

Series PM1



AVENTICS™ Series PM1



Pressure Switches, Series PM1

- Operating pressure -0.9 ... 0 -0.9 ... 3 0.2 ... 16 bar
- Mechanical
- Spring-loaded bellow, adjustable
- Electr. connection Plug EN 175301-803, form A
- Compressed air connection Internal thread G 1/4 Flange with O-ring Ø 5x1,5



Type	Mechanical
Function	change-over contact (mechanical)
Mounting orientation	Any
Working pressure min./max.	See table below
Ambient temperature min./max.	-20 ... 80 °C
Medium temperature min./max.	-10 ... 80 °C
Medium	Compressed air, Hydraulic oil
Measurement	Relative pressure
Switching element	microswitch (input/output)
Protection against overpressure	80 bar
Max. switching frequency	1,5 Hz
Shock resistance max.	15 g
Vibration resistance	10 g (60 - 500 Hz)
Repeatability (% of full scale value)	± 1 %
Switching point	adjustable
Hysteresis	max. switching pressure difference
DC operating voltage min./max.	12 ... 30 V DC
Operational voltage AC min./max.	12 ... 250 V AC
Mounting types	via through holes
Protection class	IP65
Electr. connection	Plug EN 175301-803, form A
Weight	0.16 kg

Technical data

Part No.		Type	Operating pressure range	Compressed air connection
			min./max.	
R412010711		PM1-M3-G014	-0.9 ... 0 bar	Internal thread, G 1/4
R412022752		PM1-M3-G014	-0.9 ... 3 bar	Internal thread, G 1/4
R412010712		PM1-M3-G014	0.2 ... 16 bar	Internal thread, G 1/4
R412010713		PM1-M3-G014	0.2 ... 16 bar	Internal thread, G 1/4
R412010714		PM1-M3-F001	-0.9 ... 0 bar	Flange with O-ring, Ø 5x1,5
R412010715		PM1-M3-F001	0.2 ... 16 bar	Flange with O-ring, Ø 5x1,5
R412010718		PM1-M3-F001	0.2 ... 16 bar	Flange with O-ring, Ø 5x1,5

Part No.	Scope of delivery	Fig.	
R412010711	With valve plug connector	Fig. 1	-
R412022752	Without valve plug connector	Fig. 1	-
R412010712	Without valve plug connector	Fig. 1	1)
R412010713	With valve plug connector	Fig. 1	1)
R412010714	With valve plug connector	Fig. 2	-

Part No.	Scope of delivery	Fig.	
R412010715	Without valve plug connector	Fig. 2	1)
R412010718	With valve plug connector	Fig. 2	1)

1) Min. switching pressure range 0.2 bar falling/0.5 bar rising

Technical information

Switching function increasing pressure: contact switches from 1-2 to 1-3.

Switching function decreasing pressure: contact switches from 1-3 to 1-2.

Notice: Too-high currents can damage contacts. Inductive or capacitive loads must be equipped with appropriate spark-quenching!

The microswitch has silver-plated contacts.

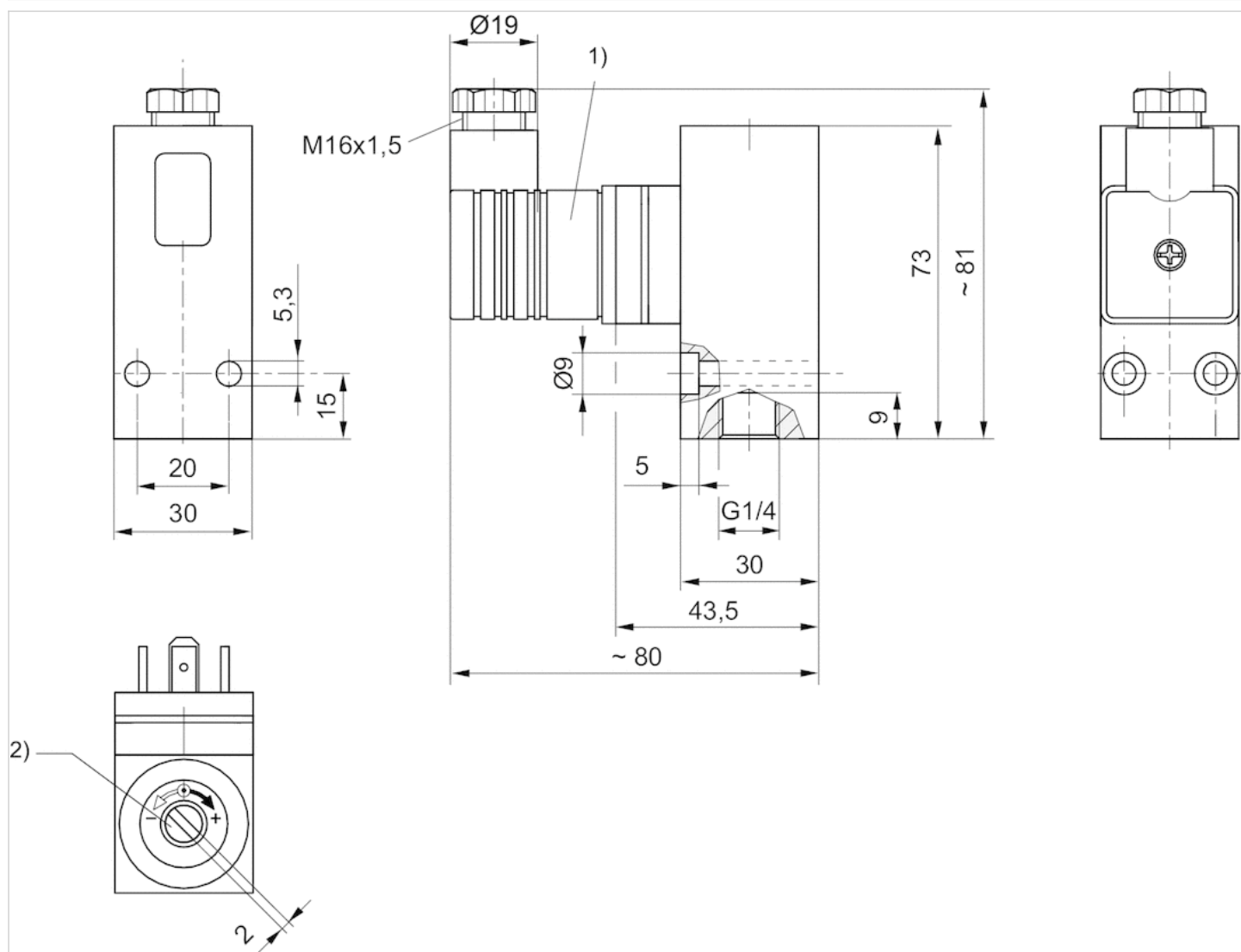
Please observe the pin assignment when selecting plug connectors.

