link

The new OPTopus PROFIBUS Optical Link from Systeme Helmholtz GmbH is a full PROFIBUS repeater with an integrated FO interface. The OPTopus permits transmission rates of 9.6 kbps to 12 Mbps on the PROFIBUS with automatic detection of the baud rate. With its optical signal transmission, it offers complete electrical isolation between the PROFIBUS stations and PROFIBUS subnetworks. A further advantage of the OPTopus is its insensitivity to EMC influences.

Because of its compact design, no additional space in the control cabinet is required for deployment because the OPTopus PROFIBUS Optical Link can be used instead of a PROFIBUS connector and is simply plugged into a station in the PROFIBUS network. Moreover, no separate power supply is required because the OPTopus uses the 5 V power supply that every PROFIBUS device provides for the terminating resistor.

The transmission signals are converted into optical signals by the OPTopus and are transmitted on the FO line in this way. The signals are also regenerated with their edge steepness, level and mark-to-space ratio. The OPTopus PROFIBUS is available with 3 different optical interfaces and can therefore also be perfectly combined with existing transmission systems. It is suitable for POF<sup>1)</sup> and PCF<sup>2)</sup> FO. For the close range up to 65 m, an optical transmission line can be set up very quickly and without great effort using POF. The scope of supply of the OPTopus contains the appropriate connectors for this purpose. Only a standard POF FO is additionally required. For larger distances up to 250 m, PCF-FOs can be used. The optical interface of the OPTopus transmits in the visual range (650 nm red light), which enables initial checking of the optical transmission line without expensive measuring instruments.

For many applications, the OPTopus PROFIBUS Optical Link is a real alternative to conventional optical signal converters, both technically and in terms of price. It additionally provides the advantages of a normal repeater. Bus extension, increase in the number of stations and expansion of your plant. Use in MPI networks is also possible.

As a special application, the PROFIBUS Optical Link permits the building of spur lines as autonomous segments.

For this purpose, it can be plugged into programming device port of an existing PROFIBUS connector.

The OPTopus PROFIBUS Optical Link for diagnostic purposes provides a traffic LED and an error LED for the PROFIBUS, and for the optical interface. These keep you informed at all times about the bus status and ensure targeted troubleshooting.

