

# JACKPAC® (IP67)

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# The Concept

## The IP20 Solution

Until now, all signal conditioning tasks were carried out by modules designed to IP20. For their own protection, these need to be installed in central switchgear cabinets.

However, decentralised solutions that do not require large switchgear cabinets are increasingly being sought for use in modern-day industrial automation technology.

It is true that shielded signals can be fed to the machinery via powerful fieldbus systems; but in each case, however, there remains an interconnecting cable between the subdistribution boards and the sensors/actuators that is susceptible to interference from surrounding operations.

As has always been the case, signals are still influenced by over-voltages and earth loops; interference pulses are superimposed on sensor signals and malfunctions can be initiated.

The result is that signal conditioning modules sealed to IP20 require terminal boxes, such as switchgear cabinets, or even cost-intensive special solutions (for example, sensor-actuator distributors with integrated signal-conditioning functions providing as many functionalities as possible, even when these are surplus to requirements).

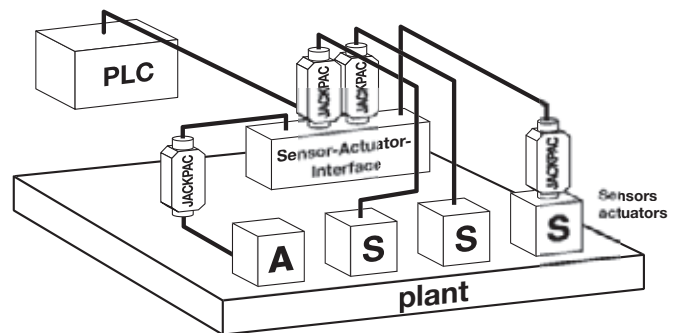
## The JACKPAC® Solution

By introducing **JACKPAC®**, the new M12 Signal Box with the high IP67 ingress protection. Weidmüller can now provide a modular and versatile concept that makes it possible to condition signals in an industrial environment. Requiring no additional enclosure, these modules can be installed directly on the machine, in the production plant, conveyor system or within a process.

The M12 connector, which is standardised all over the world, makes it possible to integrate the **JACKPAC®** at any point in the sensor-actuator cabling. The fixed pin assignment means it is easy to install and is protected against polarity reversal.

This versatility really comes into its own when an installation needs to be altered or modernised, simply because no additional enclosures or cabling are required.

By providing this high degree of protection and versatility, **JACKPAC®** renders possible innovative automation concepts based on decentralised applications – without large control cabinets or small distribution boards – for consistent, transparent, efficient and cost-efficient installations.



- Easy 'Plug and Play' installation
- Universal and versatile usage
- No additional enclosure required
- Saves time and costs
- Ideal for decentralised concepts and plant modernisation (retrofitting)

### Switching amplifier

The switching amplifiers are simply integrated into the control line of the actuator.

It is therefore possible to, for example, amplify switched outputs with 24 V DC/0.5 A to 24 V DC/2 A.

The switching amplifier with electrical isolation simultaneously isolates the input and output circuits. This prevents feedback from the actuator to the sensitive switched output of the I/O module. The switching voltage at the output is fed via a T-distributor.

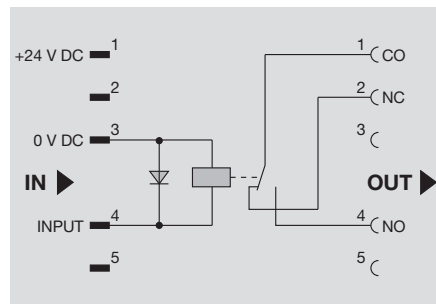
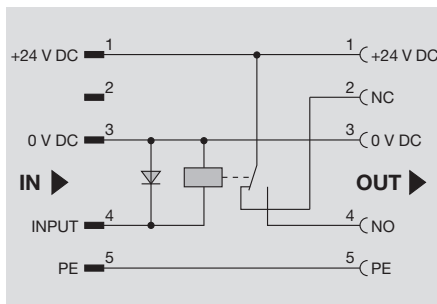
### JPR 24 V DC 1CO M12

without isolation



### JPR 24 V DC ISO 1CO M12

with electrical isolation



### Technical data

<b>Input</b>	
Rated voltage	24 V DC ±20 %
Rated current DC	8 mA
Power rating	200 mW
DC Response/dropout Volt	16,8 V / 1,2 V
Pick-up/drop-out current, DC coil	5 mA / 1 mA
Free-wheel diode	Yes
<b>Output</b>	
max. switching power	24 V / 2 A
min. switching power	12 V / 10 mA
Contact base material	AgSnO
Mechanical endurance	10 <sup>7</sup> switching cycles
max. switching frequency at rated load	0,1 Hz
Response time / Drop-out time	approx. 5 ms
<b>Insulation coordination</b>	
Rated voltage	300 V
Overvoltage category	III
Pollution severity	2
Protective separation to VDE 0106 part 101	no
<b>General data</b>	
Operating temperature	-25 °C...+70 °C
Storage temperature	-25°C...+70°C
Connection system	M12 - plug/socket, A-coded
Approvals	CE, cULus
Clamping range (rating- / min. / max.)	mm <sup>2</sup>
Length x width x height	mm
<b>Note</b>	
Details for TU = 20°C	

<b>Technical data</b>		
Rated voltage	24 V DC ±20 %	
Rated current DC	8 mA	
Power rating	200 mW	
DC Response/dropout Volt	16,8 V / 1,2 V	
Pick-up/drop-out current, DC coil	5 mA / 1 mA	
Free-wheel diode	Yes	
<b>Output</b>		
max. switching power	24 V / 2 A	
min. switching power	12 V / 10 mA	
Contact base material	AgSnO	
Mechanical endurance	10 <sup>7</sup> switching cycles	
max. switching frequency at rated load	0,1 Hz	
Response time / Drop-out time	approx. 5 ms	
<b>Insulation coordination</b>		
Rated voltage	300 V	
Overvoltage category	III	
Pollution severity	2	
Protective separation to VDE 0106 part 101	yes	
<b>General data</b>		
Operating temperature	-25 °C...+70 °C	
Storage temperature	-25°C...+70°C	
Connection system	M12 - plug/socket, A-coded	
Approvals	CE, cULus	
Clamping range (rating- / min. / max.)	mm <sup>2</sup>	
Length x width x height	mm	
<b>Note</b>		
Details for TU = 20°C		

