developing solutions

Data sheet

ME11

Pressure Transmitter

09005556 • DB_EN_ME11 • Rev. ST4-A • 09/15

1 Product and functional description

1.1 Performance features

Important features

- Robust device model
- Highly precise
- High degree of overload pressure safety
- Low hysteresis

Typical applications

- Relative pressure measurements

Areas of application

- Process technology
- Process technology
- Environmental technology

1.2 Product summary

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

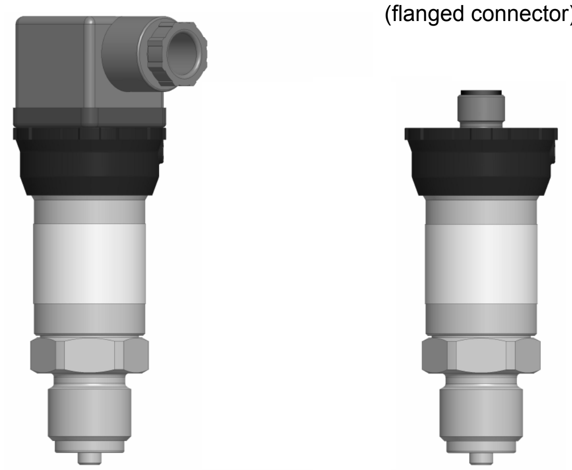


Illustration 1: Electrical plug

Process connections

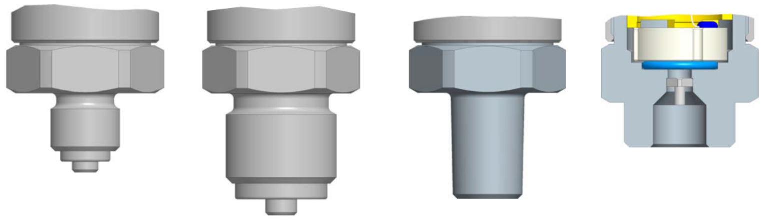


Illustration 2: Process connections

1.3 Intended use

The ME11 is a pressure transmitter with a ceramic measuring cell that is suitable for measuring over-pressure and under-pressure in non-aggressive liquid and gaseous media.

1.4 Function diagram

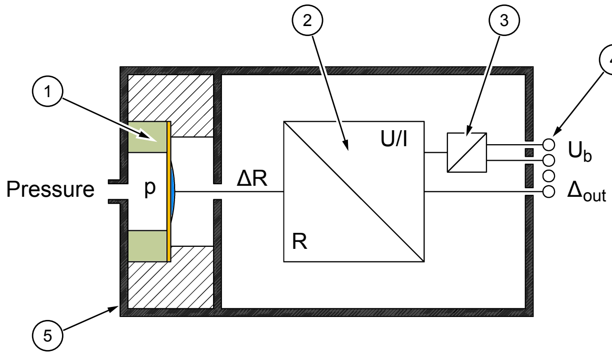


Illustration 3: Function diagram

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

1.5 Design and mode of operation

The measuring pressure acts on a ceramic membrane that deforms when under pressure. There is a DMS bridge attached to the ceramic membrane. When the ceramic deforms, the output signal of the DMS bridge changes. The electronics integrated into the device convert the bridge signals into electrical unit signals 4...20 mA or 0…10 V DC um.

2 Technical Data

2.1 General information

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

2.2 Input variables

Positive measuring ranges

Measuring range		Pressure safety	
	SI unit	*Overpressure*	*Bursting pressure*
0…+1.6 bar	0 … 160 kPa	4 bar	7 bar
0…+2.5 bar	0 … 250 kPa	10 bar	15 bar
0…+4 bar	0 … 400 kPa	10 bar	15 bar
0…+6 bar	0 … 600 kPa	20 bar	35 bar
0…+10 bar	0 … 1000 kPa	20 bar	35 bar
0…+16 bar	0 … 1600 kPa	40 bar	70 bar
0…+25 bar	0 … 2500 kPa	100 bar	150 bar
0…+40 bar	0 … 4000 kPa	100 bar	150 bar
0…+60 bar	0 … 6000 kPa	200 bar	250 bar

Vacuum and ± measuring ranges

Measuring range		Pressure safety	
	SI unit	*Overpressure*	*Bursting pressure*
-1…+0.6 bar	-100 … 60 kPa	4 bar	7 bar
-1…+1.5 bar	-100 … 150 kPa	4 bar	7 bar
-1…+3 bar	-100 … 300 kPa	10 bar	15 bar
-1…+5 bar	-100 … 500 kPa	20 bar	35 bar
-1…+9 bar	-100 … 900 kPa	40 bar	70 bar
-1…+15 bar	-100 … 1500 kPa	40 bar	70 bar
-1…+24 bar	-100 … 2400 kPa	100 bar	150 bar

