Pressure Sensor - Flush HART — MEPS-F

Characteristics

1500 - MODULAR - ECONOMIC - SERIE

- Input:	0...0,1 to 0...600 bar / 0...0,25 to 0...16 bar
- Output:	4...20 mA current loop HART (2-wire)
- Supply:	out of current loop (12...40 VDC)
- Accuracy:	see technical data
- Process connection:	G1/2B / G1B flush-mounted / G1 hygienic
- Electrical connection:	several options (page 3)
- Ambient temperature:	-20...+80 °C (operation)
- Limit contacts:	2x electronic (NPN, PNP)
- Setting:	Keys / Software
- Medium temperature:	-30...+100 °C
- Protection:	at least IP65

Technical Data

Input

Pressure: relative: 0...0,1 to 0...600 bar absolute: 0...0,25 to 0...16 bar ±ranges
Pressure ranges: see table on page 2 (with overpressure safety)

Output

Current signal: 4...20 mA with superimposed communication signal HART, 2-wire current loop
Current range: 3,8...20,5 mA
Signal on error: 3,6 mA (sensor short circuit, underflow)
21 mA (sensor break, sensor open circuit, overflow)

Performance

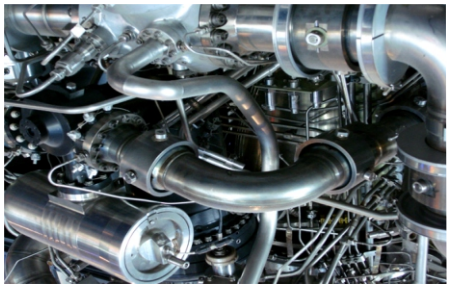
Sensor:
- Accuracy: <0,5% of span (at reference conditions) including non-linearity, hysteresis, zero and full scale error (corresponds to error of measurement per IEC 61298-2)
- Calibration: in vertical mounting position, lower pressure connection
- Non-linearity: <0,2% of span (BFSL per IEC 61298-2)
- Non-repeatability: <0,1% of span (per IEC 61298-2)
- 1-year stability: <0,2% of span (at reference conditions)
- Temperature coefficient: mean temperature coefficient (TC) within rated temperature range
  - TC zero: <0,2% of span / 10 K
    <0,4% of span / 10 K for ranges <250 mbar
  - TC span: <0,2% of span / 10 K
- Reference conditions: 15...25 °C / 860...1060 mbar / 45...75% rF
- Settling time: <10 ms

Measuring amplifier:
- Resolution: 16 Bit
- Accuracy: 0,3% of span
- Filter setting: 0...99 s
- Transmission behavior: linear with pressure
- Measuring rate: 10 measurements / s
- Configuration: keys on display / via software (HART-communication)
- Turn-on delay time: <5 s Response time: 20 ms

Applications

For use in industrial plants, terotechnology and public utility (e. g. tanks for drinking water). With its two configurable limit value contacts, the integrated display and the numerous electrical connections, the pressure sensor is also suitable for applications with higher requirements.





Technical Data (Continued)

Indicator / limit value:	Resolution:	-9999...9999 Digit
	Error of measurement:	±0,2% of range, ±1 digit
	Temperature drift:	100 ppm/K
	Features, operation:	per VDMA 24574-1 to 24574-4

Display

Display:	7- segment, 8,5 mm, red, 4-digits, representation mirror-inverted 180° posssible
Head of display:	rotatable approx. 330°
Memory:	minimum / maximum value
Indication:	- measurement value - unit of measurement - control menu
Decimal point:	automatically or manually, dependent on measuring range / unit
Representation:	xxxx / xxx.x / xx.xx / x.xxx

Limit Contacts

Electronic:	2x PNP or NPN (30 VDC, 200 mA) option: 2x PNP or NPN (30 VDC, 1000 mA)
Indication:	1 LED red for each limit value
Voltage across:	<1 V
Settings:	with 3 keys (TouchM-Technology)
Setting range:	switch point and hysteresis: any value within measuring range
Switching delay:	0,0...999,9 s
Failsafe function:	adjustable
Galvanical insulation:	switching outputs are separated from measuring amplifier

Supply

Voltage:	HART current loop 12...40 VDC
Load:	R = (U_B-12 V) / 21 mA
Reverse voltage protection:	available (no function, no damage)

Environmental Conditions

Temperature:	Operating range:	-20...80 °C (0...+80 °C nominal range)
	Storing:	-20...+85 °C
	Medium:	-30...+100 °C
CE-conformity:	Pressure equipment directive:	97/23/EG EMC directive:2004/108/EG
Shock resistance:	1000 g according IEC 60068-2-27 (mechanical shock)	
Vibration resistance:	20 g according IEC 60068-2-6 (vibration under resonance)	