<b>Technical data</b>		
Rated voltage	24 V DC ±20 %	
Rated current DC	8 mA	
Power rating	200 mW	
DC Response/dropout Volt	16,8 V / 1,2 V	
Pick-up/drop-out current, DC coil	5 mA / 1 mA	
Free-wheel diode	Yes	
<b>Output</b>		
max. switching power	24 V / 2 A	
min. switching power	12 V / 10 mA	
Contact base material	AgSnO	
Mechanical endurance	10 <sup>7</sup> switching cycles	
max. switching frequency at rated load	0,1 Hz	
Response time / Drop-out time	approx. 5 ms	
<b>Insulation coordination</b>		
Rated voltage	300 V	
Overvoltage category	III	
Pollution severity	2	
Protective separation to VDE 0106 part 101	yes	
<b>General data</b>		
Operating temperature	-25 °C...+70 °C	
Storage temperature	-25°C...+70°C	
Connection system	M12 - plug/socket, A-coded	
Approvals	CE, cULus	
Clamping range (rating- / min. / max.)	mm <sup>2</sup>	
Length x width x height	mm	
<b>Note</b>		
Details for TU = 20°C		

### Ordering data

Type	Qty.	Order No.
JPR 24VDC 1CO M12	1	8771420000

Type	Qty.	Order No.
JPR 24VDC 1CO M12	1	8771420000

Type	Qty.	Order No.
JPR 24VDC ISO 1CO M12	1	8771430000

Note

### Accessories

<b>Note</b>	Retaining clip JP CLIP M: 8778490000
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<b>Note</b>	Retaining clip JP CLIP M: 8778490000
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<b>Note</b>	Retaining clip JP CLIP M: 8778490000
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**JACKPAC® timer**

**Timing relay**

Malfunctions in automated systems are becoming ever more common because the ever higher clock rates mean that the sensors are no longer damped for a sufficient time in order to supply pulses that can be processed reliably by the control modules. Pulse stretchers are simply included in the lines between sensors and input modules and lengthen pulses from min. 1 ms to 50 or 100 ms. This enables even short sensor signals to be detected and evaluated reliably by the control.

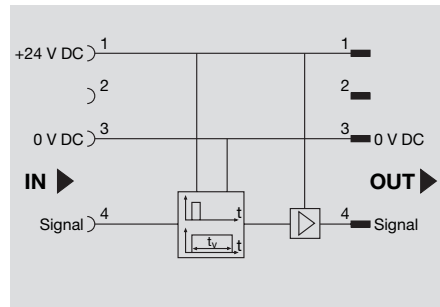
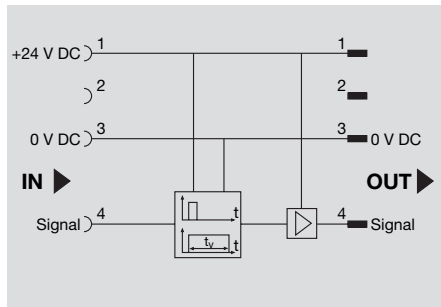
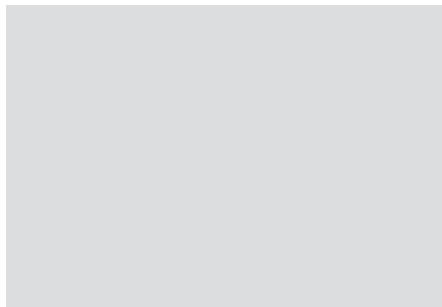
**JPTA 50 ms 24 V DC PNP M12**

Pulse stretching, 50 ms



**JPTA 100 ms 24 V DC PNP M12**

Pulse stretching, 100 ms



**Technical data**

**Input**

Rated voltage  
Rated current DC  
Switch-off delay

**Output**

max. switching voltage DC  
max. switching current

**Insulation coordination (EN 50178)**

Rated voltage  
Impulse withstand voltage  
Overvoltage category  
Pollution severity

**General data**

Operating temperature  
Storage temperature  
Connection system  
Approvals

18...24...30 V DC  
3,5...7,0...10,0 mA  
50 ms

30 V  
400

32 V  
330 V  
I  
2

0 °C...+60 °C  
-20 °C...+85 °C  
M12 - plug/socket, A-coded  
CE, cULus

18...24...30 V DC  
3,5...7,0...10,0 mA  
100 ms

30 V  
400

32 V  
330 V  
I  
2

0 °C...+60 °C  
-20 °C...+85 °C  
M12 - plug/socket, A-coded  
CE, cULus

Clamping range (rating- / min. / max.) mm<sup>2</sup>  
Length x width x height mm

83 x 36 x 14.4

83 x 36 x 14.4

**Note**

**Ordering data**

Type	Qty.	Order No.
JPTA 50MS 24VDC PNP M12	1	8771440000

Type	Qty.	Order No.
JPTA100MS 24VDC PNP M12	1	8836630000

**Note**

**Accessories**

**Note**

Retaining clip  
JP CLIP M: 8778490000

Retaining clip  
JP CLIP M: 8778490000

### 1-stage overvoltage protection

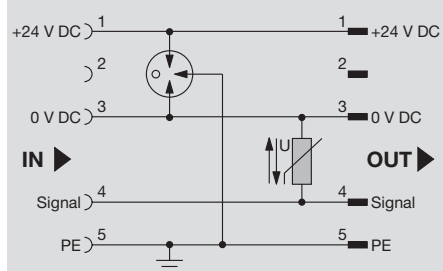
The overvoltage protection is plugged in to protect the sensitive electronics in the signalling circuit.

The suppression circuit with varistor suppresses the induced voltage in solenoid valves.

The PE connection leaves the housing via a separate line. The green/yellow earthing cable must be connected to the system east to ensure reliable discharge of interference pulses.

