

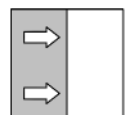


Data sheet

ME12

Remotely configurable digital pressure transducer

09005481 • DB_EN_ME12 • Rev. ST4-C • 12/18



1 Product and functional description

1.1 Performance characteristics

Important features

- Can be configured
- Robust device model
- Highly precise
- Low hysteresis

Typical applications

- Relative pressure measurements
- Absolute pressure measurements

Application areas

- Procedural engineering
- Process technology
- Environmental technology

1.2 Product overview

The following provide an overview of the possible connectors and process connections. The code stated corresponds to the respective code in the order code.

Electrical plug

Line socket
DIN EN 175 301-803-A

Circular plug connector M12
DIN EN 61076-2-101
(flanged connector)

Cable screw connection
M16x1.5

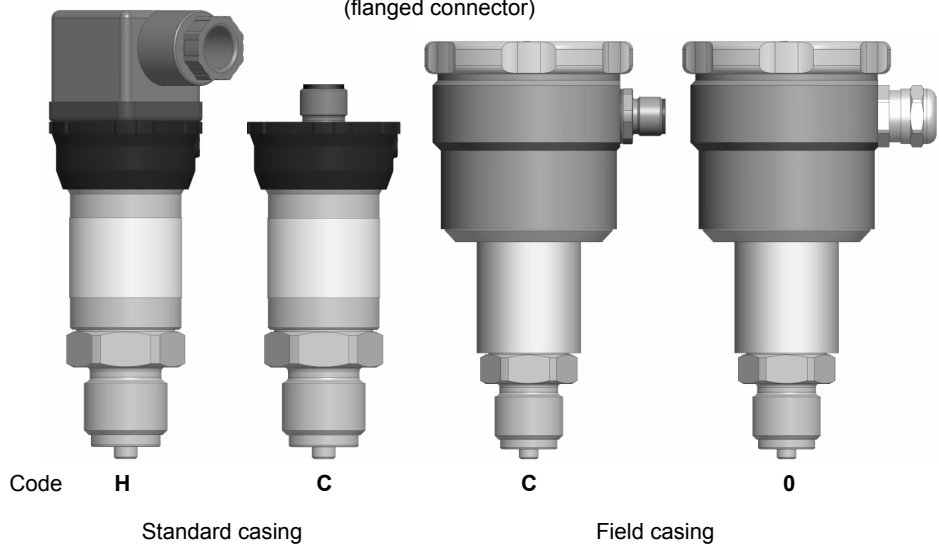
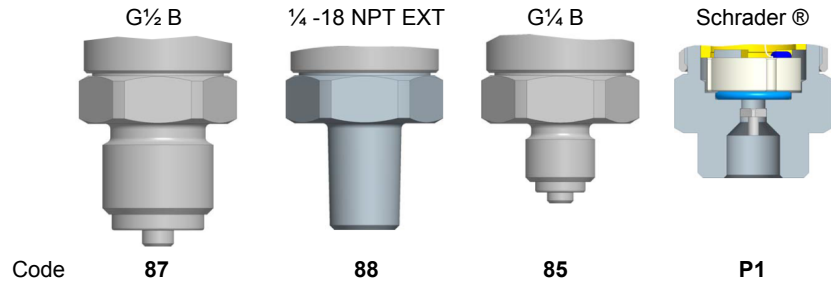


Fig. 1: Electrical plug

Process connections



Near flush-mounted front sensor

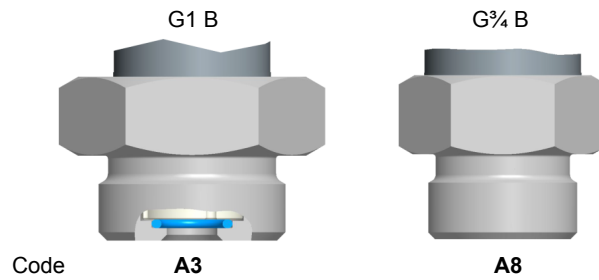


Fig. 2: Process connections

1.3 Use as intended

The ME12 is a pressure transmitter with a ceramic measuring cell for over-pressure and under-pressure and can be used for both relative and also absolute pressure measurements. The pressure transmitter can be used with non-aggressive liquid and gaseous media. Please see the technical data for the respective measuring ranges.