Technical information

Material	
Housing	Aluminum
Seals	Acrylonitrile butadiene rubber
Electr. connection	Brass, nickel-plated

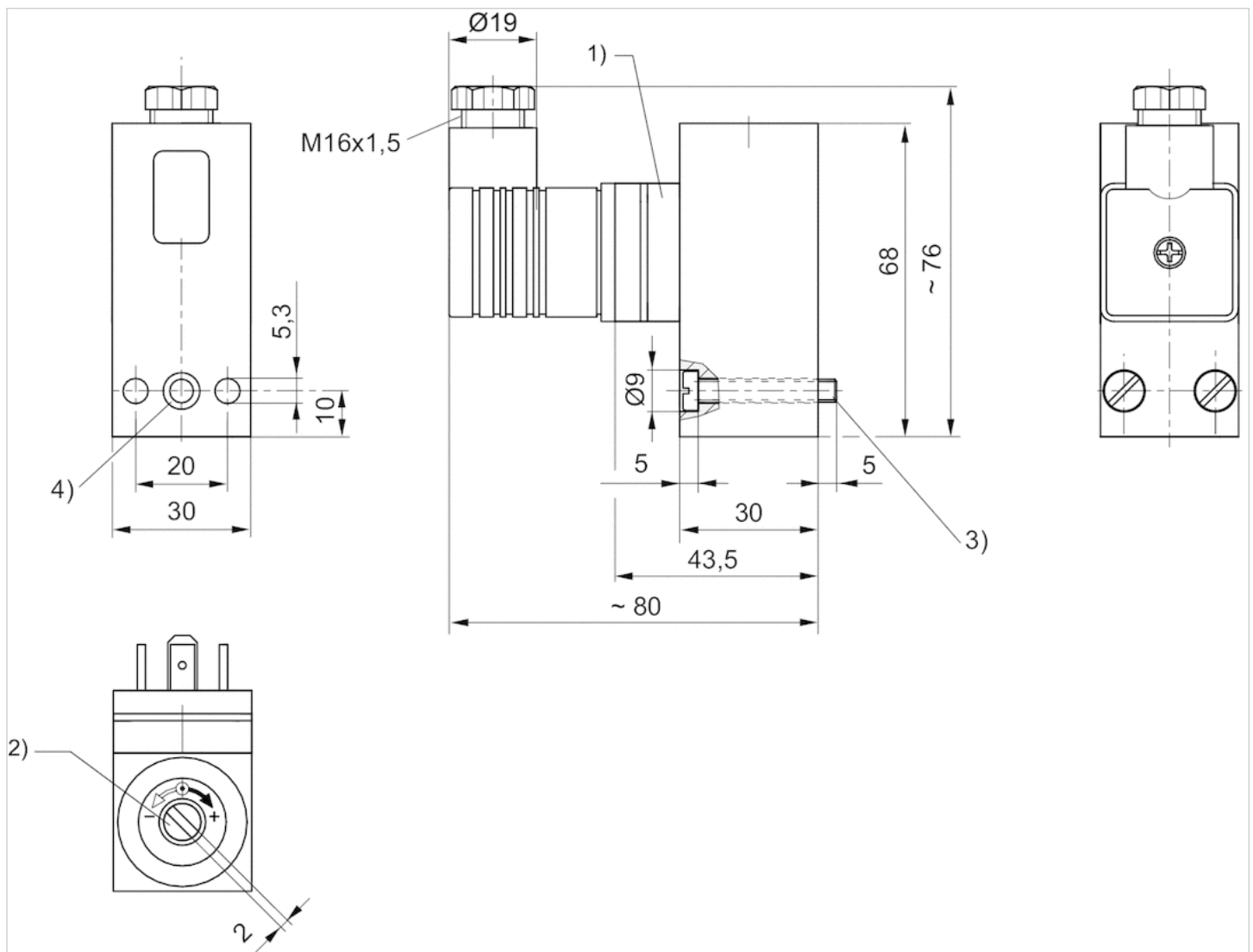
Dimensions

Fig. 1



- 1) Valve plug connector
2) Adjustment screw, self-holding

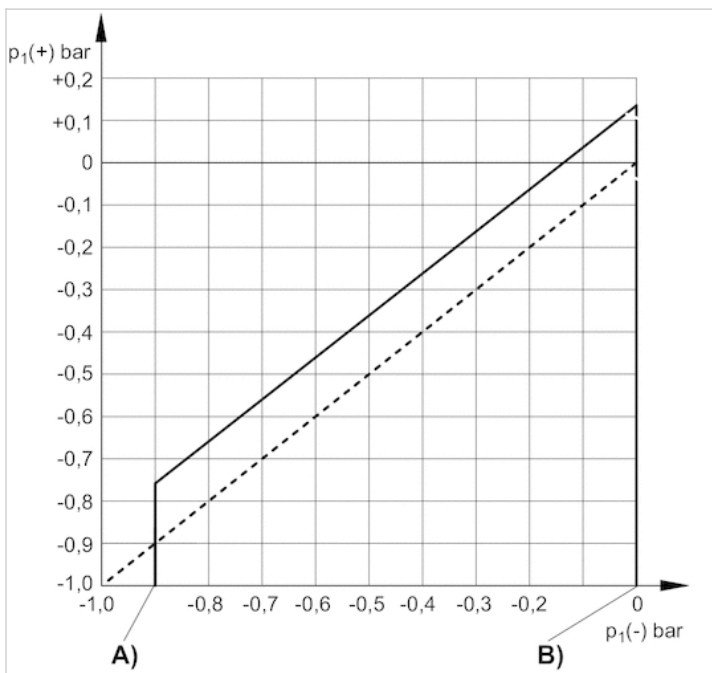
Fig. 2



- 1) Valve plug connector
- 2) Adjustment screw, self-holding
- 3) cylinder screw M5x30 (included in scope of delivery)
- 4) O-ring $\varnothing 5 \times 1,5$ (included)

Diagrams

differential switching pressure characteristic curve (-0,9 - 0 bar)



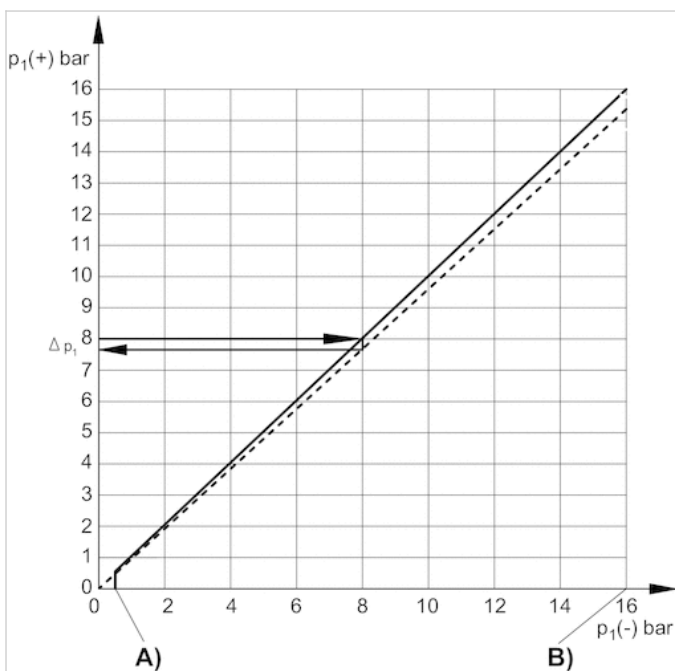
A) $p_1(-)$, min.