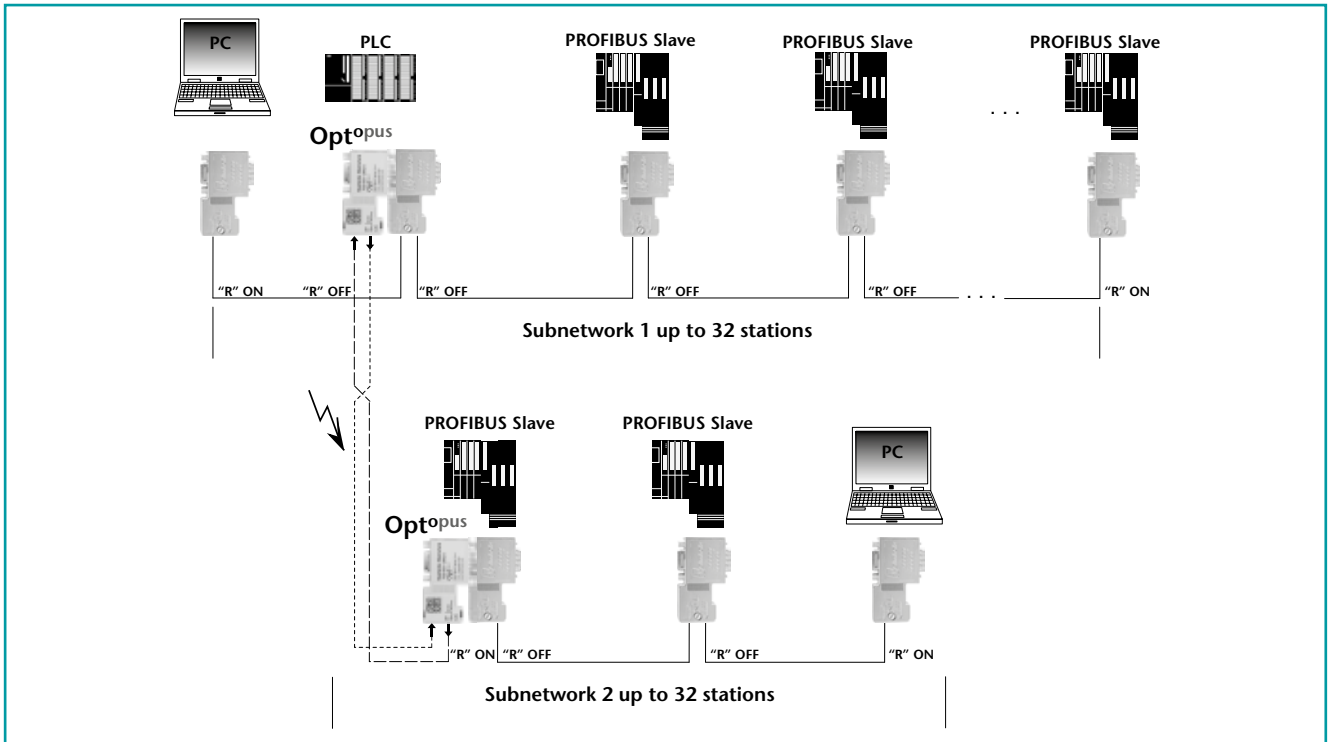
## Features

- PROFIBUS baud rate (9.6 kbps to 12 Mbps), autodetect
- Compact design, not larger than a Helmholtz PROFIBUS connector
- LED display of traffic/bus errors separately for FO and PROFIBUS segment
- Switchable terminating resistor with optical display
- Complete electrical isolation
- Insensitive to EMC influences
- No 24 V power supply required
- Powered directly with 5 V through the PROFIBUS station
- Available with 3 different optical interfaces (SMA, BFOC, Versatile Link plug-in system)
- Suitable for POF<sup>1)</sup> and PCF<sup>2)</sup> FO
- Range: Cable length POF<sup>1)</sup> 65 m  
Cable length PCF<sup>2)</sup> 250 m
- FO plug-in connector supplied

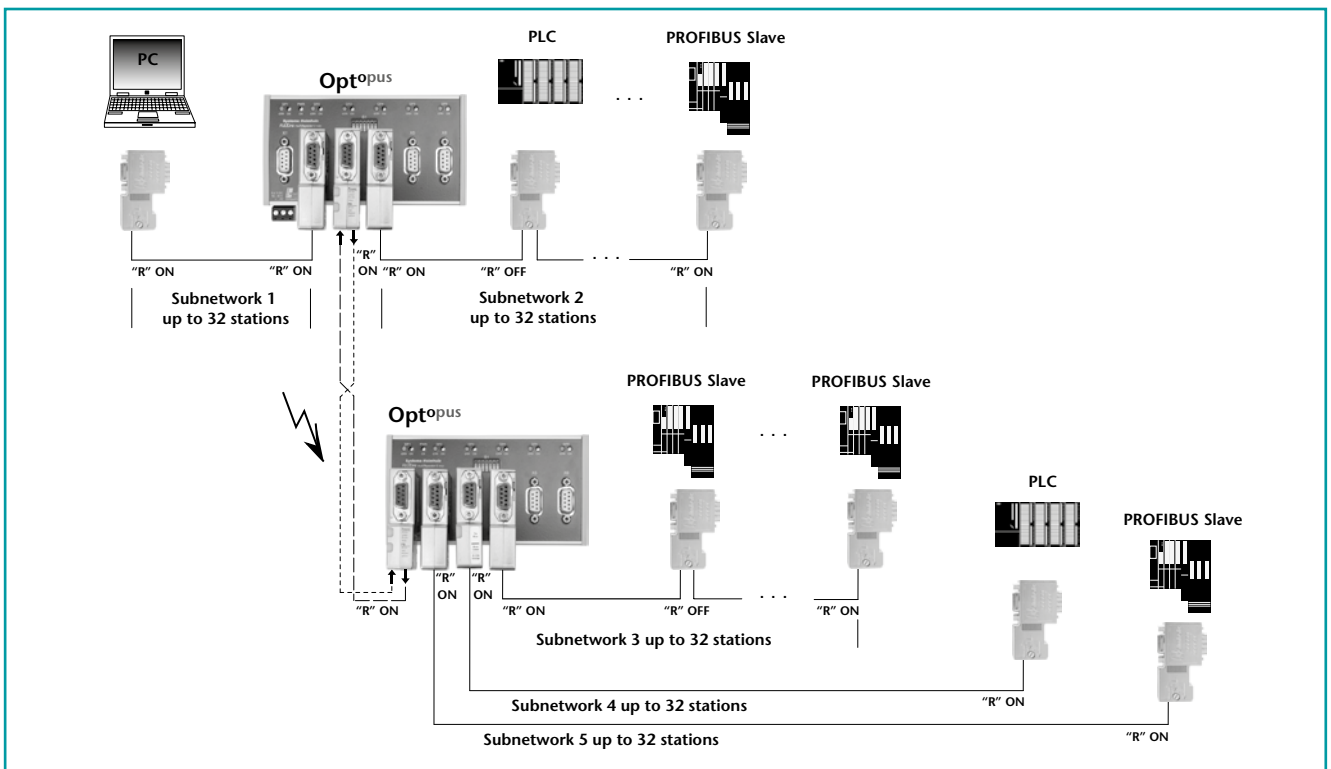
There is also a power LED that provides information about the operating status and status of the terminating resistors.