Special measuring ranges

Measuring range		Pressure safety	
	SI unit	*Overpressure*	*Bursting pressure*
0 … 30 PSI	0 … 206.8 kPa	10 bar	15 bar
0 … 60 PSI	0 … 413.7 kPa	10 bar	15 bar
0 … 100 PSI	0 … 689.4 kPa	20 bar	35 bar
0 … 160 PSI	0 … 1103.2 kPa	40 bar	70 bar
0 … 250 PSI	0 … 1723.6 kPa	40 bar	70 bar
0 … 500 PSI	0 … 3447.3 kPa	100 bar	150 bar

2.3 Output parameters

	2-Conductor	3-Conductor	
Output signal	4 … 20 mA DC	0 … 10 V DC	
Limits	Max. 21 mA	Max. 10.5 V	
Apparent ohmic resistance	$(U_b$-6V)/0.02A	$U_b \geq$ 15V	≥ 5kΩ
		$U_b \geq$ 20V	≥ 2kΩ

2.4 Measurement accuracy

Non-linearity		< 1.0 % FS
Hysteresis		< 0.5 % FS
Characteristic curve deviation [*)]		1.0 %
Temperature drift	Zero point	0.07 % FS/K
	Measuring range	0.05 % FS/K

[*)] incl. non-linearity and hysteresis

2.5 Auxiliary energy

	2-Conductor	3-Conductor
Rated Voltage	24v DC	24 V AC/DC
Admissible operating voltage	6 … 30 V DC	19.2 …28.8 V AC/DC
Power input	0.7 W	0.5 W (VA)

2.6 Operating conditions

Ambient temperature range	0 °C … +60 °C
Storage temperature range	-20 °C … +85°C
Medium temperature range	0 °C … +85 °C
EMC	EN 61326-1:2013 EN 61326-2-3:2013
RoHS	EN 50581:2012
Type of protection:	IP 65 acc. to EN 60529

Materials of the parts that come into contact with the surroundings	
Casing	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_2O_3	
Seal [1)]	FKM	Fluorinated rubber, Viton®
	CR	Chloroprene rubber, Neopren®
	EPDM	Ethylene propylene diene rubber
	H-NBR	Hydrogenated acrylonitrile butadiene rubber