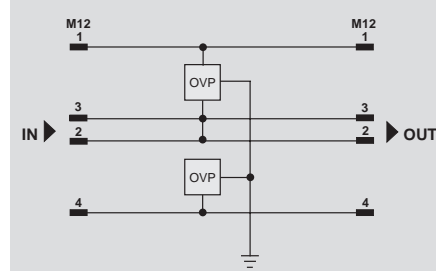
### JPOVP 24 V DC MOV M12

#### Suppression circuit with diode



### JPOVP Cat.5 M12

#### Ethernet Cat.5



### Technical data

Technical data	
Rated voltage	24 V DC
Operating voltage (DC), max.	28 V
Rated discharge current per path (8/20 µs)	5.00 kA
Total discharge current, max. (8/20 µs)	10 kA
DC response voltage	90 V
Attenuation	-
Response time	≤ 25 ns
Rated current	2.00 A
Protection level, signal line, wire to wire/PE	230 V/230 V
Protection level, supply, wire to wire/PE	85 V/85 V
Leakage current at Un	1.00 µA
General data	
Operating temperature	-25°C ... 60°C
Overvoltage category	II
Pollution severity	2
Type of connection	M12 - plug/socket, A-coded
Approvals	CE

Rated voltage	30 V AC/DC
Operating voltage (DC), max.	30 V
Rated discharge current per path (8/20 µs)	5.00 kA
Total discharge current, max. (8/20 µs)	10 kA
DC response voltage	230 V
Attenuation	< 0.3 dB at 250 Hz
Response time	≤ 5 ns
Rated current	0.20 A
Protection level, signal line, wire to wire/PE	130 V/600 V
Protection level, supply, wire to wire/PE	80 V/300 V
Leakage current at Un	
General data	
Operating temperature	-25°C ... 60°C
Overvoltage category	III
Pollution severity	2
Type of connection	to IEC 61076-2-101-AI; M12 - plug/plug, D-coded
Approvals	CE

Rated voltage	30 V AC/DC
Operating voltage (DC), max.	30 V
Rated discharge current per path (8/20 µs)	5.00 kA
Total discharge current, max. (8/20 µs)	10 kA
DC response voltage	230 V
Attenuation	< 0.3 dB at 250 Hz
Response time	≤ 5 ns
Rated current	0.20 A
Protection level, signal line, wire to wire/PE	130 V/600 V
Protection level, supply, wire to wire/PE	80 V/300 V
Leakage current at Un	
General data	
Operating temperature	-25°C ... 60°C
Overvoltage category	III
Pollution severity	2
Type of connection	to IEC 61076-2-101-AI; M12 - plug/plug, D-coded
Approvals	CE

### Dimensions

Clamping range (rating- / min. / max.)	mm <sup>2</sup>
Length x width x height	mm

Clamping range (rating- / min. / max.)	mm <sup>2</sup>
Length x width x height	83 x 36 x 14.4

Clamping range (rating- / min. / max.)	mm <sup>2</sup>
Length x width x height	57 x 36 x 14.4

### Note

Each cable 1.5 m long

Each cable 1.5 m long

### Ordering data

Type	Qty.	Order No.
JPOVP 24VDC MOV M12	1	8760960000

Type	Qty.	Order No.
JPOVP 24VDC MOV M12	1	8760960000

Type	Qty.	Order No.
JPOVP M12 D-coded Cat5	1	8805570000

### Note

Retaining clip JP CLIP M 8778490000

Retaining clip JP CLIP M 8778490000

### Accessories

Note	Retaining clip JP CLIP M 8778490000
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Note	Retaining clip JP CLIP M 8778490000
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Note	Retaining clip JP CLIP M 8778490000
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**1-stage overvoltage protection**

Jackpac OVP terminal equipment against the overvoltages that can occur as a result of atmospheric discharges or storms. This type of protection in the form of an adapter is available in IP20 and IP67 versions and complies with the requirements of class III to IEC 61643-21.

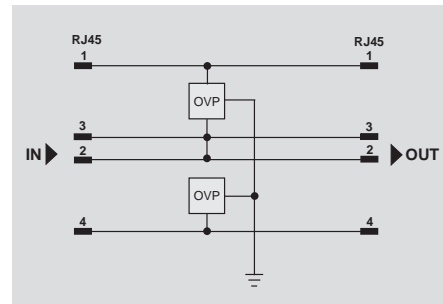
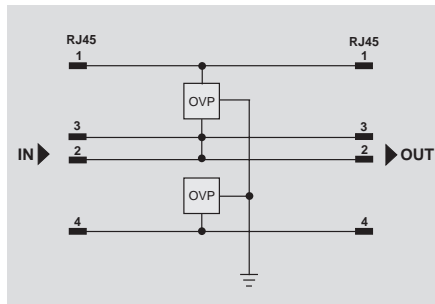
**JPOVP Cat.6 IP20**

**Ethernet Cat.6**



**JPOVP Cat.6 IP67**

**Ethernet Cat.6**



**Technical data**

**Technical data**

Rated voltage  
 Operating voltage (DC), max.  
 Rated discharge current per path (8/20 µs)  
 Total discharge current, max. (8/20 µs)  
 DC response voltage  
 Attenuation  
 Response time  
 Rated current  
 Protection level, signal line, wire to wire/PE  
 Protection level, supply, wire to wire/PE  
 Leakage current at Un

34 V AC / 48 V DC  
 48 V  
 5.00 kA  
 10 kA  
 230 V  
 < 0,3 dB at 250 Hz  
 ≤ 5 ns  
 0,20 A  
 130 V/600 V  
 80 V/300 V

34 V AC / 48 V DC  
 48 V  
 5.00 kA  
 10 kA  
 230 V  
 < 0,3 dB at 250 Hz  
 ≤ 5 ns  
 0,20 A  
 130 V/600 V  
 80 V/300 V

**General data**

Operating temperature  
 Overvoltage category  
 Pollution severity  
 Type of connection  
 Approvals

-25°C ... 60°C  
 III  
 2  
 RJ45 plug;IP20  
 CE

-25°C ... 60°C  
 III  
 2  
 RJ45 plug;IP67  
 CE

**Dimensions**

Clamping range (rating- / min. / max.) mm<sup>2</sup>  
 Length x width x height mm

53 x 36 x 14,4

53 x 36 x 14,4

**Note**

each with 1.5 m cable

each with 1 m cable and IP67 cable gland

**Ordering data**

Type	Qty.	Order No.
JPOVP RJ45 Cat6 IP20	1	8805550000

Type	Qty.	Order No.
JPOVP RJ45 Cat6 IP67	1	8805560000

**Note**

**Accessories**

**Note**

Retaining clip  
 JP CLIP M 8778490000

Retaining clip  
 JP CLIP M 8778490000

### 3-stage protection

With gas discharge tube, varistor and suppression diode.