Technical Data	
Dimensions in mm (D x W x H)	Approx. 64 x 40 x 17
Weight	Approx. 40 g
<b>Power supply</b>	
Voltage	+ 5 V DC
Current consumption	typ. 100 mA
Connector socket	SUB-D 9-polig
<b>PROFIBUS interface</b>	
Transmission rate	9.6 kbps to 12 Mbps detected automatically
Protocol	PROFIBUS-DP acc. to EN 61 158-2
Connection	Socket, SUB D, 9-way
<b>Optical interface</b>	
Wavelength	650 nm
Numerical aperture transmit diode	0,50
Launchable optical power/ receiver sensitivity	
POF 980/1000 µm	-7,5 dBm/-20 dBm
PCF 200/230 µm	-18 dBm/-22 dBm
Overdrive limit receiver	-3 dBm
Max. transmission distance	
POF 980/1000 µm (160 dB/km)	Up to 65 m
PCF 200/230 µm (10 dB/km)	Up to 250 m
Ambient temperature	0 °C ... +60 °C
Transport and storage temperature	-25 °C ... +75 °C
Degree of protection	IP 20

OPTopus, PROFIBUS Optical Link



Generation of a completely electrically isolated subnetwork.



Establishment of a link between two repeaters that is not subject to EMC interference.

Ordering Data	
	Order No.
OPTopus, PROFIBUS Optical Link Versatile Link (incl. plug-in connector and instruction)	700-991-1AA01
BFOC (incl. plug-in connector and instruction)	700-992-1AA01
SMA (incl. plug-in connector and instruction)	700-993-1AA01

- 1) Polymeric-optical-fiber
- 2) Polymer-cladded-fiber

## SSW7, MPI-Programming Adapter



SSW7, MPI-Programming Adapter

The SSW7 permits connection of a PC or laptop with programming software to programmable controllers via any standard COM port.

The RS232 interface of the SSW7 has automatic baud rate detection for adaptation to the set baud rate (between 9.6 to 115 kbps). The MPI interface operates with 187.5 kbps or 19.2 kbps.

The SSW7 receives its voltage supply from the CPU via the MPI bus. With an optional 24 V connection it can be used anywhere else in the system.

With the included speed-up tool you can attain the max. transmission rate of the SSW7 with every programming software.

**Accessory-Note**

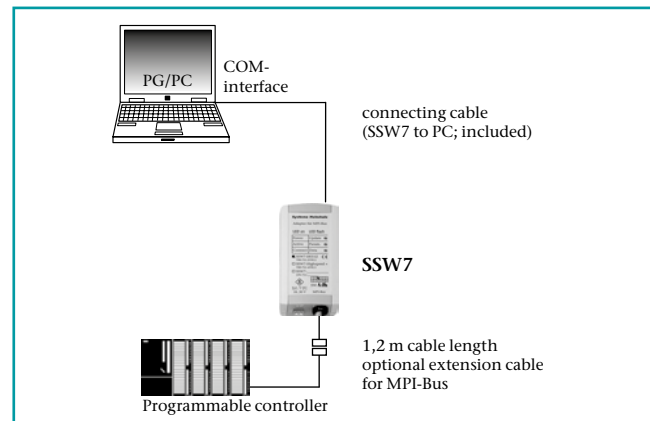
DIN rail adapter, extension cables (on request) as well as multiplexers (see page 106) are available for the SSW7.

By using SHTools software parameterization and diagnostic functions are possible. For firmware update a free download of the latest SHTools version is available on our website [www.helmholz.com](http://www.helmholz.com).