B) $p_1(-)$, max.

$p_1(+)$ = upper switching pressure with increasing pressure

$p_1(-)$ = lower switching pressure with decreasing pressure

differential switching pressure characteristic curve (0,2 - 16 bar)



A) $p_1(-)$, min.

B) $p_1(-)$, max.

$p_1(+)$ = upper switching pressure with increasing pressure

$p_1(-)$ = lower switching pressure with decreasing pressure

Δp_1 = max. operating pressure difference or hysteresis

Example:

$p_1 (+) = 8 \text{ bar} > p_1 (-) = 7.6 \text{ bar}$
 $\Delta p_1 = 0.4 \text{ bar}$

max. permissible continuous current $I_{\text{max. [A]}}$ with ohmic load

U [V]	I [A] 1)	I [A] 2)
30	5	3
48	5	1,2
60	5	0,8
125	5	0,4
250	5	–

reference cycle: 30/min., reference temperature: + 30 °C

1) AC

2) DC

max. permissible continuous current $I_{\text{max. [A]}}$ with inductive load

U [V]	I [A] 1) 3)	I [A] 2) 4)
30	3	2
48	3	0.55
60	3	0.4
125	3	0.15
250	3	–

reference cycle: 30/min., reference temperature: + 30 °C

1) AC

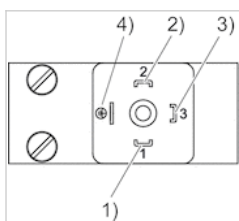
2) DC

3) $\cos \approx 0,7^\circ$

4) $L/R \approx 10 \text{ ms}$

Pin assignments

PIN assignment for valve plug connectors



Pin	1	2	3	4
Allocation	+UB	break contact	NO (make contact)	GND

Pressure Switches, Series PM1

- Operating pressure -0.9 ... 0 0.2 ... 16 bar
- Mechanical
- Spring-loaded bellow, adjustable
- Electr. connection Plug M12x1
- Compressed air connection Internal thread G 1/4 Flange with O-ring Ø 5x1,5



Type	Mechanical
Function	change-over contact (mechanical)
Mounting orientation	Any
Working pressure min./max.	See table below
Ambient temperature min./max.	-20 ... 80 °C
Medium temperature min./max.	-10 ... 80 °C
Medium	Compressed air, Hydraulic oil
Measurement	Relative pressure
Switching element	microswitch (input/output)
Protection against overpressure	80 bar
Max. switching frequency	1,5 Hz
Shock resistance max.	15 g
Vibration resistance	10 g (60 - 500 Hz)
Repeatability (% of full scale value)	± 1 %
Switching point	adjustable
Hysteresis	max. switching pressure difference
DC operating voltage min./max.	12 ... 30 V DC
Operational voltage AC min./max.	12 ... 30 V AC
Mounting types	via through holes
Protection class	IP67
Electr. connection	Plug M12x1
Weight	0.15 kg

Technical data

Part No.		Type	Operating pressure range	Compressed air connection
			min./max.	
R412010716		PM1-M3-G014	-0.9 ... 0 bar	Internal thread, G 1/4
R412010717		PM1-M3-G014	0.2 ... 16 bar	Internal thread, G 1/4
R412010719		PM1-M3-F001	-0.9 ... 0 bar	Flange with O-ring, Ø 5x1,5
R412010720		PM1-M3-F001	0.2 ... 16 bar	Flange with O-ring, Ø 5x1,5

Part No.	Fig.	
R412010716	Fig. 1	-
R412010717	Fig. 1	1)
R412010719	Fig. 2	-
R412010720	Fig. 2	1)

1) Min. switching pressure range 0.2 bar falling/0.5 bar rising

Technical information

Switching function increasing pressure: contact switches from 1-2 to 1-3.

Switching function decreasing pressure: contact switches from 1-3 to 1-2.

Notice: Too-high currents can damage contacts. Inductive or capacitive loads must be equipped with appropriate spark-quenching!

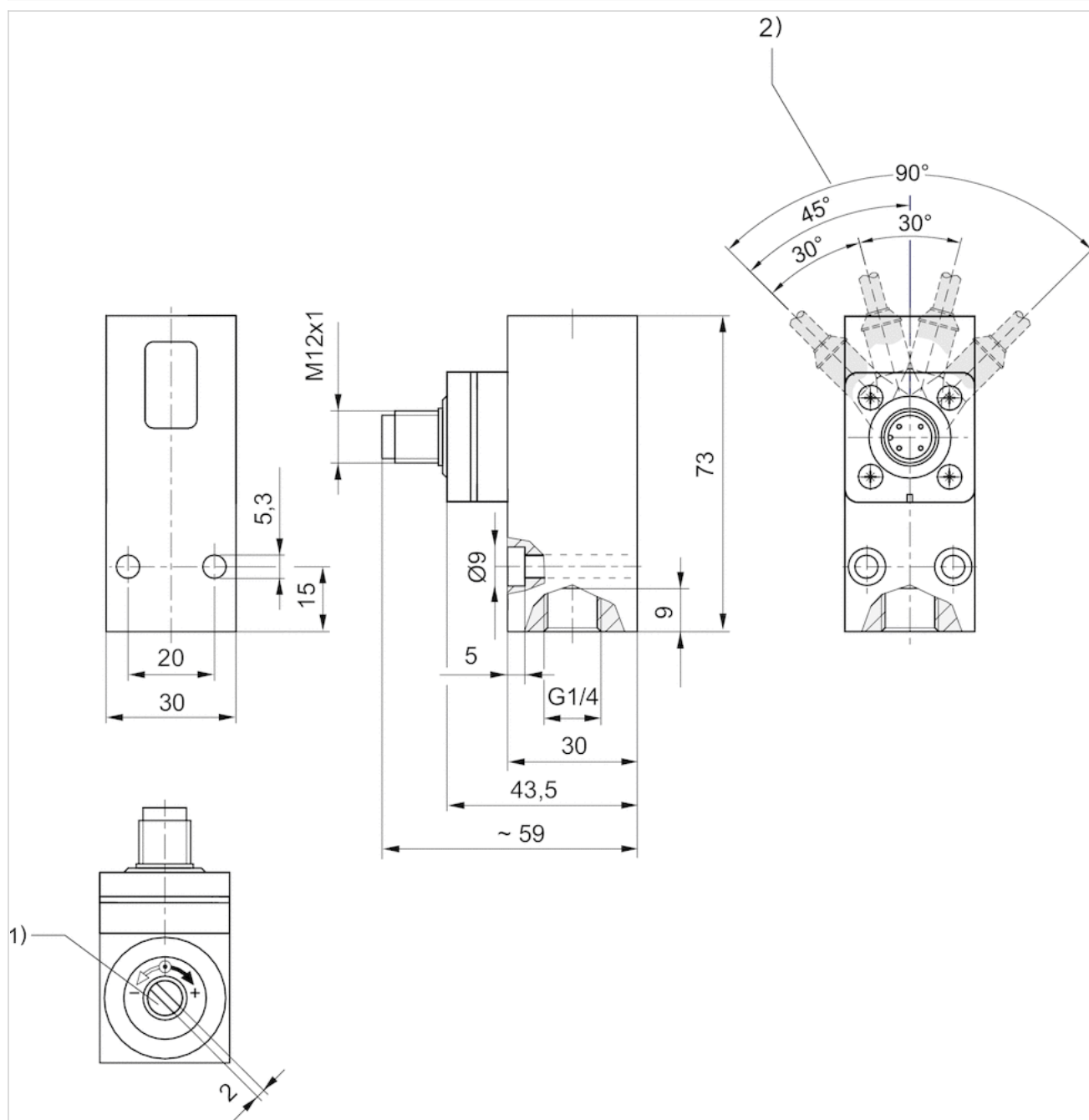
The microswitch has silver-plated contacts.