For protecting binary switching signals up to 24 V, or for analogue measuring circuits with 0...20 mA or 0...10 V.

The PE connection leaves the housing via a separate line. The green/yellow cable must be securely connected to the systems earth to ensure reliable discharging of interference pulses.

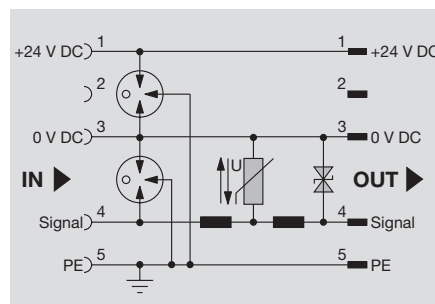
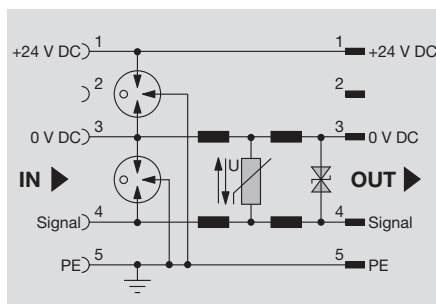
### JPOVP 24 V DC ANA M12

for analogue signals



### JPOVP 24 V DC BIN M12

for digital signals



### Technical data

Technical data	
Rated voltage	
Operating voltage (DC), max.	
Rated discharge current per path (8/20 µs)	
Total discharge current, max. (8/20 µs)	
DC response voltage	
Varistor	
Suppression diodes	
Response time	
Rated current	
Protection level, signal line, wire to wire/PE	
Protection level, supply, wire to wire/PE	
Leakage current at Un	

24 V DC
28 V
5.00 kA
10 kA
90 V
30 V
yes
≤ 100 ps
2.00 A
45 V/65 V
85 V/85 V
1.00 µA

24 V DC
28 V
5.00 kA
10 kA
90 V
30 V
yes
≤ 100 ps
2.00 A
45 V/65 V
85 V/85 V
1.00 µA

General data	
Operating temperature	
Overvoltage category	
Pollution severity	
Type of connection	
Approvals	

-25°C ... 60°C
II
2
M12 - plug/socket, A-coded
CE

-25°C ... 60°C
II
2
M12 - plug/socket, A-coded
CE

Dimensions	
Clamping range (rating- / min. / max.)	mm <sup>2</sup>
Length x width x height	mm

83 x 36 x 14.4
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83 x 36 x 14.4
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Note	
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### Ordering data

Type	Qty.	Order No.
JPOVP 24VDC ANA M12	1	8760970000

Type	Qty.	Order No.
JPOVP 24VDC ANA M12	1	8760970000

Type	Qty.	Order No.
JPOVP 24VDC BIN M12	1	8760980000

Note	
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### Accessories

Note	
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Retaining clip JP CLIP M 8778490000
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Retaining clip JP CLIP M 8778490000
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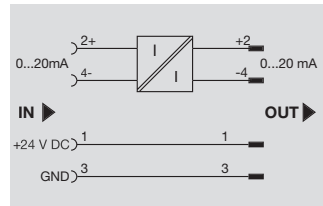
**JACKPAC® analog**

**DC/DC passive signal isolators**

**0(4)...20 mA / 0(4)...20 mA**

**2-way separation**

Passive isolators are used for the electrical isolation of standard signals 0(4)...20 mA / 0...10 V. The modules fed from the input side draw the energy they need for signal transmission and power supply from the active input circuit. A stable current signal for control purposes is available on the output side.



**Technical data**

**Input**

Input capacitance  
Input voltage  
Input current  
Input resistance, voltage  
Input resistance, current

approx. 1 nF  
-  
0(4)...20 mA  
-  
≤ 0.1 V at 20 mA (with open current output or mains failure approx. 350 mV)  
< 100 mA

Overload protection

**Output**

Output current  
Output voltage  
Chopper frequency  
Accuracy

0...20 mA (max. 12 V)  
-  
approx. 100 kHz  
< 0.1% of upper limit and < 0.02% of measured value/100Ω load  
≥ 100 Hz  
-  
≤ 600 Ω  
< 20 μA/  
< 10 mV<sub>eff</sub>  
≤ 100 ppm/K of final value

Cut-off frequency (-3dB)

Load impedance, voltage

Load impedance, current

Offset current/Offset voltage

Residual ripple

Temperature coefficient

**Insulation coordination**

EMC standards

Test voltage

Ingress protection class

Pollution severity

Overvoltage category

**General data**

Supply voltage

Type of connection

Operating temperature

Storage temperature

Approvals

DIN EN 61326  
510 V @ 50 Hz  
IP 68  
3  
II  
24 V DC ± 15 %  
M12 - plug/socket, A-coded  
-10 °C...+70 °C  
-40 °C...+85 °C  
CE, cURus

**Dimensions**

Clamping range (rating- / min. / max.) mm<sup>2</sup>

Length x width x height mm

83 x 36 x 14.4

**Note**

**Ordering data**

Type	(Qty.=1)	Order No.
JPA CCC LP M12		8778790000

**Note**

**Accessories**

**Note**

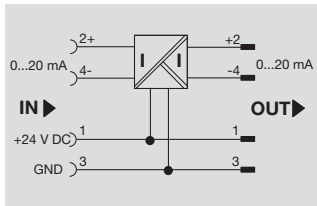
Retaining clip JP Clip M 8778490000

**DC/DC active signal isolators**

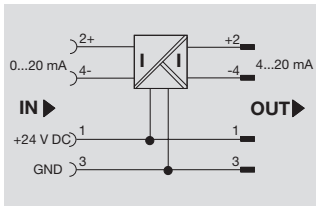
**3-way separation**

The new active signal isolator/ converter for electrical isolation of standard signals 0/4...20 mA, bzw. 0...10 V is used for opening earth loops and for eliminating interference variables from the input side. Input and output are supplied with the necessary auxiliary power via the electrically isolated auxiliary voltage supply.