1.4 Function diagram

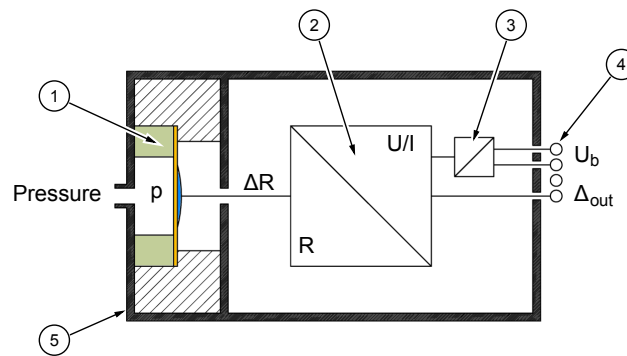


Fig. 3: Function diagram

1	Ceramic sensor	2	Electronics
3	Auxiliary energy	4	Electrical connection
5	Process connection		

1.5 Design and mode of operation

The pressure sensor work on the thick layer technology DMS principle. The measured pressure acts directly onto a ceramic membrane that deforms when under pressure. This changes the resistance of the attached DMS bridge. Electronics integrated into the device convert this bridge signal into an electronic output signal.

Every pressure transmitter is programmed according to the code in the order code on delivery. Also, the electrical connections can be used to configure the pressure transmitter, adapting it ideally to suit the process conditions. You will need a Transmitter PC Interface available as an accessory.

2 Technical data

2.1 Generalities

Reference conditions (acc. to IEC 61298-1)		
Temperature error	+15 ... +25 °C	
Relative humidity	45 ... 75 %	
Air pressure	86 ... 106 kPa	860 ... 1060 mbar
Auxiliary energy	24 V DC	
Installation position	User-defined	

2.2 Input variables

Pressure in non-aggressive liquid and gaseous media.

Measuring variable

Relative pressure

Measuring range	Pressure safety		Characteristic curve deviation	
	Overpressure	Bursting pressure	Option	Standard
0...+0.6 bar	4 bar	7 bar	---	1.0 % FS
0...+1 bar	4 bar	7 bar	0.5%FS	1.0 % FS
0...+1.6 bar	4 bar	7 bar	0.5%FS	1.0 % FS
0...+2.5 bar	10 bar	15 bar	0.5%FS	1.0 % FS
0...+4 bar	10 bar	15 bar	0.5%FS	1.0 % FS
0...+6 bar	20 bar	35 bar	0.5%FS	1.0 % FS
0...+10 bar	40 bar	70 bar	0.5%FS	1.0 % FS
0...+16 bar	40 bar	70 bar	0.5%FS	1.0 % FS
0...+25 bar	100 bar	150 bar	---	1.0 % FS
0...+40 bar	100 bar	150 bar	---	1.0 % FS
0...+60 bar	200 bar	250 bar	---	1.0 % FS

Absolute pressure

Measuring range	Pressure safety		Characteristic curve deviation	
	Overpressure	Bursting pressure	Option	Standard
0...+1 bar	4 bar	7 bar	0.5%FS	1.0 % FS
0...+1.6 bar	4 bar	7 bar	0.5%FS	1.0 % FS
0...+2.5 bar	10 bar	15 bar	0.5%FS	1.0 % FS
0...+4 bar	10 bar	15 bar	0.5%FS	1.0 % FS
0...+6 bar	10 bar	15 bar	0.5%FS	1.0 % FS
0...+10 bar	20 bar	35 bar	0.5%FS	1.0 % FS
0...+16 bar	20 bar	35 bar	0.5%FS	1.0 % FS