Technical information

Material	
Housing	Aluminum
Seals	Acrylonitrile butadiene rubber
Electr. connection	Brass, nickel-plated

Dimensions

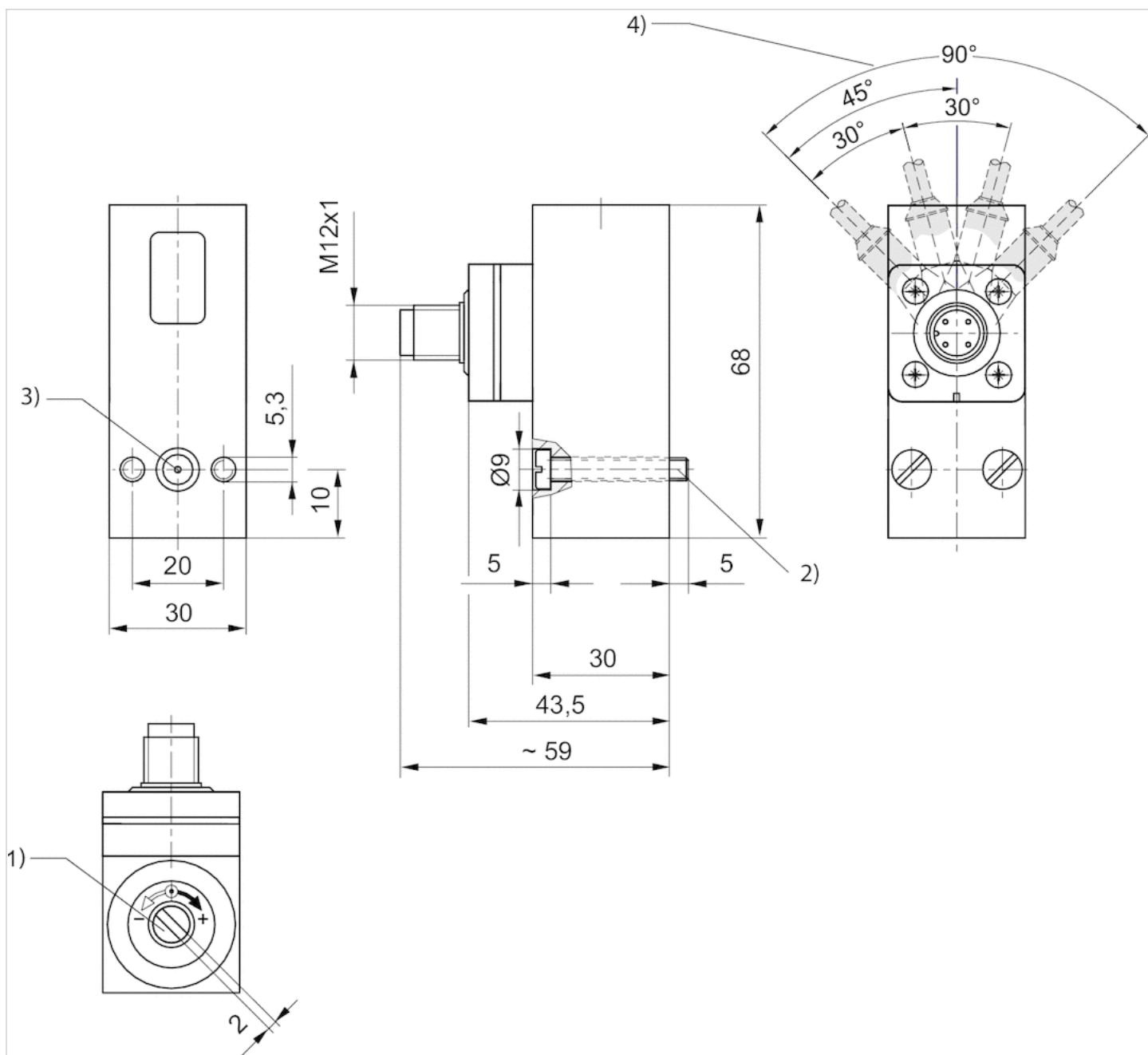
Fig. 1



1) Adjustment screw, self-holding

2) Detent position

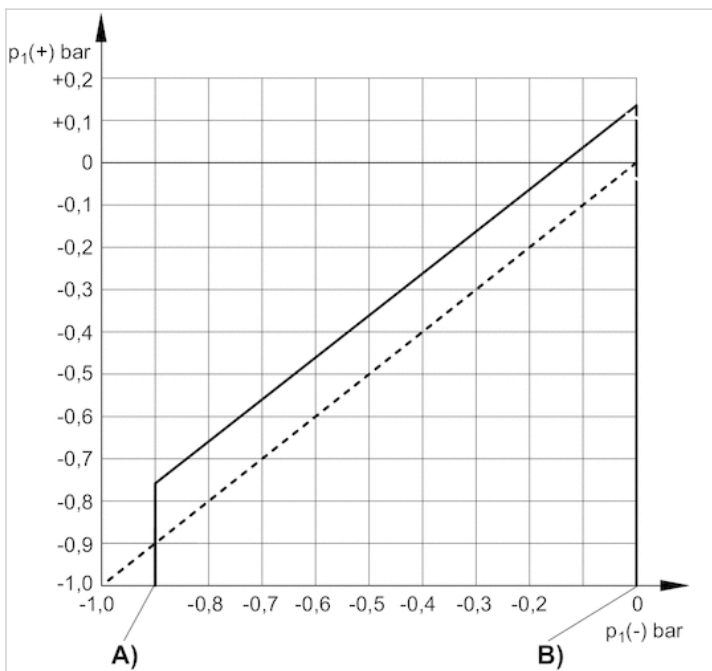
Fig. 2



- 1) Adjustment screw, self-holding
- 2) cylinder screw M5x30 (included in scope of delivery)
- 3) O-ring Ø5x1,5 (included)
- 4) Detent position