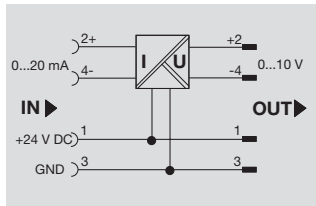
**0-20 mA / 0-20 mA**



**0-20 mA / 4-20 mA**



**0-20 mA / 0-10 V**



**Technical data**

<b>Input</b>	
Input capacitance	approx. 1 nF
Input voltage	-
Input current	0...20 mA
Input resistance, voltage	-
Input resistance, current	≤ 0.1 V at 20 mA (with open current output or mains failure approx. 350 mV)
Overload protection	< 100 mA
<b>Output</b>	
Output current	0...20 mA
Output voltage	-
Chopper frequency	approx. 100 kHz
Accuracy	< 0.2% of final value
Cut-off frequency (-3dB)	≥ 100 Hz
Load impedance, voltage	-
Load impedance, current	≤ 500 Ω @ 20 mA
Offset current/Offset voltage	< 20 μA/
Residual ripple	< 10 mV <sub>eff</sub>
Temperature coefficient	≤ 100 ppm/K of final value
<b>Insulation coordination</b>	
EMC standards	DIN EN 61326
Test voltage	510 V @ 50 Hz
Ingress protection class	IP 68
Pollution severity	3
Overvoltage category	II
<b>General data</b>	
Supply voltage	24 V DC ± 15 % / 0,6 W
Type of connection	M12 - plug/socket, A-coded
Operating temperature	-10 °C...+70 °C
Storage temperature	-40 °C...+85 °C
Approvals	CE, cURus

Input capacitance	approx. 1 nF
Input voltage	-
Input current	0...20 mA
Input resistance, voltage	-
Input resistance, current	≤ 0.1 V at 20 mA (with open current output or mains failure approx. 350 mV)
Overload protection	< 100 mA
Output current	4...20 mA
Output voltage	-
Chopper frequency	approx. 100 kHz
Accuracy	< 0.2% of final value
Cut-off frequency (-3dB)	≥ 100 Hz
Load impedance, voltage	-
Load impedance, current	≤ 500 Ω @ 20 mA
Offset current/Offset voltage	< 20 μA/
Residual ripple	< 10 mV <sub>eff</sub>
Temperature coefficient	≤ 100 ppm/K of final value
EMC standards	DIN EN 61326
Test voltage	510 V @ 50 Hz
Ingress protection class	IP 68
Pollution severity	3
Overvoltage category	II
Supply voltage	24 V DC ± 15 % / 0,6 W
Type of connection	M12 - plug/socket, A-coded
Operating temperature	-10 °C...+70 °C
Storage temperature	-40 °C...+85 °C
Approvals	CE, cURus

Input capacitance	approx. 1 nF
Input voltage	-
Input current	0...20 mA
Input resistance, voltage	-
Input resistance, current	≤ 0.1 V at 20 mA (with open current output or mains failure approx. 350 mV)
Overload protection	< 100 mA
Output current	0...10 V
Output voltage	-
Chopper frequency	approx. 100 kHz
Accuracy	< 0.3% of measuring range
Cut-off frequency (-3dB)	≥ 100 Hz
Load impedance, voltage	≥ 10 kΩ @ 10 V
Load impedance, current	-
Offset current/Offset voltage	/< 10 mV
Residual ripple	< 10 mV <sub>eff</sub>
Temperature coefficient	≤ 100 ppm/K of final value
EMC standards	DIN EN 61326
Test voltage	510 V @ 50 Hz
Ingress protection class	IP 68
Pollution severity	3
Overvoltage category	II
Supply voltage	24 V DC ± 15 % / 0,6 W
Type of connection	M12 - plug/socket, A-coded
Operating temperature	-10 °C...+70 °C
Storage temperature	-40 °C...+85 °C
Approvals	CE, cURus

Input capacitance	approx. 1 nF
Input voltage	-
Input current	0...20 mA
Input resistance, voltage	-
Input resistance, current	≤ 0.1 V at 20 mA (with open current output or mains failure approx. 350 mV)
Overload protection	< 100 mA
Output current	-
Output voltage	0...10 V
Chopper frequency	approx. 100 kHz
Accuracy	< 0.3% of measuring range
Cut-off frequency (-3dB)	≥ 100 Hz
Load impedance, voltage	≥ 10 kΩ @ 10 V
Load impedance, current	-
Offset current/Offset voltage	/< 10 mV
Residual ripple	< 10 mV <sub>eff</sub>
Temperature coefficient	≤ 100 ppm/K of final value
EMC standards	DIN EN 61326
Test voltage	510 V @ 50 Hz
Ingress protection class	IP 68
Pollution severity	3
Overvoltage category	II
Supply voltage	24 V DC ± 15 % / 0,6 W
Type of connection	M12 - plug/socket, A-coded
Operating temperature	-10 °C...+70 °C
Storage temperature	-40 °C...+85 °C
Approvals	CE, cURus

**Dimensions**

Clamping range (rating- / min. / max.)	mm <sup>2</sup>
Length x width x height	mm

Clamping range (rating- / min. / max.)	mm <sup>2</sup>
Length x width x height	83 x 36 x 14.4

Clamping range (rating- / min. / max.)	mm <sup>2</sup>
Length x width x height	83 x 36 x 14.4

Clamping range (rating- / min. / max.)	mm <sup>2</sup>
Length x width x height	83 x 36 x 14.4