**Vacuum and
± measuring ranges**

Measuring range	Pressure safety		Characteristic curve deviation	
	Overpressure	Bursting pressure	Option	Standard
0...-1 bar	4 bar	7 bar	---	1.0 % FS
-1...0 bar	4 bar	7 bar	---	1.0 % FS
-1...+0.6 bar	4 bar	7 bar	---	1.0 % FS
-1...+1.5 bar	4 bar	7 bar	---	1.0 % FS
-1...+3 bar	10 bar	15 bar	---	1.0 % FS
-1...+5 bar	20 bar	35 bar	---	1.0 % FS
-1...+9 bar	40 bar	70 bar	---	1.0 % FS
-1...+15 bar	40 bar	70 bar	---	1.0 % FS
-1...+24 bar	100 bar	150 bar	---	1.0 % FS

2.3 Output parameters**Voltage output**

		3-Conductor
Output range		0 ... 10 V DC
Limits		approx. 10.5 V DC
Apparent ohmic resistance	15 V ≤ U _b < 20 V 20 V ≤ U _b ≤ 30 V	≥ 5 kΩ ≥ 2 kΩ

Current output

	2-Conductor	3-Conductor
Output range	4 ... 20 mA	0 ... 20 mA 4 ... 20 mA
Limits	ca. 26 mA	ca. 23 mA
Apparent ohmic resistance	(U _b -6V)/0.02A	(U _b -10V)/0.02A + 300Ω

2.4 Measurement accuracy

Non-linearity	Maximum	0.5 % FS
	Typical	0.2 % FS
Hysteresis	Maximum	0.5 % FS
	Typical	0.2 % FS
Characteristic curve deviation ²⁾	Standard	1.0 %
	Option ¹⁾	0.5 %
Temperature drift	Zero point	0.07 % FS/K
	Measuring range	0.05 % FS/K

¹⁾ only possible for certain measuring ranges

²⁾ incl. non-linearity and hysteresis

2.5 Auxiliary energy**Voltage output**

		3-Conductor
Rated Voltage		24 V AC/DC
Admissible operating voltage		15 ... 30 V AC/DC
Power consumption		≤ 1 W (VA)

Current output

	2-Conductor	3-Conductor
Rated Voltage	24 V DC	24 V AC/DC
Admissible operating voltage	6 ... 30 V DC	15 ... 30 V AC/DC
Power consumption	≤ 1 W	≤ 1.5 W (VA)

2.6 Application conditions

Ambient temperature range	-10 °C ... +70 °C
Storage temperature range	-20 °C ... +85 °C
Medium temperature range	-10 °C ... +85 °C
EMV	EN 61326-1:2013 EN 61326-2-3:2013
RoHS	EN 50581:2012
Protection type	IP 65 acc. to EN 60529

Materials of the parts that come into contact with the surroundings

Housing	CrNi Steel 1.4305
Device plug screw lid	Polypropylene, black
Device plug	Polyamide, brass, zinc
Cable socket	Polyamide, polycarbonate, brass, zinc

Materials of the parts that come into contact with the measuring medium

Process connection	CrNi Steel 1.4404
Sensor membrane	Ceramic Al ₂ O ₃
Seal ¹⁾	FKM Fluorinated rubber, Viton®
	CR Chloroprene rubber, Neopren®
	EPDM Ethylene propylene diene rubber
	H-NBR Hydrogenated acrylonitrile butadiene rubber
	FFPM Perfluorinated rubber, Kalrez®

¹⁾ see order code

2.7 Parameters

The ME12 pressure transmitter is fully configured on delivery, however it can also be remotely configured on site. A PC, an interface, which is available as an accessory and the PC software [transmitter programmer](#) are required for configuration.

- The EU13 with a USB interface is used for pressure transmitters with 2-line connections.
- The EU03 with an RS 232 interface is used for pressure transmitters with 3-line connections. Every device is delivered with an RS232/USB adapter to ensure that the interface can be operated on the USB interface.