Diagrams

differential switching pressure characteristic curve (-0,9 - 0 bar)



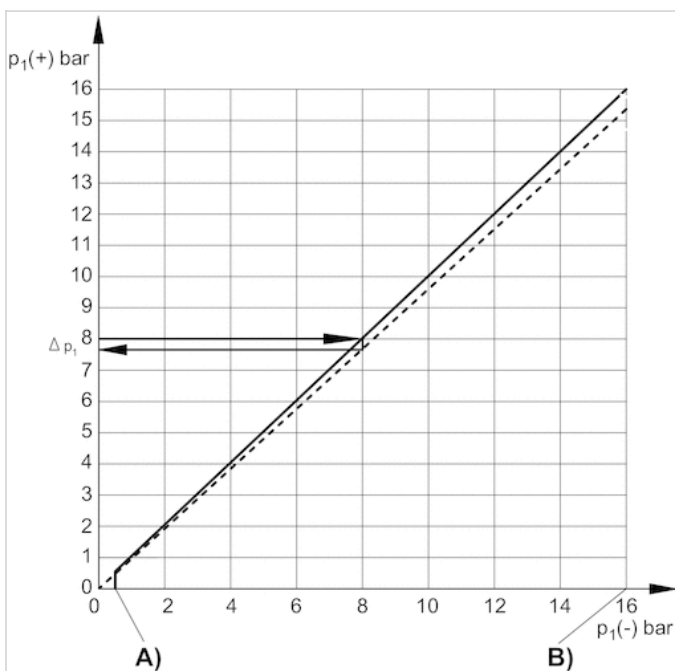
A) $p_1(-)$, min.

B) $p_1(-)$, max.

$p_1(+)$ = upper switching pressure with increasing pressure

$p_1(-)$ = lower switching pressure with decreasing pressure

differential switching pressure characteristic curve (0,2 - 16 bar)



A) $p_1(-)$, min.

B) $p_1(-)$, max.

$p_1(+)$ = upper switching pressure with increasing pressure

$p_1(-)$ = lower switching pressure with decreasing pressure

Δp_1 = max. operating pressure difference or hysteresis

Example:

$p_1 (+) = 8 \text{ bar} > p_1 (-) = 7.6 \text{ bar}$
 $\Delta p_1 = 0.4 \text{ bar}$

max. permissible continuous current $I_{\text{max.}}$ [A] with ohmic load

U [V]	I [A] 1)	I [A] 2)
30-250	3A	
30 / 48 / 60 / 125		3 / 1,2 / 0,8 / 0,4

reference cycle: 30/min., reference temperature: + 30 °C

1) AC

2) DC

max. permissible continuous current $I_{\text{max.}}$ [A] with inductive load

U [V]	I [A] 1) 3)	I [A] 2) 4)
30-250	3A	
30 / 48 / 60 / 125		2 / 0,55 / 0,4 / 0,2

reference cycle: 30/min., reference temperature: + 30 °C

1) AC

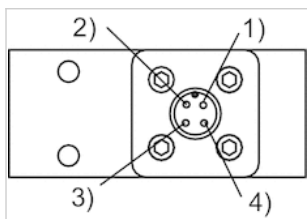
2) DC

3) $\cos \approx 0,7^\circ$

4) $L/R \approx 10 \text{ ms}$

Pin assignments

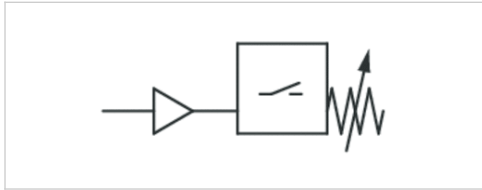
Pin assignments



Pin	1	2	3	4
Allocation	+UB	break contact	No function	NO (make contact)

Pressure Switches, Series PM1

- Operating pressure 0.2 ... 16 bar
- Mechanical
- Spring-loaded bellows, non-adjustable
- Electr. connection Plug EN 175301-803, form A
- Compressed air connection CNOMO
- PM1-M3-F001



Type	Mechanical
Function	change-over contact (mechanical)
Mounting orientation	Any
Compressed air connection	CNOMO
Working pressure min./max.	0.2 ... 16 bar
Ambient temperature min./max.	-20 ... 80 °C
Medium temperature min./max.	-10 ... 80 °C
Medium	Compressed air, Hydraulic oil
Measurement	Relative pressure
Switching element	microswitch (input/output)
Protection against overpressure	80 bar
Max. switching frequency	1,5 Hz
Shock resistance max.	15 g
Vibration resistance	10 g (60 - 500 Hz)
Repeatability (% of full scale value)	± 1 %
Switching point	adjustable
Hysteresis	max. switching pressure difference
DC operating voltage min./max.	12 ... 30 V DC
Operational voltage AC min./max.	12 ... 250 V AC
DC switching current, max.	3 A
Mounting types	via through holes
Protection class	IP65
Electr. connection	Plug EN 175301-803, form A
Weight	0.16 kg

Technical data

Part No.	Type	Operating pressure range	DC switching current, max.
		min./max.	
R412010721	PM1-M3-F001	0.2 ... 16 bar	3 A

Min. switching pressure range 0.2 bar falling/0.5 bar rising, Without valve plug connector

Technical information

Switching function increasing pressure: contact switches from 1-2 to 1-3.

Switching function decreasing pressure: contact switches from 1-3 to 1-2.

Set to 1.5 bar operating pressure. Adjustment screw secured and covered by an adhesive label.

Notice: Too-high currents can damage contacts. Inductive or capacitive loads must be equipped with appropriate spark-quenching!

The microswitch has silver-plated contacts.