**Note**

**Ordering data**

Type	(Qty.=1)	Order No.
JPA CCC DC 0-20/0-20MA		8828960000

Type	(Qty.=1)	Order No.
JPA CCC DC 0-20/4-20MA		8833440000

Type	(Qty.=1)	Order No.
JPA CVG DC 0-20MA/0-10V		8833380000

Type	(Qty.=1)	Order No.
JPA CVG DC 0-20MA/0-10V		8833380000

**Note**

**Accessories**

<b>Note</b>	Retaining clip JP Clip M 8778490000
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<b>Note</b>	Retaining clip JP Clip M 8778490000
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<b>Note</b>	Retaining clip JP Clip M 8778490000
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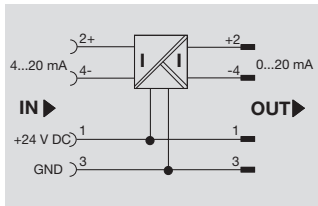
<b>Note</b>	Retaining clip JP Clip M 8778490000
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**DC/DC active signal isolators**

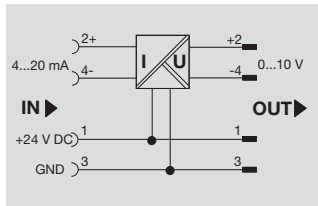
**3-way separation**

The new active signal isolator/ converter for electrical isolation of standard signals 0/4...20 mA, bzw. 0...10 V is used for opening earth loops and for eliminating interference variables from the input side. Input and output are supplied with the necessary auxiliary power via the electrically isolated auxiliary voltage supply.

**4-20 mA / 0-20 mA**



**4-20 mA / 0-10 V**



**Technical data**

**Input**

Input capacitance  
Input voltage  
Input current  
Input resistance, voltage  
Input resistance, current

approx. 1 nF  
-  
4...20 mA  
-  
≤ 0.1 V at 20 mA (with open current output or mains failure approx. 350 mV)  
< 100 mA

approx. 1 nF  
-  
4...20 mA  
-  
≤ 0.1 V at 20 mA (with open current output or mains failure approx. 350 mV)  
< 100 mA

Overload protection

**Output**

Output current  
Output voltage  
Chopper frequency  
Accuracy  
Cut-off frequency (-3dB)  
Load impedance, voltage  
Load impedance, current  
Offset current/Offset voltage  
Residual ripple  
Temperature coefficient

0...20 mA  
-  
approx. 100 kHz  
< 0.2% of final value  
≥ 100 Hz  
-  
≤ 500 Ω @ 20 mA  
< 20 μA/  
< 10 mV<sub>eff</sub>  
≤ 100 ppm/K of final value

-  
0...10 V  
approx. 100 kHz  
< 0.3% of measuring range  
≥ 100 Hz  
-  
/ < 10 mV  
< 10 mV<sub>eff</sub>  
≤ 100 ppm/K of final value

**Insulation coordination**

EMC standards  
Test voltage  
Ingress protection class  
Pollution severity  
Overvoltage category

DIN EN 61326  
510 V @ 50 Hz  
IP 68  
3  
II

DIN EN 61326  
510 V @ 50 Hz  
IP 68  
3  
II

**General data**

Supply voltage  
Type of connection  
Operating temperature  
Storage temperature  
Approvals

24 V DC ± 15 % / 0,6 W  
M12 - plug/socket, A-coded  
-10 °C...+70 °C  
-40 °C...+85 °C  
CE, cURus

24 V DC ± 15 % / 0,6 W  
M12 - plug/socket, A-coded  
-10 °C...+70 °C  
-40 °C...+85 °C  
CE, cURus

**Dimensions**

Clamping range (rating- / min. / max.) mm<sup>2</sup>  
Length x width x height mm

83 x 36 x 14.4

83 x 36 x 14.4

**Note**

**Ordering data**

Type	(Qty.=1)	Order No.
JPA CCC DC 4-20/0-20MA		8833390000

Type	(Qty.=1)	Order No.
JPA CVC DC 4-20MA/0-10V		8833400000

**Note**

**Accessories**

**Note**

Retaining clip JP Clip M 8778490000

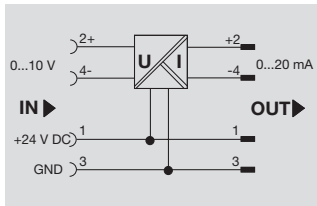
Retaining clip JP Clip M 8778490000

**DC/DC active signal isolators**

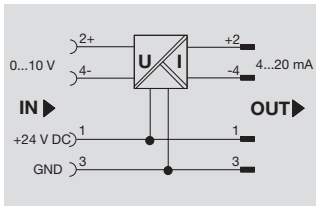
**3-way separation**

The new active signal isolator/ converter for electrical isolation of standard signals 0/4...20 mA, bzw. 0...10 V is used for opening earth loops and for eliminating interference variables from the input side. Input and output are supplied with the necessary auxiliary power via the electrically isolated auxiliary voltage supply.

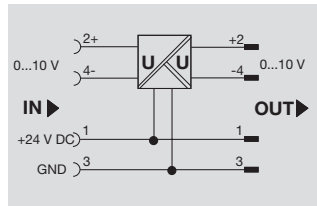
**0-10 V / 0-20 mA**



**0-10 V / 4-20 mA**



**0-10 V / 0-10 V**



**Technical data**

<b>Input</b>	
Input capacitance	approx. 1 nF
Input voltage	0...10 V
Input current	-
Input resistance, voltage	100 kΩ
Input resistance, current	-
Overload protection	Suppression diodes
<b>Output</b>	
Output current	0...20 mA
Output voltage	-
Chopper frequency	approx. 100 kHz
Accuracy	< 0.3% of measuring range
Cut-off frequency (-3dB)	≥ 100 Hz
Load impedance, voltage	-
Load impedance, current	≤ 500 Ω @ 20 mA
Offset current/Offset voltage	< 20 μA/
Residual ripple	< 10 mV <sub>eff</sub>
Temperature coefficient	≤ 100 ppm/K of final value
<b>Insulation coordination</b>	
EMC standards	DIN EN 61326
Test voltage	510 V @ 50 Hz
Ingress protection class	IP 68
Pollution severity	3
Overvoltage category	II
<b>General data</b>	
Supply voltage	24 V DC ± 15 % / 0,6 W
Type of connection	M12 - plug/socket, A-coded
Operating temperature	-10 °C...+70 °C
Storage temperature	-40 °C...+85 °C
Approvals	CE, cURus