Mechanics

Dimensions:	see page 3	
Pressure connection:	G 1/2 B (0...2,5 to 0...600 bar)	
	G 1B flush-mounted (0...0,1 bar to 0...1,6 bar)	
	G 1 hygienic (0...0,1 bar to 0...25 bar)	
Electrical connection:	see page 3	
Material:	Process connection:	Stainless steel CrNi (in contact with medium)
	Body:	PBT Gf30
	Head of display:	polycarbonate
Transmission fluid:	synthetic oil (internal)	
Vacuum resistancet:	available	
Weight:	approx. 240 g	
Device protection:	Protection class:	at least IP65 (electronics), with mated plugs plugged in
PCB:	potted	

Pressure Tables (in bar)

Relative Pressure

Pressure range	0,1	0,16	0,25	0,4	0,6	1	1,6	2,5	4	6
Overload limit	1	1,5	2	2	4	5	10	10	17	35
Pressure range	10	16	25	40	60	100	160	250	400	600
Overload limit	35	80	50	80	120	200	320	500	800	1200

Absolute Pressure

Pressure range	0,25	0,4	0,6	1	1,6	2,5	4	6	10	16
Overload limit	2	2	4	5	10	10	17	35	35	80

Vacuum and ±Ranges

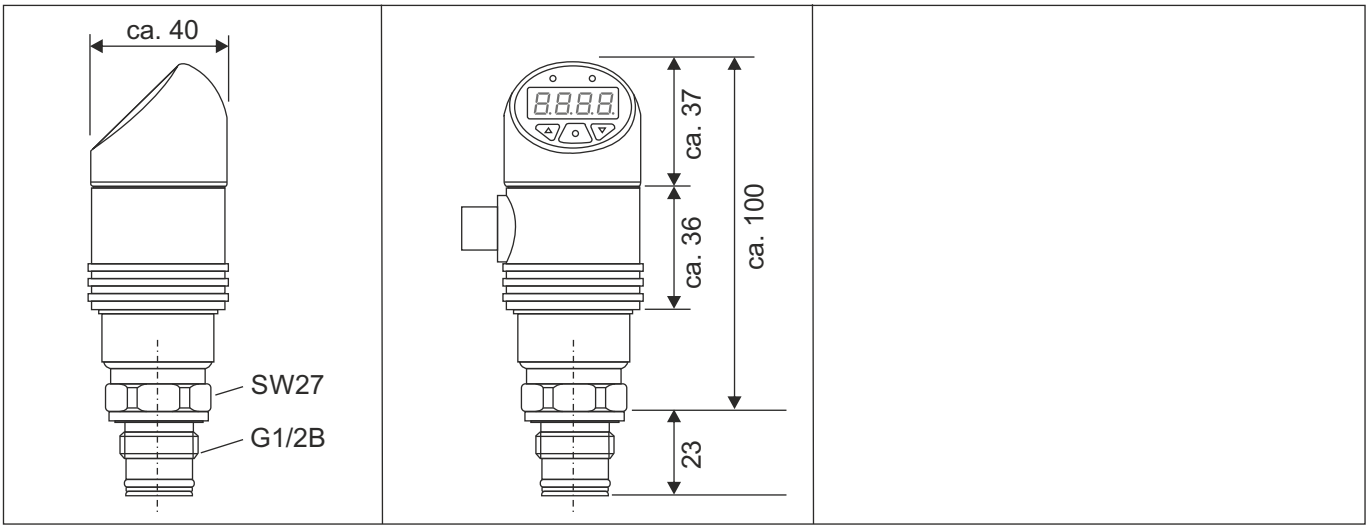
Pressure range	-0,6...0	-0,4...0	-0,25...0	-0,16...0	-0,1...0	-1...0	-1...+0,6	-1...+1,5	-1...+3	-1...+5
Overload limit	4	2	2	1,5	1	5	10	10	17	35
Pressure range	-1...+9	-1...15	-1...+24							
Overload limit	35	80	50							

Electrical Connections, Limit Values

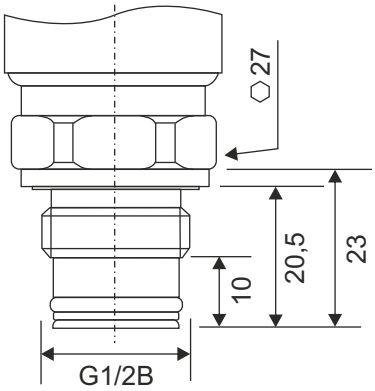
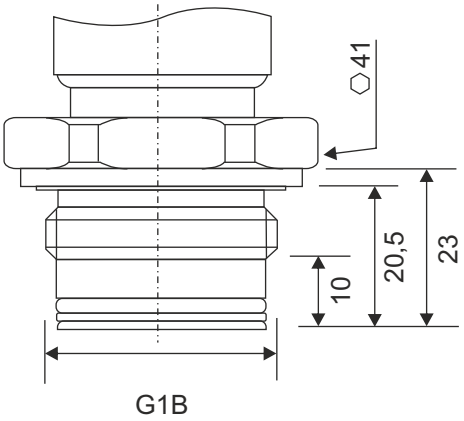
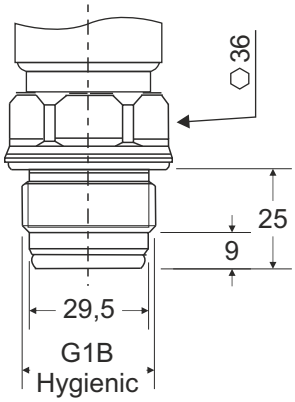
M12x1	Super Seal	Deutsch	Deutsch	Bajonett	Valve	MIL	
							