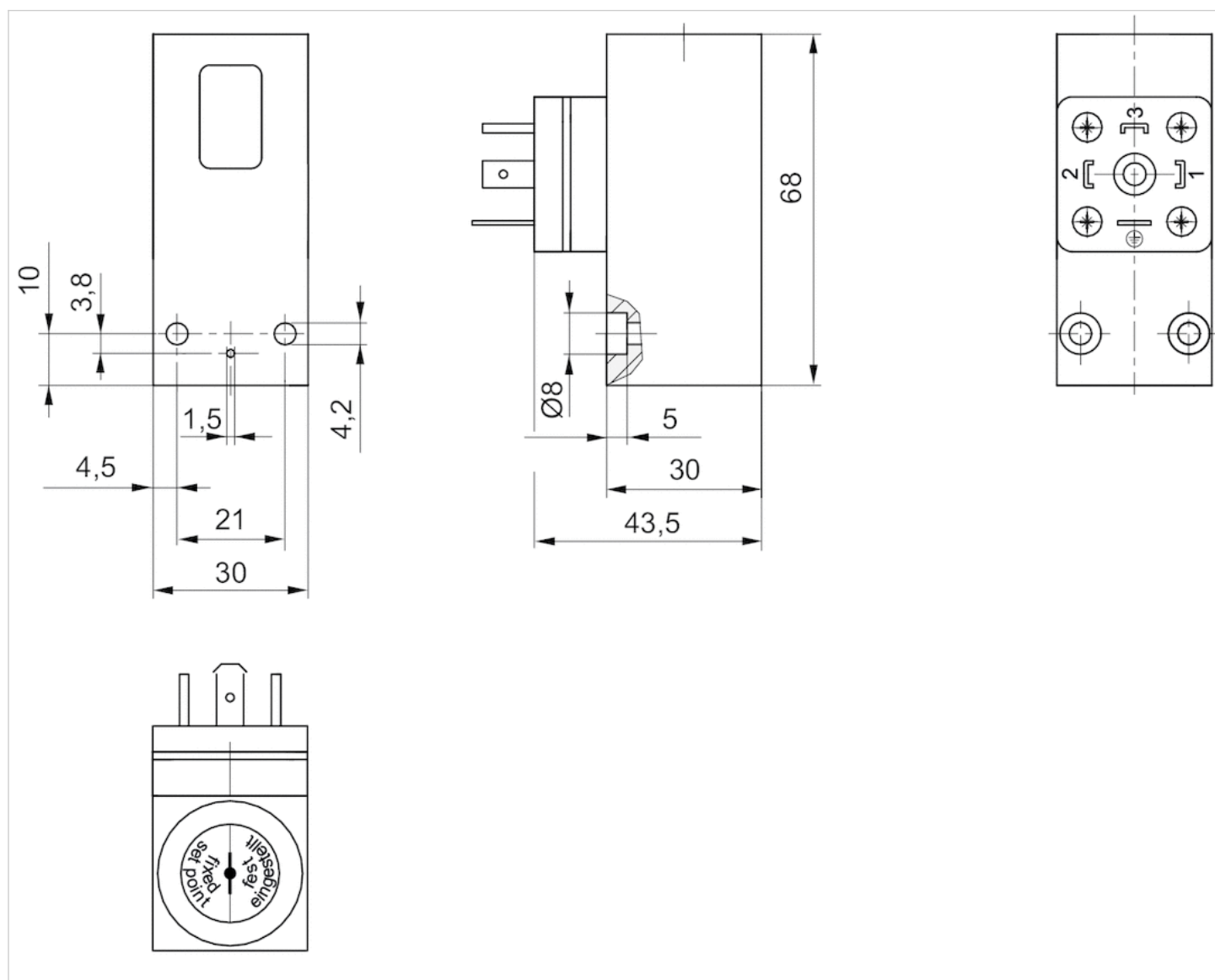
Please observe the pin assignment when selecting plug connectors.

Technical information

Material	
Housing	Aluminum
Electr. connection	Brass, nickel-plated

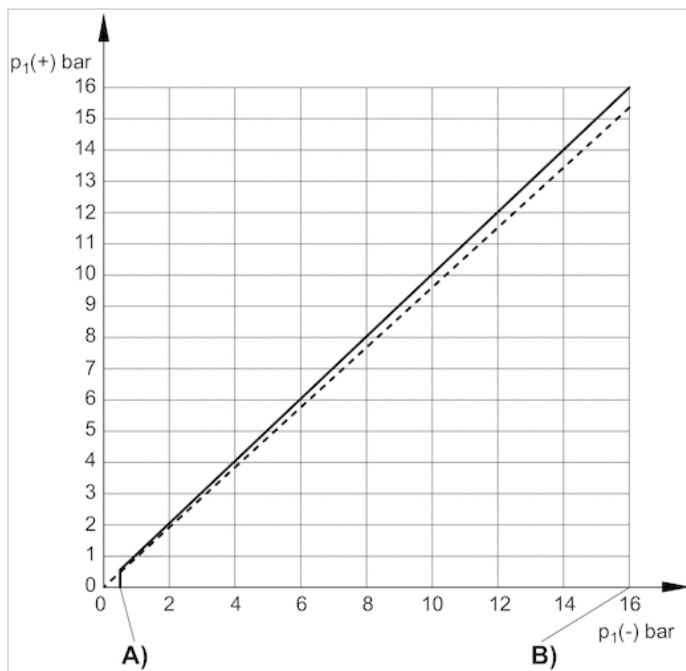
Dimensions

Dimensions



Diagrams

differential switching pressure characteristic curve (0,2 - 16 bar)



A) $p_1(-)$, min.

B) $p_1(-)$, max.

$p_1(+)$ = upper switching pressure with increasing pressure

$p_1(-)$ = lower switching pressure with decreasing pressure

max. permissible continuous current I_{max} [A] with ohmic load

U [V]	I [A] 1)	I [A] 2)
30	5	3
48	5	1,2
60	5	0,8
125	5	0,4
250	5	–

reference cycle: 30/min., reference temperature: + 30 °C

1) AC

2) DC

max. permissible continuous current I_{max} [A] with inductive load

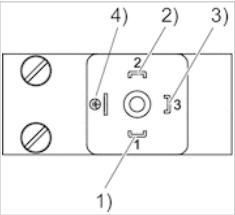
U [V]	I [A] 1) 3)	I [A] 2) 4)
30	3	2
48	3	0.55
60	3	0.4
125	3	0.15
250	3	–

reference cycle: 30/min., reference temperature: + 30 °C

- 1) AC
- 2) DC
- 3) $\cos \approx 0,7^\circ$
- 4) $L/R \approx 10\text{ ms}$

Pin assignments

PIN assignment for valve plug connectors



Pin	1	2	3	4
Allocation	+UB	break contact	NO (make contact)	GND

Double nipple, Series PE5

- External thread



Weight per piece

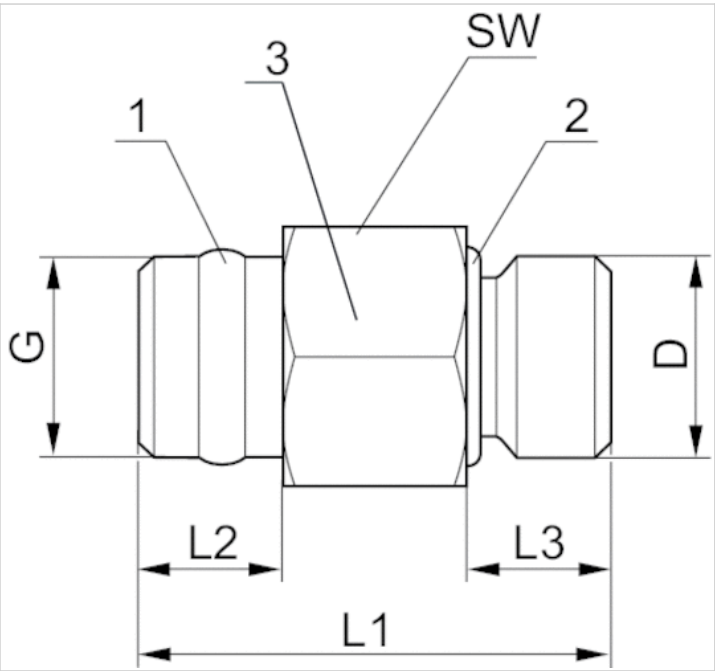
0.04 kg

Technical data

Part No.	Port G	Port D	Delivery unit
R412010015	G 1/4	G 1/8	2 piece
R412010016	G 1/4	G 1/4	2 piece