<b>Input</b>	
Input capacitance	approx. 1 nF
Input voltage	0...10 V
Input current	-
Input resistance, voltage	100 kΩ
Input resistance, current	-
Overload protection	Suppression diodes
<b>Output</b>	
Output current	4...20 mA
Output voltage	-
Chopper frequency	approx. 100 kHz
Accuracy	< 0.3% of measuring range
Cut-off frequency (-3dB)	≥ 100 Hz
Load impedance, voltage	-
Load impedance, current	≤ 500 Ω @ 20 mA
Offset current/Offset voltage	< 20 μA/
Residual ripple	< 10 mV <sub>eff</sub>
Temperature coefficient	≤ 100 ppm/K of final value
<b>Insulation coordination</b>	
EMC standards	DIN EN 61326
Test voltage	510 V @ 50 Hz
Ingress protection class	IP 68
Pollution severity	3
Overvoltage category	II
<b>General data</b>	
Supply voltage	24 V DC ± 15 % / 0,6 W
Type of connection	M12 - plug/socket, A-coded
Operating temperature	-10 °C...+70 °C
Storage temperature	-40 °C...+85 °C
Approvals	CE, cURus

<b>Input</b>	
Input capacitance	approx. 1 nF
Input voltage	0...10 V
Input current	-
Input resistance, voltage	100 kΩ
Input resistance, current	-
Overload protection	Suppression diodes
<b>Output</b>	
Output current	-
Output voltage	0...10 V
Chopper frequency	approx. 100 kHz
Accuracy	< 0.3% of measuring range
Cut-off frequency (-3dB)	≥ 100 Hz
Load impedance, voltage	≥ 10 kΩ @ 10 V
Load impedance, current	-
Offset current/Offset voltage	/ < 10 mV
Residual ripple	< 10 mV <sub>eff</sub>
Temperature coefficient	≤ 100 ppm/K of final value
<b>Insulation coordination</b>	
EMC standards	DIN EN 61326
Test voltage	510 V @ 50 Hz
Ingress protection class	IP 68
Pollution severity	3
Overvoltage category	II
<b>General data</b>	
Supply voltage	24 V DC ± 15 % / 0,6 W
Type of connection	M12 - plug/socket, A-coded
Operating temperature	-10 °C...+70 °C
Storage temperature	-40 °C...+85 °C
Approvals	CE, cURus

<b>Input</b>	
Input capacitance	approx. 1 nF
Input voltage	0...10 V
Input current	-
Input resistance, voltage	100 kΩ
Input resistance, current	-
Overload protection	Suppression diodes
<b>Output</b>	
Output current	-
Output voltage	0...10 V
Chopper frequency	approx. 100 kHz
Accuracy	< 0.3% of measuring range
Cut-off frequency (-3dB)	≥ 100 Hz
Load impedance, voltage	≥ 10 kΩ @ 10 V
Load impedance, current	-
Offset current/Offset voltage	/ < 10 mV
Residual ripple	< 10 mV <sub>eff</sub>
Temperature coefficient	≤ 100 ppm/K of final value
<b>Insulation coordination</b>	
EMC standards	DIN EN 61326
Test voltage	510 V @ 50 Hz
Ingress protection class	IP 68
Pollution severity	3
Overvoltage category	II
<b>General data</b>	
Supply voltage	24 V DC ± 15 % / 0,6 W
Type of connection	M12 - plug/socket, A-coded
Operating temperature	-10 °C...+70 °C
Storage temperature	-40 °C...+85 °C
Approvals	CE, cURus

<b>Dimensions</b>	
Clamping range (rating- / min. / max.)	mm <sup>2</sup>
Length x width x height	mm
<b>Note</b>	

<b>Dimensions</b>	
Clamping range (rating- / min. / max.)	mm <sup>2</sup>
Length x width x height	mm
<b>Note</b>	

<b>Dimensions</b>	
Clamping range (rating- / min. / max.)	mm <sup>2</sup>
Length x width x height	mm
<b>Note</b>	

<b>Dimensions</b>	
Clamping range (rating- / min. / max.)	mm <sup>2</sup>
Length x width x height	mm
<b>Note</b>	

<b>Ordering data</b>			
<b>Type</b>	<b>(Qty.=1)</b>	<b>Order No.</b>	
JPA VCC DC 0-10V/0-20MA		8833410000	
<b>Note</b>			

<b>Ordering data</b>			
<b>Type</b>	<b>(Qty.=1)</b>	<b>Order No.</b>	
JPA VCC DC 0-10V/4-20MA		8833420000	
<b>Note</b>			

<b>Ordering data</b>			
<b>Type</b>	<b>(Qty.=1)</b>	<b>Order No.</b>	
JPA VCC DC 0-10V/0-10V		8833430000	
<b>Note</b>			

<b>Ordering data</b>			
<b>Type</b>	<b>(Qty.=1)</b>	<b>Order No.</b>	
JPA VCC DC 0-10V/0-10V		8833430000	
<b>Note</b>			

<b>Accessories</b>	
<b>Note</b>	Retaining clip JP Clip M 8778490000

<b>Accessories</b>	
<b>Note</b>	Retaining clip JP Clip M 8778490000

<b>Accessories</b>	
<b>Note</b>	Retaining clip JP Clip M 8778490000

<b>Accessories</b>	
<b>Note</b>	Retaining clip JP Clip M 8778490000

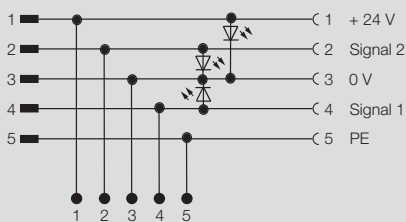
# JACKPAC® test

## Test adapter

The new JACKPAC® test adapter now provides a simple way of intervening in the M12 network. It can be integrated at any point and enables quick and easy connection of a testing device via the 5 push-in connections. Status indicators show the status of the 2 signal channels as well as the 24 V DC auxiliary voltage.