The following parameters can be set

Characteristic curve	Increasing / decreasing
Attenuation	0 ... 200 s
Offset correction	±25 %FS
Margin correction	±25 %FS

Signal limits	Current output (settable)	Voltage output (not settable)
Upper limit	3.5 ... 22.5 mA	approx. 10.5 V
Lower limit	3.5 ... 22.5 mA	0V
Error signal	3.5 ... 22.5 mA	---

2.8 Construction design

2.8.1 Dimensional picture

All dimensions in mm unless otherwise stated

Standard casing

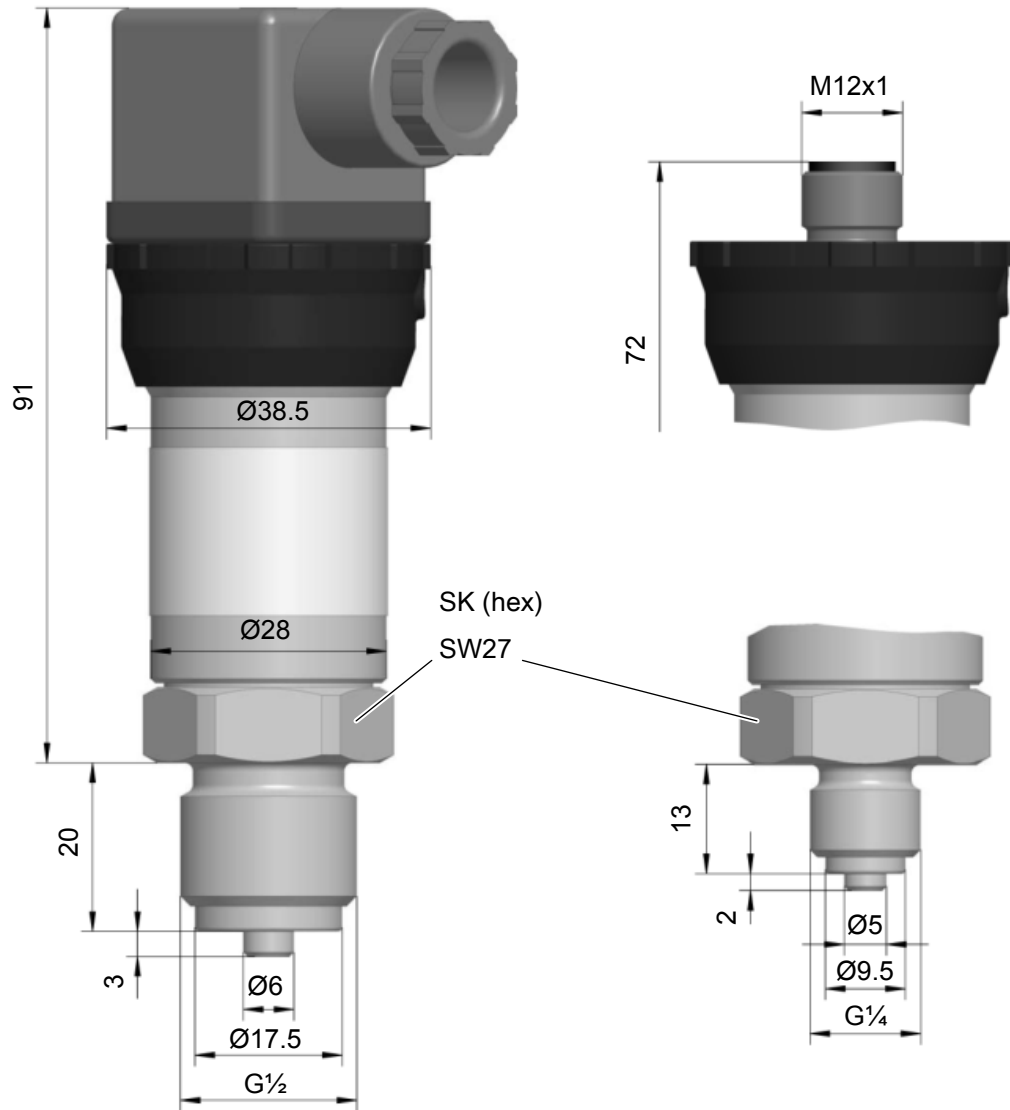
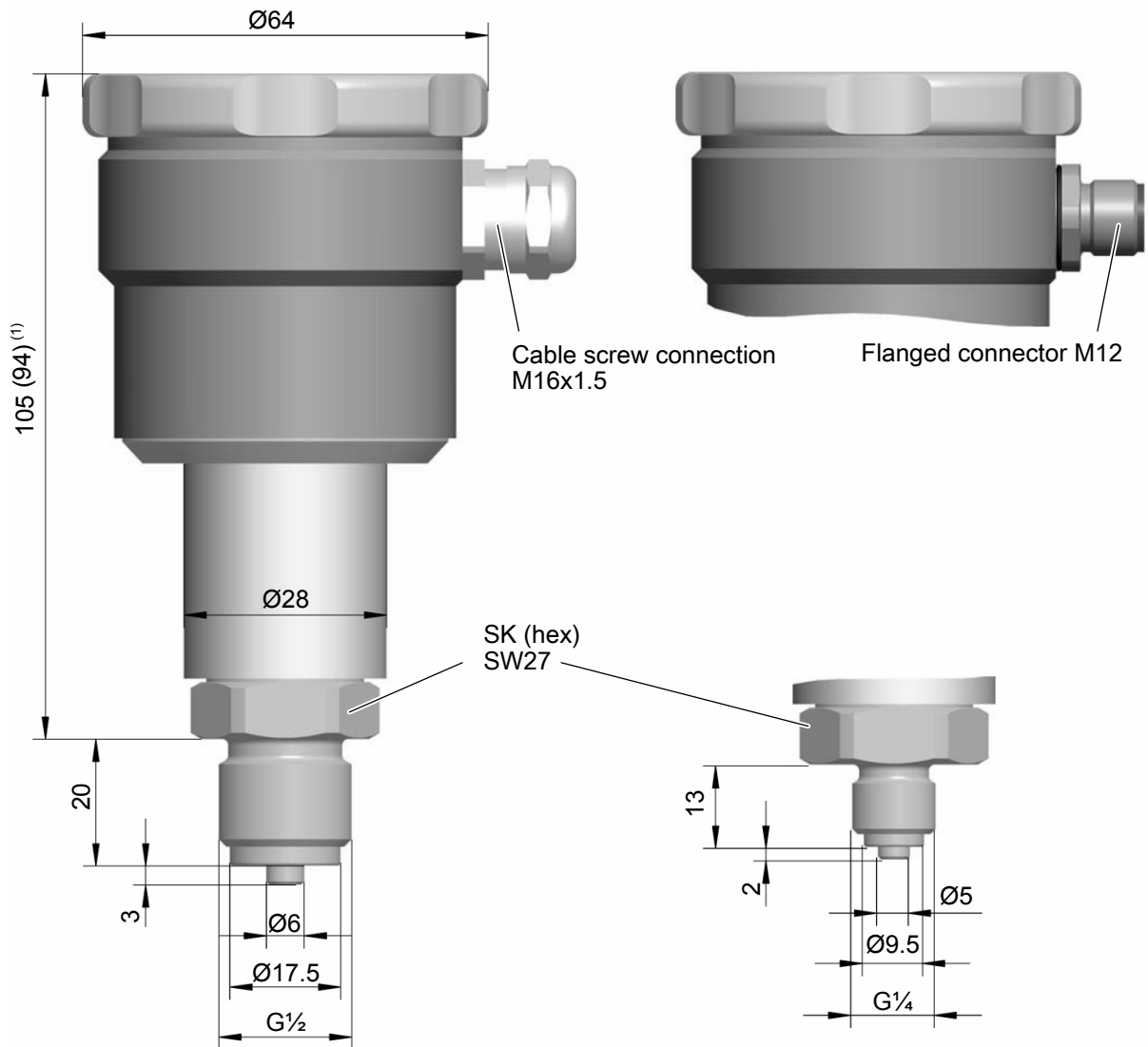