Dimensions

Dimensions



- 1) sealing ring Polytetrafluorethylen
- 2) O-ring - acrylonitrile butadiene rubber
- 3) Housing - brass, nickel-plated

Dimensions

Part No.	Port G	Port D	L1	L2	L3	SW
R412010015	G 1/4	G 1/8	30	10	8.5	17
R412010016	G 1/4	G 1/4	30	10	8.5	17

Valve plug connector, series CON-VP

- Socket, 3+E, angled, 90°
- EN 175301-803
- unshielded
- with LED green/red



Connection type	Screws
Ambient temperature min./max.	-40 ... 90 °C
Operational voltage	See table below
Protection class	IP65
Mounting screw tightening torque	0.4 Nm
Weight	0.03 kg

Technical data

Part No.		Operational voltage	Max. current	Contact assignment	LED status display
1834484059		-	10 A	3+E	-
8941012462		24 V DC	8 A	3+E	green/red

Part No.	suitable cable-Ø min./max	
1834484059	6 / 8 mm	1)
8941012462	4.5 / 11 mm	2)

1) Profile seal

2) Flat gasket

Technical information

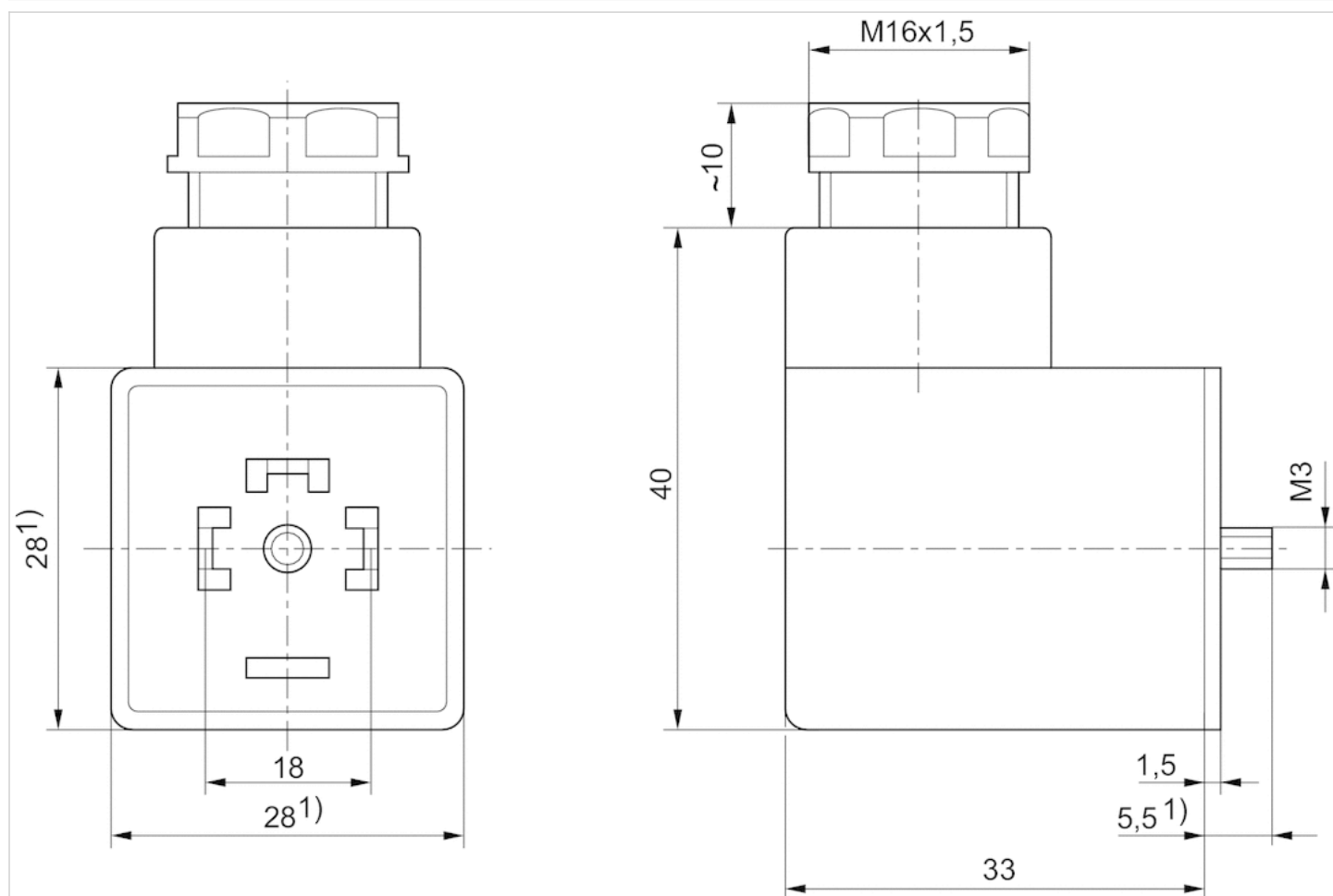
The specified protection class is only valid in assembled and tested state.

Technical information

Material	
Seals	caoutchouc/butadiene caoutchouc

Dimensions

Dimensions



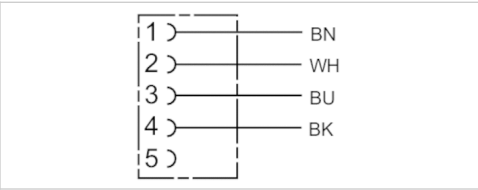
1) Max.