[1)] see order code

2.7 Construction design

2.7.1 Standard casing dimensional drawing

All dimensions in mm unless otherwise stated

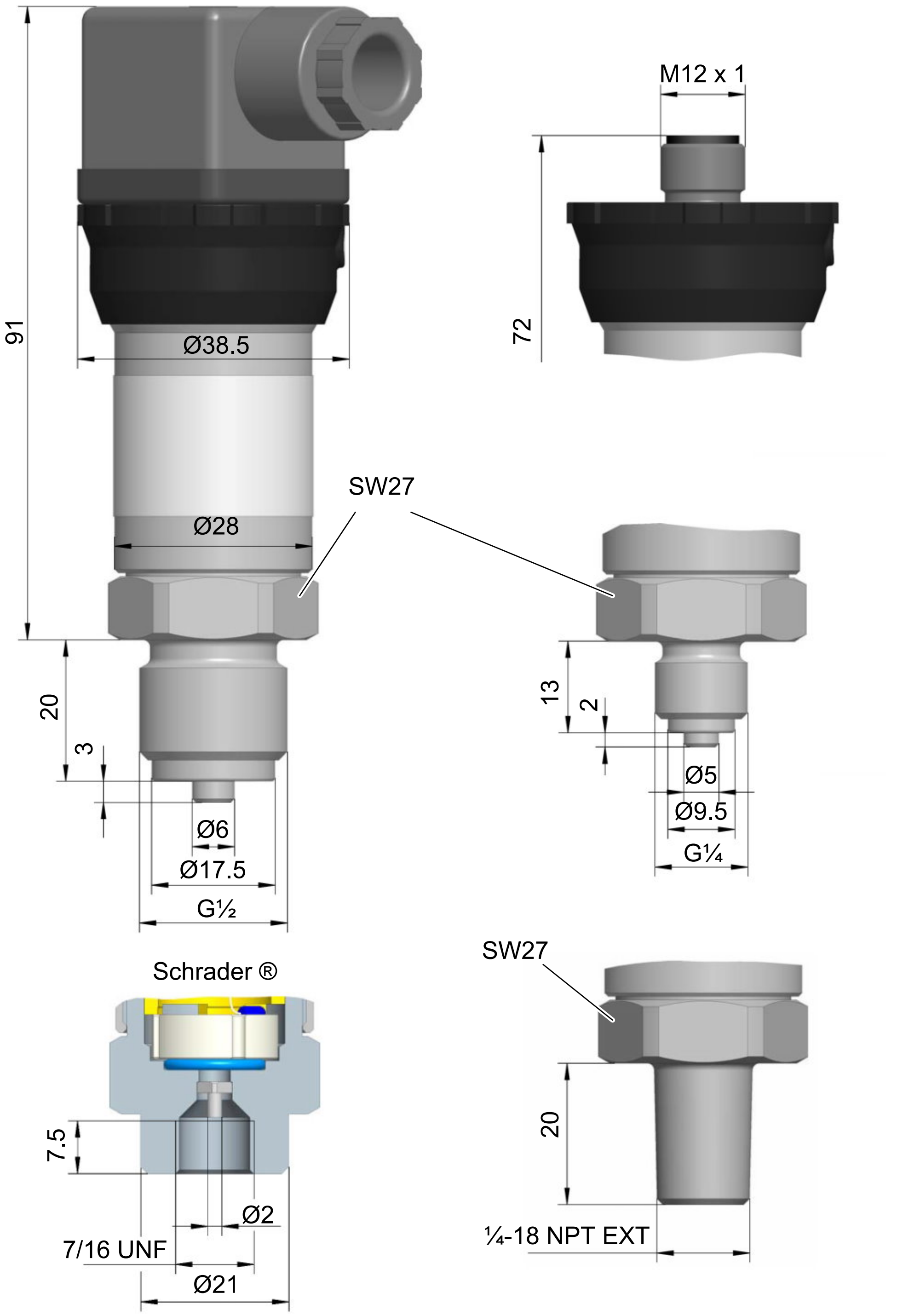


Illustration 4: Standard casing dimensional drawing

2.7.2 Process connection

¼-18 NPT EXT	Connection shanks with external thread
Schrader©	Connection for Schrader screw connection
G¾ B	Connection shanks with external thread
G¼ B	Connection shanks with external thread

2.7.3 Electrical connections

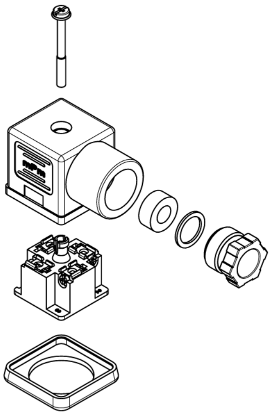
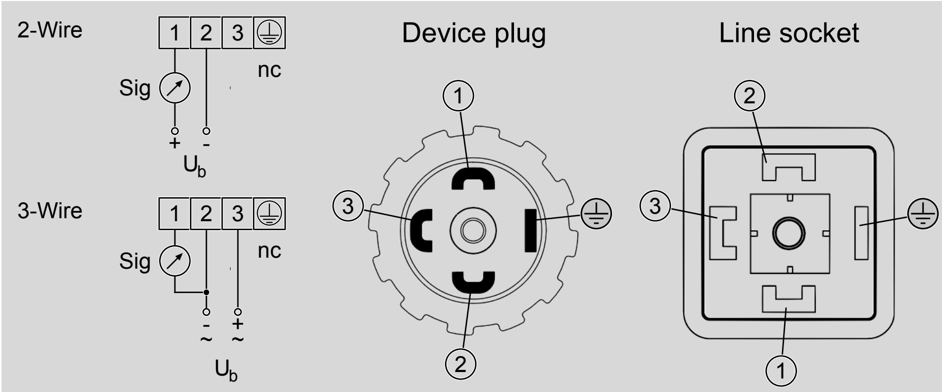


Illustration 5: Line socket DIN EN 175 301-803-A

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



The earth connection is not connected.