Fig. 4: Standard casing dimensional drawing

Field casing



⁽¹⁾ for near flush-mounted front sensor:

Fig. 5: Field casing dimensional drawing

Other process connections

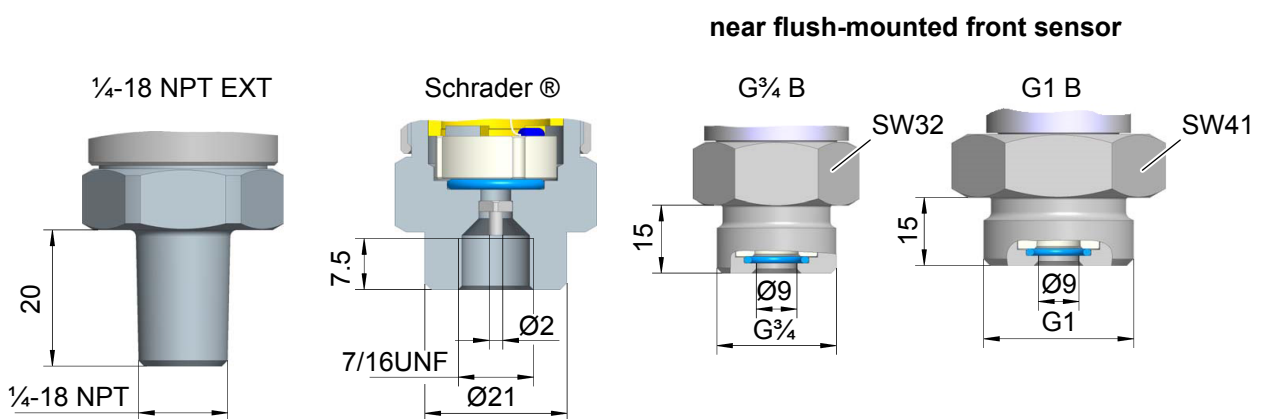


Fig. 6: Process connections dimensional drawing

2.8.2 Process connection

Port		Material
G½ B	Connection shanks with external thread	1.4404
G¼ B	Connection shanks with external thread	1.4404
¼-18 NPT EXT	Connection shanks with external thread	1.4404
7/16 UNF	Connection with inner thread for the Schrader®- screw connection >	1.4404
G¾ B	Connection shanks with external thread near flush-mounted front sensor	1.4404
G1 B	Connection shanks with external thread near flush-mounted front sensor	1.4404

2.8.3 Electrical connection

Standard casing

Unit connector and cable socket DIN EN 175 301-803 Form A, 4 pin

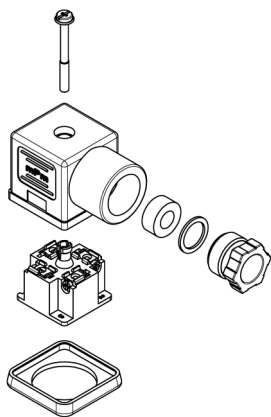
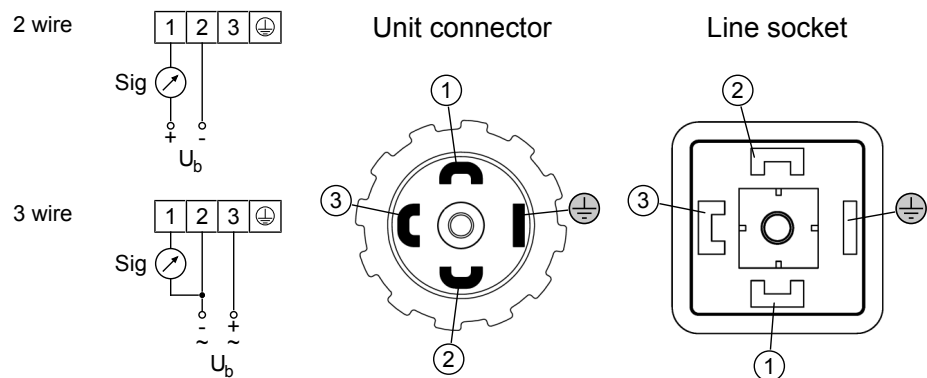