Ordering Data	
	Order No.
<b>MPI-Adapter SSW7, RS232</b> (incl. 3 m programming cable, manual, CD with software)	700-751-1VK21
<b>SSW7, RS422</b> (incl. manual, CD with software)	700-752-1VK21
<b>DIN rail adapter short Power Plug</b> (optional)	700-751-HSH01 700-751-SNT01

**Features**

- Programming and visualization
- Transmission rate up to 115 kBAud
- MPI up to 187,5 kbps
- Power supply via programming device or via external 24 V supply



Application example for SSW7

Technical Data	
Dimensions (D x W x H mm)	105 x 53 x 29
Weight	Approx. 180 g
Supply voltage	+24 V ±25 % from PLC or extern
Current consumption	typ. 30 mA max. 45 mA
<b>MPI-Interface</b>	
Type	RS485
Transmission rate	19.2 or 187.5 kbps
Cable connector	SUB-D, 9-way
<b>Communication interface</b>	
Type	RS232/RS422
Transmission type	Serial asynchronous
Transmission rate	19.2 kbps to 115.2 kbps
Parity	odd
Data format	8 Bit
Protocols	PC <-> S7
Connection	Connector, SUB-D, 9-way
Degree of protection	IP 20

## SSW7-USB, MPI-Programming Adapter USB



SSW7-USB, MPI-Programming Adapter USB

The SSW7-USB permits conversion from a USB interface to the MPI bus for programming software or visualization. The SSW7 has a 1.2 m long MPI connecting cable, which can be directly plugged into the CPU socket of the programmable controller or at any other point in the MPI network. The housing of the SSW7-USB contains a type "B" USB socket. The SSW7-USB can be connected to the PC via the USB cable supplied. The SSW7-USB is powered from the PC. The SSW7-USB can therefore be used at any point in the MPI bus. A driver for creating a virtual COM-port is included.

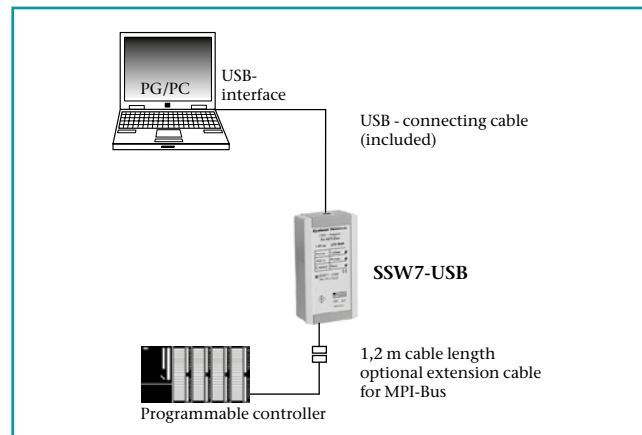
**Accessory-Note**

DIN rail adapter, extension cables (on request) as well as multiplexers (see page 106) are available for the SSW7-USB.

By using SHTools software parameterization and diagnostic functions are possible. For firmware update a free download of the latest SHTools version is available on our website [www.helmholz.com](http://www.helmholz.com).

**Features**

- Programming and visualization via USB
- MPI up to 187,5 kbps
- Supply Voltage via USB
- Virtual COM-port for flexible applications

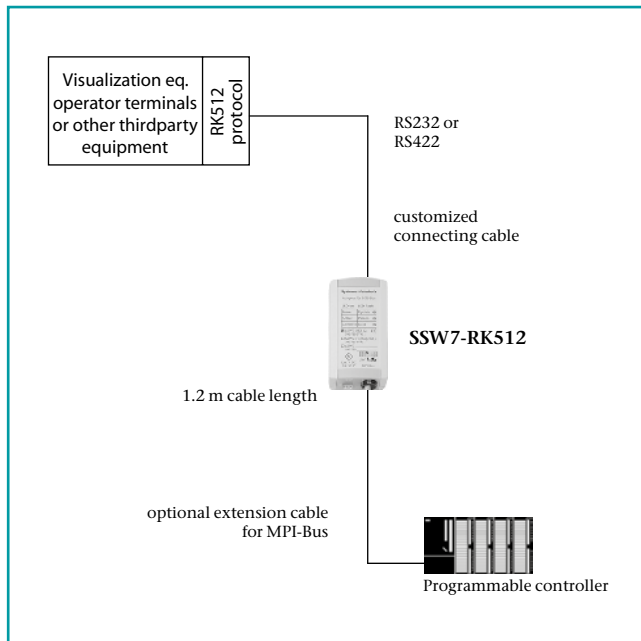


Application example for SSW7-USB

Ordering Data	
	Order No.
MPI-Adapter SSW7-USB (incl. 3 m USB cable, manual, CD with software)	700-755-1VK21
DIN rail adapter short	700-751-HSH01