## JP Test

with status indication



### Technical data

#### Input

Rated voltage  
Rated current DC  
Status indicator

18...24...30 V DC  
2,2mA (LED)  
green LED

#### Output

Continuous current  
Power

2 A  
2.2 mA at 24 V

#### General data

Operating temperature  
Storage temperature  
Connection system

0 °C...+55 °C  
-25°C...+70°C  
M12 - plug/socket, A-coded

Clamping range (rating- / min. / max.)      mm<sup>2</sup>  
Length x width x height                              mm

83 x 36 x 14.4

#### Note

### Ordering data

Type	Qty.	Order No.
JP TEST	1	8794120000

#### Note

### Accessories

#### Note

Retaining clip  
JP CLIP M: 8778490000

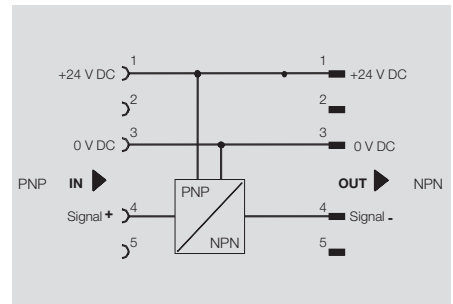
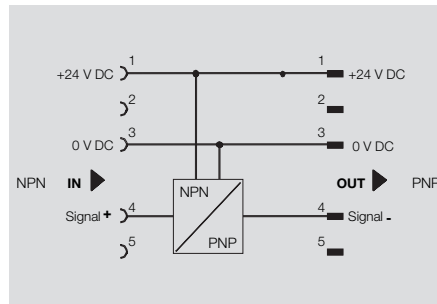
**Signal inverter**

The signal inverters convert sensor signals from PNP to NPN, or from NPN to PNP. This helps to reduce the costly efforts required to adapt the currently available switching circuit and to make optimum use of the available inputs on the I/O cards #2013 a solution which may be particularly interesting for the Asian and North American market.

**JPP NPN PNP 24 V DC**



**JPP PNP NPN 24 V DC**



**Technical data**

<b>Input</b>	
Sensor	2-/ 3-Conductor Sensor NPN-Type
Rated voltage	18...24...30 V DC
Speisestrom für Sensor	< 200 mA
Type of contact	NO contact
<b>Output</b>	
Type	Solid State Relay
Output voltage	18...30 V DC
Output current (max.)	400 mA
Voltage drop at max. load	< 0.1 V
<b>Insulation coordination (EN 50178)</b>	
Rated voltage	32 V
Impulse withstand voltage	330 V
Overvoltage category	I
Pollution severity	2
<b>General data</b>	
Operating temperature	0 °C...+60 °C
Storage temperature	-20 °C...+85 °C
Connection system	M12 - plug/socket, A-coded
Approvals	CE
Clamping range (rating- / min. / max.)	mm <sup>2</sup>
Length x width x height	mm
<b>Note</b>	

<b>Technical data</b>		
Type	Qty.	Order No.
JPP NPN PNP 24VDC	1	8852350000
<b>Note</b>		
<b>Accessories</b>		
<b>Note</b>		
Retaining clip JP CLIP M: 8778490000		

<b>Technical data</b>		
Type	Qty.	Order No.
JPP PNP NPN 24VDC	1	8857030000
<b>Note</b>		
<b>Accessories</b>		
<b>Note</b>		
Retaining clip JP CLIP M: 8778490000		

**Ordering data**

**Note**

**Accessories**

<b>Note</b>	
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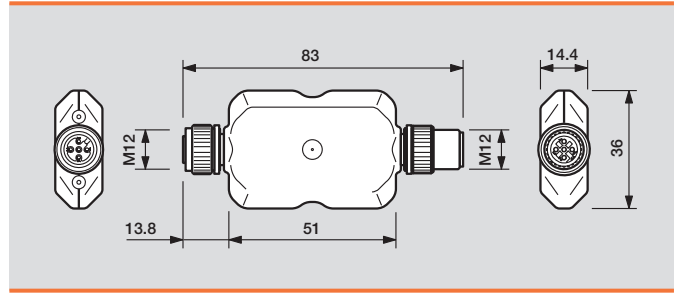
<b>Ordering data</b>		
Type	Qty.	Order No.
JPP NPN PNP 24VDC	1	8852350000
<b>Note</b>		
<b>Accessories</b>		
<b>Note</b>		
Retaining clip JP CLIP M: 8778490000		

<b>Ordering data</b>		
Type	Qty.	Order No.
JPP PNP NPN 24VDC	1	8857030000
<b>Note</b>		
<b>Accessories</b>		
<b>Note</b>		
Retaining clip JP CLIP M: 8778490000		

# JACKPAC® – General Data and Accessories

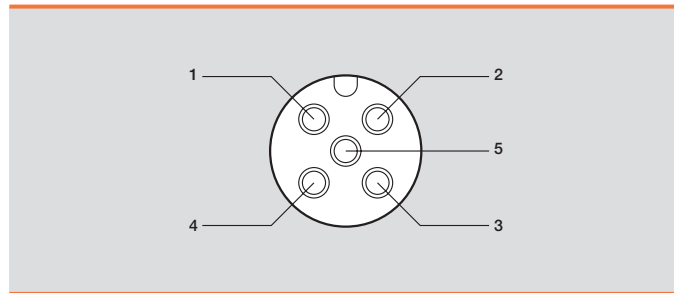
## General data

Ingress protection class	IP67
Housing material	PBT, RAL 7032 (grey)
Flammability class	V0 to UL94
Screw socket	M12, CuZn, nickel plated, A-coded
Rated torque	0.8 ... 1 Nm



## Contact assignment (socket)

Pole	Assignment
1	+24 V DC
2	Input / output 2
3	0 V DC
4	Input / output 1
5	PE / Earth



## Accessories

### Retaining clip



Type	Qty	Order No.
Stainless steel JP CLIP M	1	8778490000

### Twin plug



Type	Qty	Order No.
5-pole SAI-Y-5S PARA M12/M12	1	1783430000

### Screwty M12



Type	Qty	Order No.
With torque SCREWTY M12 DM	1	1900001000

### Sensor cables



Type	Qty	Order No.
4-pole, length 0.3 m	1	9457150000
4-pole, length 0.6 m	1	9457160000
4-pole, length 1.5 m	1	9457170000
5-pole, length 0.3 m	1	9457340030
5-pole, length 0.6 m	1	9457340060
5-pole, length 1.5 m	1	9457340150

Further accessories are available in our catalogue 'Sensor-Aktor-Interface'