Fig. 7: Line socket DIN EN 175 301-803A



M12 flanged connector DIN EN 61076-2-101 coding A, 4 pin

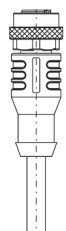
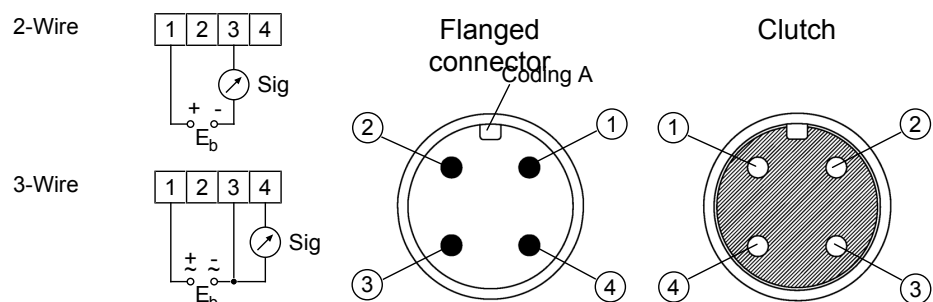


Fig. 8: M12 plug DIN EN 61076-2-101



Field casing

Cable connection

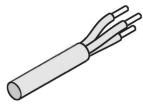
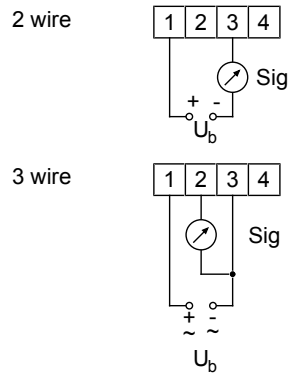
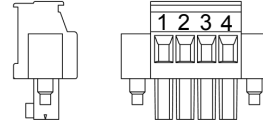


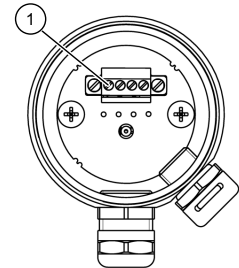
Fig. 9: Cable connection



Combicon connector



Field casing



M12 flanged connector DIN EN61076-2-101 coding A, 4 pin

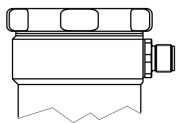
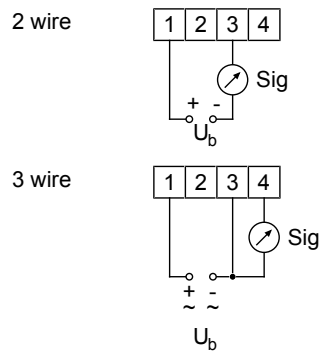
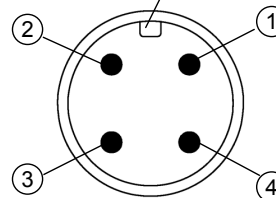