4-, 5-, 8-pole	3-pole	3-pole	4-pole	4-pole	4-pole	6-pole	

Connection Limit value (LV)	M12 4-pole	M12 5-pole	M12 8-pole	Bajonett 4-pole	Deutsch 4-pole	Deutsch 3-pole	Super Seal 3-pole	Valve 4-pole	MIL 6-pole	
1 electr. LV	X	X	X	X	X			X	X	
2 electr. LV		X	X						X	

Dimensions (in mm)



Pressure Connection (in mm)

G1/2 B 0...2,5 to 0...600 bar	G1 B 0...0,1 to 0...1,6 bar	G1 B Hygienic 0...0,1 to 0...25 bar
		

Sealing

Standard: NBR
(falls into scope of delivery)

Option: FKM/FPM
(minimum temperature: -20 °C)

Option: EPDM (up to 200 bar)

Please request technical data to female threads and welding sockets from supplier.

Ordering Code

O	Z	X	X	X	X	X	X	-	X	X	X

Pressure type:	Relative pressure	0
	Absolute pressure	1
	Vacuum and ±ranges	2
Temperature medium:	-30...+100 °C	0
Process connection:	G 1/2 B	0
	G 1 B flush-mounted	1
	G 1 Hygienic	2
Contact with medium:	CrNi-steel	0
Pressure range:	Please specify[1)]	X
Limit value contacts:	2x PNP, 30 VDC, 200 mA (standard)	0
	1x PNP, 30 VDC, 200 mA	1
	Without	2
	2x NPN, 30 VDC, 200 mA	3
	1x NPN, 30 VDC, 200 mA	4
	2x PNP, 30 VDC, 1000 mA	5
	1x PNP, 30 VDC, 1000 mA	6
	2x NPN, 30 VDC, 1000 mA	7
	1x NPN, 30 VDC, 1000 mA	8
Electr. connection:	M12, 4-pole	0
	M12, 5-pole	1
	M12, 8-pole	2
	Deutsch DT04, 3-pole	3
	Deutsch DT04, 4-pole	4
	Super Seal 1.5, 3-pole	5
	Bajonett (DIN), 4-pole	6
	Valve plug, 4-pole	7
	MIL, 6-pole	9
Configuration:	Factory setting[2)]	0
	Customized (please specify)[3)]	1
Special model:	No	0
	Yes (please specify)	1

1) Pressure range absolute: 2 = 0...0,25 / 3 = 0...0,4 / 4 = 0...0,6 / 5 = 0...1 / 6 = 0...1,6 / 7 = 0...2,5 / 8 = 0...4 / 9 = 0...6 / A = 0...10 / B = 0...16 bar

Pressure range relative: 0 = 0...0,1 / 1 = 0...0,16 / 2 = 0...0,25 / 3 = 0...0,4 / 4 = 0...0,6 / 5 = 0...1 / 6 = 0...1,6 / 7 = 0...2,5 / 8 = 0...4 / 9 = 0...6 / A = 0...10 / B = 0...16 / C = 0...25 / D = 0...40 / E = 0...60 / F = 0...100 bar / G = 0...160 / H = 0...250 / I = 0...400 / J = 0...600

Pressure range vacuum and ±ranges: 0 = -0,6...0 / 1 = -0,4...0 / 2 = -0,25...0 / 3 = -0,16...0 / 4 = -0,1...0 / 5 = -1...0 / 6 = -1...+0,6 / 7 = -1...+1,5 / 8 = -1...+3 / 9 = -1...+5 / A = -1...+9 / B = -1...+15 / C = -1...+24

2) Measuring range: indicating range / limit values: 40% - 80%

3) Please select according to *Technical Data*.

Accessories:

DEV-HM (Interface HART, USB, software) Order No.: **01310-00220**

HART Communication and Configuration

The HART-Tool is a graphical user interface for the ME series with menu-driven progam for configuration. It can be used for putting into operation, configuration, analysis of signals, data backup and documentation of the device. Connection via HART interface DEV-HM for operating systems: Windows 2000, Windows XP, Windows 7, 8.1 and 10. Possible settings are: Adjustment and simulation of output current, filter function, limits of measuring range, linear output signal, HART address, 2-point calibration, 10-point calibration (linearization), Limit values 1 and 2 / hysteresis 1 and 2 / delay times 1 and 2.

Please note: When using communication via a HART modem, a comunication resistance of 250 Ω has to be taken into account.

Subject to change 42-818