Round plug connector, Series CON-RD

- Socket M12x1 5-pin A-coded angled 90°
- open cable ends
- for DeviceNet
- with cable
- unshielded



Ambient temperature min./max.	-40 ... 85 °C
Operational voltage	48 V AC/DC
Protection class	IP65
Wire cross-section	0.34 mm²
Weight	See table below



Technical data

Part No.	Max. current	Number of wires	Cable-Ø	Cable length	Weight
1834484259	4 A	4	5.2 mm	3 m	0.126 kg
1834484260	4 A	4	5.2 mm	5 m	0.195 kg
1834484261	4 A	4	5.2 mm	10 m	0.38 kg

Technical information

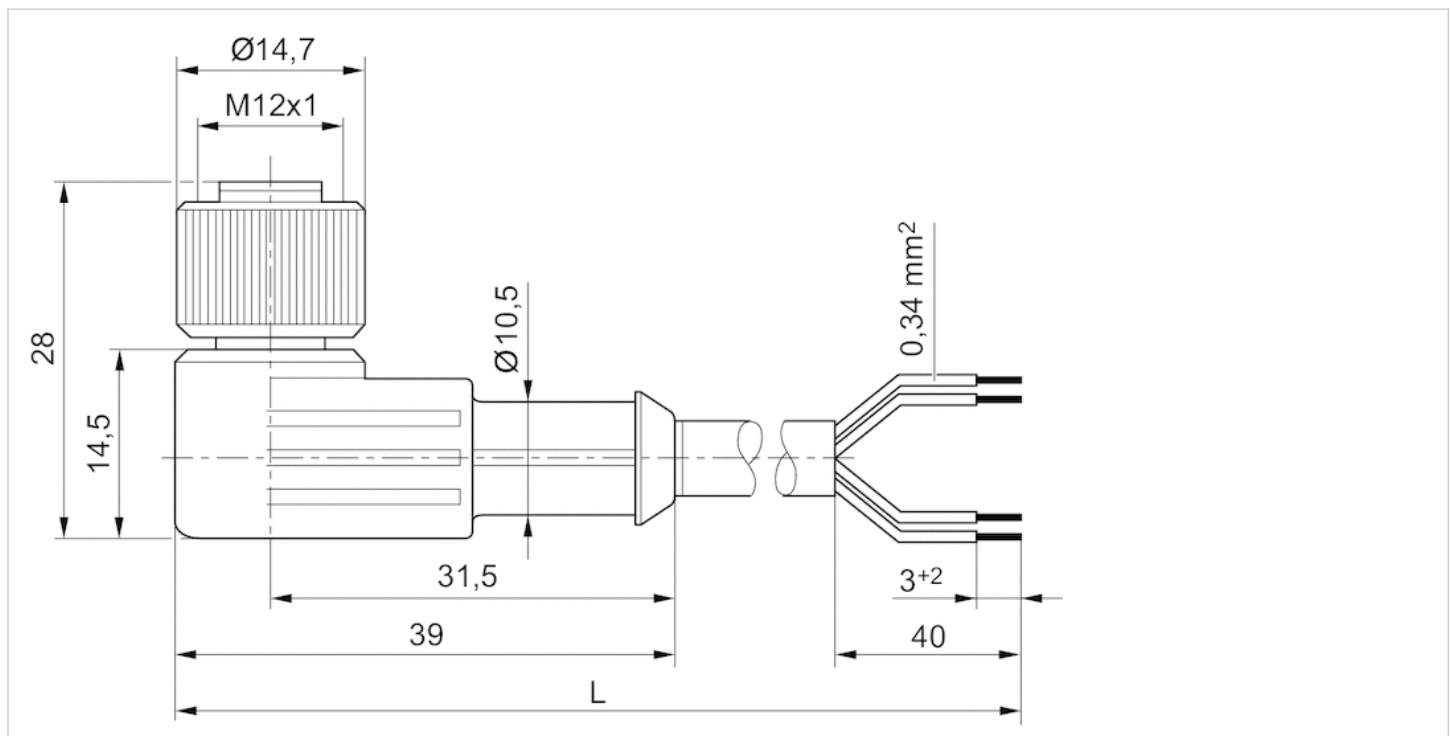
The specified protection class is only valid in assembled and tested state.

Technical information

Material	
Cable sheath	Polyurethane

Dimensions

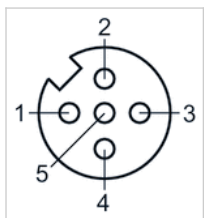
Dimensions



L = length

Pin assignments

Pin assignment, socket



- (1) BN=brown
- (2) WH=white
- (3) BU=blue
- (4) BK=black
- (5) not assigned

Double nipple

- External thread
- G 1/4
- External thread
- G 1/8 G 1/4
- FPT-S-RDO



Working pressure min./max.
0 ... 16 bar

Ambient temperature min./max.
-20 ... 80 °C

Technical data

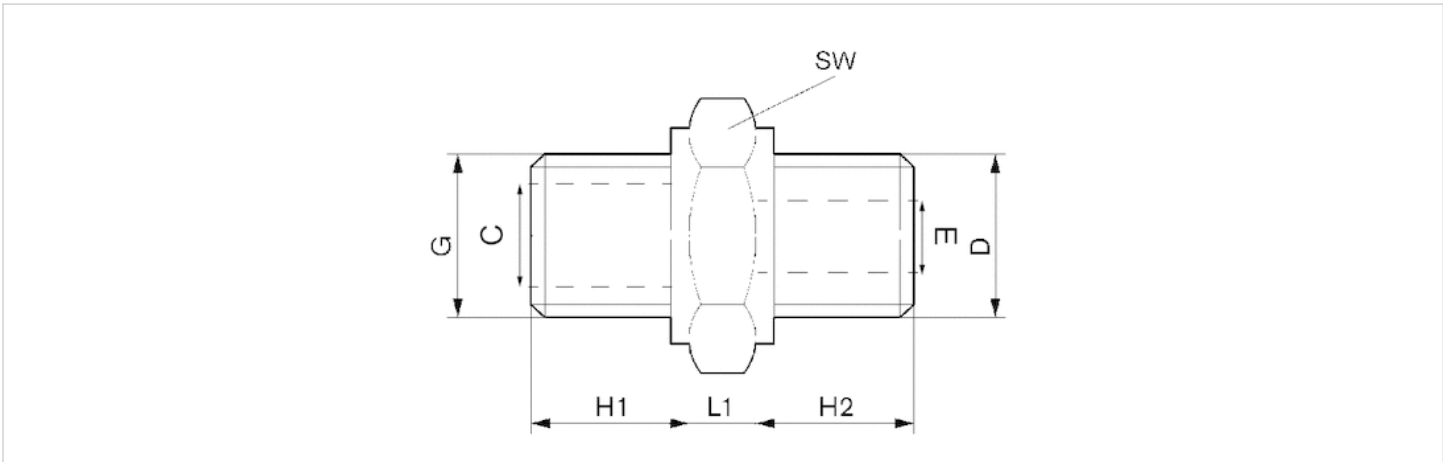
Part No.	Port G	Port D	Delivery unit
1823391016	G 1/4	G 1/8	10 piece
1823391017	G 1/4	G 1/4	10 piece

Technical information

Material	
Material	Brass, nickel-plated
Seal	Polyvinyl chloride, hard

Dimensions

Dimensions



Dimensions

Part No.	Port D	Port G	ØC	ØE	H1	H2	L1	SW
1823391016	G 1/8	G 1/4	8	5	10	7	5	17
1823391017	G 1/4	G 1/4	8	7.5	10	10	5	17

Efficient pneumatic solutions, our program: cylinders and drives, valves and valve systems, air supply management



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