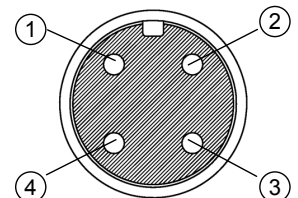
Fig. 10: M12 connection



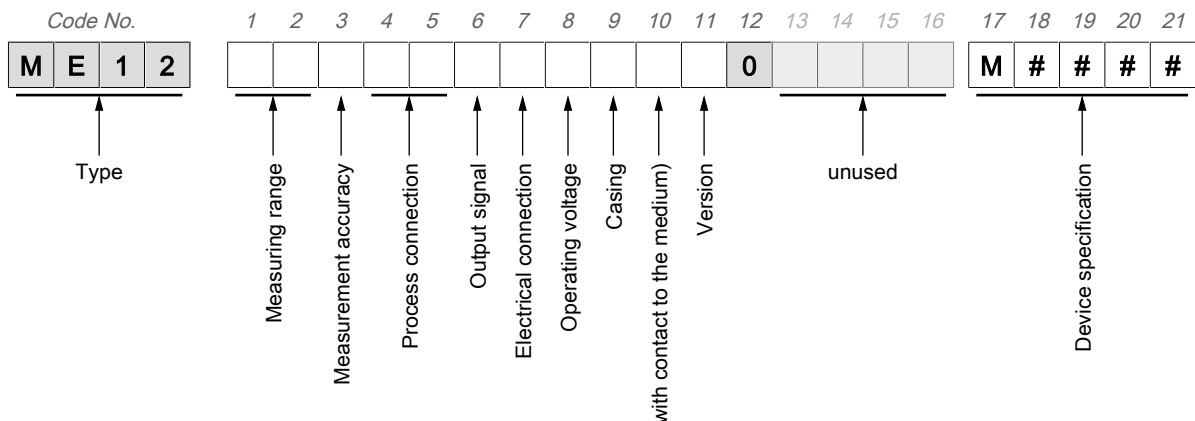
Flanged connector coding A



Coupling



3 Order Codes



[1.2] Measuring range	Abs.	Rel.
01	0...0.6 bar	•
02	0...1 bar	• •
03	0...1.6 bar	• •
04	0...2.5 bar	• •
05	0...4 bar	• •
06	0...6 bar	• •
07	0...10 bar	• •
08	0...16 bar	• •
09	0...25 bar	•
10	0...40 bar	•
11	0...60 bar	•
31	-1...0 bar	•
32	-1...0.6 bar	•
33	-1...1.5 bar	•
34	-1...3 bar	•
35	-1...5 bar	•
36	-1...9 bar	•
37	-1...15 bar	•
38	-1...24 bar	•
39	0...-1 bar	•

Abs. = Absolute pressure measurement

Rel. = relative pressure measurement.

[3] Measurement accuracy	
M	1.0 % Characteristic curve deviation during relative pressure measurement
0	0.5 % Characteristic curve deviation during relative pressure measurement
S	1.0 % characteristic curve deviation for absolute pressure measurement
T	0.5 % characteristic curve deviation for absolute pressure measurement

[4.5] Process connection	Material
85 Connection shanks with external thread G $\frac{1}{4}$ B	1.4404
87 Connection shanks with external thread G $\frac{1}{2}$ B	
88 Connecting port with outer thread $\frac{1}{4}$ -18 NPT EXT	
P1 Schrader® screw connection inner thread 7/16 UNF	
A3 Near flush-mounted front sensor outer thread G1 B	
A8 Near flush-mounted front sensor outer thread G $\frac{3}{4}$ B	

[6] Output signal	
A 0 ... 20 mA	3-wire version
P 4 ... 20 mA	3-wire version
C 0 ... 10 V	3-wire version
D 1 ... 5 V	3-wire version
B 4 ... 20 mA	2-wire version

[7] Electrical connection	Standard casing	Field casing
H Cable socket DIN EN 175 301-803	yes	no
M M12 coupling device DIN EN 61076-2-101	yes	yes
0 Cable connection	no	yes

[8] Operating voltage	
9 24 V DC	2-wire version
L 24 V AC/DC	3-wire version

[9] Casing	Protection class (DIN EN 60 529)
0 Standard casing	IP65
V Standard casing, cast version	
F Field casing, cast version	

[10] Seal (with contact to medium)	
V FKM	Fluororubber, Viton®
C CR	Chloroprene rubber (Neopren®)
E EPDM	Ethylene propylene diene rubber
H H-NBR	Hydrogenated acrylonitrile butadiene rubber
K FFPM	Perfluorinated rubber (Kalrez®)

[11] Version	
0 Standard	
3 Suitable for O ₂ measurement	(only with FKM seal)
A Silicone-free	

3.1 Accessories

Order no.	Planned measures	No. of Poles	Length
06401993	PUR cable with M12-coupling	4-pin	2m
06401994	PUR cable with M12-coupling	4-pin	5m
06401563	PUR cable with M12-coupling	4-pin	7m
06401572	PUR cable with M12-coupling	4-pin	10m
MZ1###	Siphons		
MZ400#	Capillary throttle coil		
MZ410#	Settable damping reactor		
MZ5###	Manometer shutoff valve acc. to DIN 16270/16271		
MZ6###	Manometer shutoff valve acc. to DIN 16272		
EU03	3-wire transmitter PC Interface incl. PC software		
EU13	2-wire transmitter PC Interface incl. PC software		

A data sheet is available on our website www.fischermesstechnik.de or on request.

3.2 Information about the document

This document contains all technical data about the device. Great care was taken when compiling the texts and illustrations; Nevertheless, errors cannot be ruled out.

Subject to technical amendments.



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