Technical Data	
Dimensions (D x W x H mm)	105 x 53 x 29
Weight	Approx. 180 g
Supply voltage	5 V via USB
Current consumption	Approx. 150 mA
<b>MPI interface</b>	
Type	RS485
Transmission rate	19.2 or 187.5 kbps
Cable connector	SUB-D, 9-way
<b>Communication interface</b>	
Type	USB 1.1
Protocols	PC <-> S7
Connection	USB-B female
Degree of protection	IP 20

## SSW7-RK512, SSW7-HMI, MPI-Adapter with RK512/HMI Protocol



SSW7-RK512

**SSW7-RK512**

With the SSW7-RK512 you can connect any operator terminal, visualization equipment, or other third-party equipment to the S7 without adapting the software, if they support the RK512 protocol.

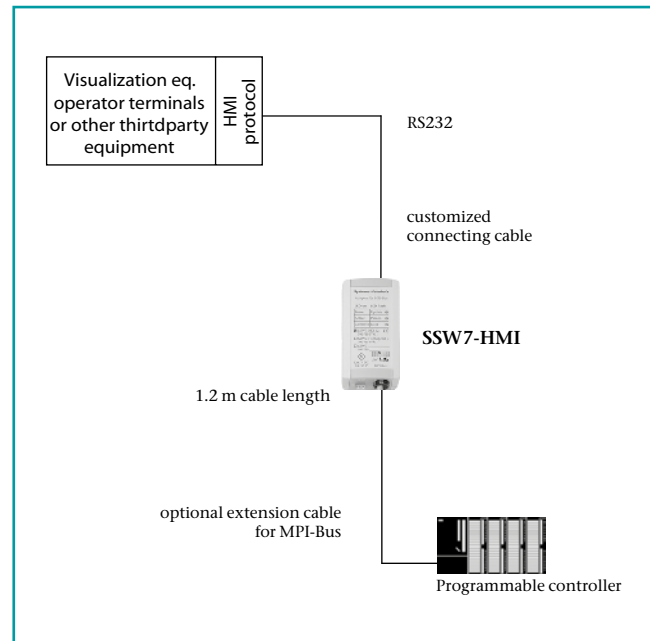
The SSW7-RK512 transmits data blocks, flags, inputs and outputs. The MPI settings of the SSW7-RK512 can be changed with a parameterization program or with special RK512 frames in order to connect several SSW7-RK512s or several PLCs to an MPI bus. The RS232 interface of the SSW7-RK512 has automatic baud rate detection for adapting itself to the connected device (between 9.6 and 115 kbps). The MPI interface operates with 187.5 kbps. The voltage supply for the SSW7-RK512 is taken from the CPU via the MPI bus. With an optional 24 V connection it can be operated anywhere else in the system.

We supply the SSW7-RK512 with an additional programming interface on the connector including switchable terminating resistor.

**Accessory-Note**

DIN rail adapter, extension cables (on request) as well as multiplexers (see page 106) are available for the SSW7-RK512.

By using SHTools software parameterization and diagnostic functions are possible. For firmware update a free download of the latest SHTools version is available on our website [www.helmholz.com](http://www.helmholz.com).



SSW7-HMI

**SSW7-HMI**

The SSW7-HMI is intended for use with operator terminals, visualization equipment or other third-party equipment that supports the Siemens HMI protocol.

The baud rate of the adapter is set by the protocol (between 9.6 and 115 kbps).

The voltage supply for the SSW7-HMI is taken from the CPU via the MPI bus. With an optional 24 V connection it can be operated anywhere else in the system.

We supply the SSW7-HMI with an additional programming interface on the connector including switchable terminating resistor.

**Accessory-Note**

DIN rail adapter, extension cables (on request) as well as multiplexers (see page 106) are available for the SSW7-HMI.

By using SHTools software parameterization and diagnostic functions are possible. For firmware update a free download of the latest SHTools version is available on our website [www.helmholz.com](http://www.helmholz.com).