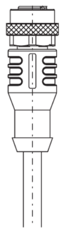
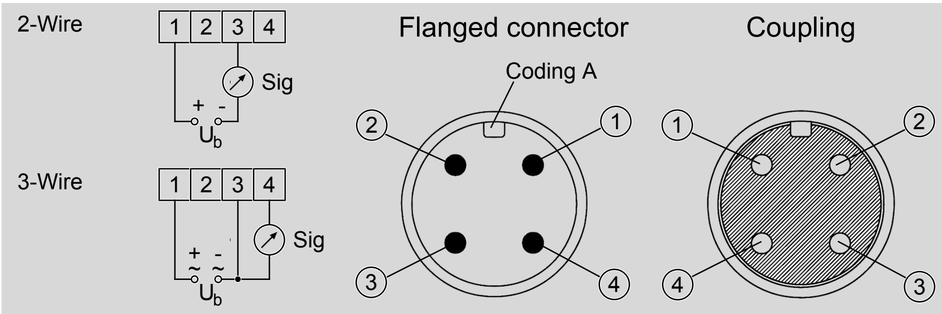
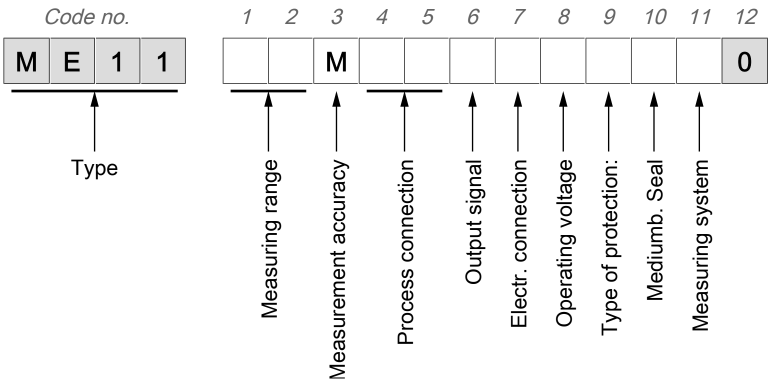


Illustration 6: M12 coupling device DIN EN 61076-2-101

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



3 Order Codes



[1.2]	Measuring range
03	0…1.6 bar
04	0…2.5 bar
05	0 … 4bar
06	0 … 6bar
07	0 … 10bar
08	0 … 16bar
09	0 … 25bar
10	0 … 40bar
11	0 … 60bar
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
F3	0 … 160 kPa
F4	0 … 250 kPa
F5	0 … 400 kPa
F6	0 … 600 kPa
F7	0 … 1000 kPa
F8	0 … 1600 kPa
G1	0 … 2500 kPa
G2	0 … 4000 kPa
G3	0 … 6000 kPa
H5	0 … 30 PSI
H6	0 … 60 PSI
H7	0 … 100 PSI
H9	0 … 160 PSI
Q1	0 … 250 PSI
P9	0 … 500 PSI

[3]	Measurement accuracy
M	Characteristic curve deviation 1.0%

[4.5]	Process connection
85	Connection shanks with external thread G¼ B
87	Connection shanks with external thread G½ B
88	Connecting port with outer thread ¼-NPT EXT
S1	Connection for Schrader ® screw connection

[6]	Output signal	Connection type	Condition (Operating voltage)
B	4 … 20 mA DC	2-Wire	*24v DC*
C	0 … 10 V DC	3-Conductor	*24 V AC/DC*

[7]	Electrical connection
H	4-pin standard plug DIN EN 175 301-803-A
M	4-pin M12 plug connection DIN EN 61076-2-101

[8]	Operating voltage
9	24v DC
L	24 V AC/DC

[9]	Casing
0	IP65
R	IP65 (cast version)

[10]	Media-Contact Seal	
R	FKM	Fluorocarbon rubber
C	CR	Chloroprene Rubber
E	EPDM	Ethylene propylene diene rubber
H	H-NBR	Hydrogenated acrylonitrile butadiene rubber

[11]	Measuring system	Condition
0	Default	
3	Suitable for O_2 measurements;	*only possible with FKM seal*
A	Silicon-free version	

3.1 Prefabricated connection lines

Order no.	Designation	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

4 Attachments

EC Declaration of Conformity

(Translation)

For the product described as follows

Product designation **Pressure Transmitter**

Type designation **ME11**

it is hereby declared that it corresponds with the basic requirements
specified in the following designated directives:

2004/108/EG	*EMC Directive*
2011/65/EU	*RoHS Directive*

The products were tested in compliance with the following standards.

	Electromagnetic compatibility (EMC)
EN 61326-1:2013	*Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements*
EN 61326-2-3:2013	*Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 2-3: Particular requirements - Test configuration, operational conditions and performance criteria for transducers with integrated or remote signal conditioning*
	RoHS
EN 50581:2012	*Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances*

Also they were subjected to the conformity assessment procedure „**Internal Control of Production**".

The object of the declaration described above is in conformity with Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.

Sole responsibility for the issue of this declaration of conformity in relation to fulfilment of the fundamental requirements and the production of the technical documents is with the manufacturer.

Manufacturer

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Documentation representative

Herr Stefan Richter
Dipl. Ing.
Development manager

The devices bear the following marking: CE

Bad Salzuflen,
2015-03-30

G. Gödde
Managing director

09010117 CE_EN_ME11 Rev.B 11/15

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Illustration 7: CE_DE40