**Ordering Data**

	Order No.
<b>MPI-Adapter</b> SSW7-RK512 (incl. manual) SSW7-RK512 with RS422 interface (incl. manual)	700-751-5VK21 700-752-5VK21
<b>DIN rail adapter short</b> <b>Power Plug</b> (optional)	700-751-HSH01 700-751-SNT01

**Ordering Data**

	Order No.
<b>MPI-Adapter</b> SSW7-HMI (incl. manual)	700-751-9VK21
<b>DIN rail adapter short</b> <b>Power Plug</b> (optional)	700-751-HSH01 700-751-SNT01

## SSW7-RK512, SSW7-HMI, MPI-Adapter with RK512/HMI Protocol

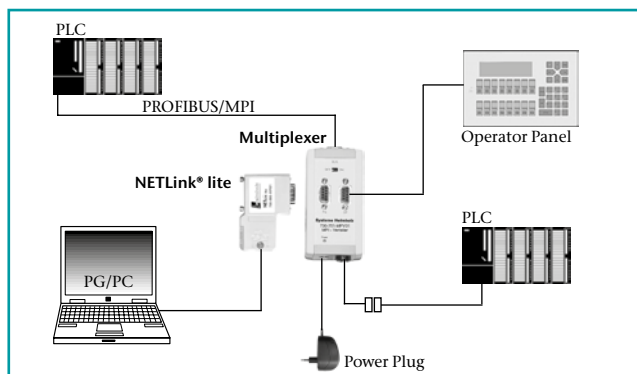
Technical Data			
	SSW7-RK512	SSW7-RK512 with RS422	SSW7-HMI
	700-751-5VK21	700-752-5VK21	700-751-9VK21
Dimensions (D x W x H mm)	105 x 53 x 29	105 x 53 x 29	105 x 53 x 29
Weight	Approx. 180 g	Approx. 180 g	Approx. 180 g
Supply voltage (from AG or current supply)	+24 V ±25 %	+24 V ±25 %	+24 V ±25 %
Current consumption	Approx. 70 mA	Approx. 70 mA	Approx. 70 mA
<b>MPI-Schnittstelle</b> Type	RS485	RS485	RS485
Transmission rate	187.5 kbps	187.5 kbps	19.2 or 187.5 kbps
Cable connector	SUB-D, 9-way with PG interface and witerminating resistor	SUB-D, 9-way with PG interface and witerminating resistor	SUB-D, 9-way with PG interface and witerminating resistor
<b>Communication interface</b> Type	RS232	RS422	RS232
Transmission type	Serial asynchronous	Serial asynchronous	Serial asynchronous
Transmission rate	19.2 ... 115.2 kbps	19.2 ... 115.2 kbps	4.800 ... 115.2 kbps
Parity	Even	Even	Odd
Data format	8 Bit	8 Bit	8 Bit
Protocols	RK512 with 3964/R	RK512 with 3964/R	HMI
Connection	Connector, SUB-D, 9-way	Connector, SUB-D, 9-way	Connector, SUB-D, 9-way
Degree of protection	IP 20	IP 20	IP 20

## Multiplexer for MPI and PROFIBUS



Multiplexer for MPI-/PROFIBUS

The MPI/PROFIBUS multiplexer permits connection of up to 3 devices to one MPI or PROFIBUS network. The MPI/PROFIBUS multiplexer has a 1.2 m long connecting cable that can be plugged directly into the MPI/PROFIBUS socket of the PLC but also at any position in an MPI or PROFIBUS network. The "PG" socket is the only socket that has the full MPI pin assignment. That makes it possible to use "direct operation" on this socket via an MPI adapter ("SSW 7" or "PC adapter") with programming software. This pin assignment is not relevant for operation of PROFIBUS devices. The MPI/PROFIBUS multiplexer is powered via the connection line from the CPU. If the terminal does not provide 24 V, it is possible to draw the 24 V from an external source.



Application example for MPI Multiplexer



Ordering Data	
	Order No.
Multiplexer for MPI/PROFIBUS (incl. instruction)	700-751-MPV01
Power Plug (optional)	700-751-SNT01

Technical Data	
Dimensions (D x W x H mm)	125 x 67 x 30
Weight	Approx. 135 g
<b>Power supply</b>	
Voltage	DC 24 V
Current consumption	max. 200 mA at 24 V
<b>PROFIBUS interface</b>	
Transmission	max. 12 Mbps
Connection	3 x female, SUB-D, 9-way
Ambient temperature	0 °C ... +60 °C
Transport and storage temperature	-25 °C ... +75 °C
Degree of protection	IP 20