Pressure Transmitter Hygiene HART — MEPS-H

Characteristics

1500 - MODULAR - ECONOMIC - SERIE

- Input:	0...160 mbar up to 0...25 bar
- Output:	4...20 mA current loop HART (2-wire)
- Supply:	from current loop 12...40 VDC
- Accuracy:	see Technical Data
- Process connection:	flange hygiene version
- Electrical connection:	multiple options (page 3)
- Ambient temperature:	-20...+80 °C (operation)
- Limit value contacts:	2x electronic (NPN, PNP)
- Setting:	keys / software
- Medium temperature:	-30...+100 °C
- Protection class:	at least IP65

Technical Data

Input

Pressure:	relative: 0...160 mbar to 0...25 bar / absolute: 0...1 to 0...6 bar / ±ranges: available
Pressure range:	see table on page 2 for all ranges (with overload limit)

Output

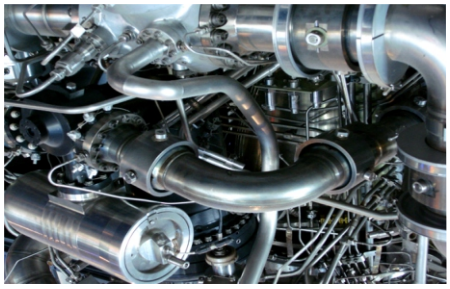
Current signal:	4...20 mA with superimposed HART communication signal, 2-wire technology
Current range:	3,8...20,5 mA
Signal interf.:	3,6 mA (sensor short circuit, underflow) 21 mA (sensor break, sensor circuit open, overflow)

Performance Parameters

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 fitting position, with process connection facing down.
	Non-linearity:	<0,2% of span (BFSL as per IEC 61298-2)
	Non-repeatability:	<0,1% of span (as per IEC 61298-2)
	Stability per year:	<0,2% of span (at reference conditions)
	Temperature coefficient:	mean temperature coefficient (TC) in compensated range TC zero point: <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 condition:	15...25 °C / 860...1060 mbar / 45...75% rh
	Transient response time:	<10 ms
Measuring amplifier:	Resolution:	16 Bit
	Accuracy:	0,3% of range
	Filter setting:	0...99 s
	Transient response:	linear with pressure
	Measurement rate:	10 measurements/s
	Setting:	with keys / per software (HART-communication)
	Switch-on delay:	<5 s Response time: 20 ms

Applications

For application in industrial facilities, in plant engineering or at utility companies. This robust sensor with his configurable limit value contacts, integrated display and his multiple electrical connections is suitable for demanding applications in food, pharma and bioengineereing.



Technical Data (Continued)

Display / limit values:	Resolution:	-9999...9999 digit
	Measurement error:	±0,2% of range, ±1 digit
	Temperature drift:	100 ppm/K
	Functions, operation:	as per VDMA 24574-1 to 24574-4

Display

Display screen:	7- segment, 8,5 mm, red, 4-digits, can be rotated by 180°
Display head:	can be rotated by approx. 330°
Memory:	minimum / maximum values
Display:	- measured value - measurement unit - operating menu
Decimal point:	automatic or manual setting, dependent on measurement range / unit
Display:	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)
Display:	1 LED red per limit value
Voltage drop:	<1 V
Setting:	with 3 keys (TouchM-technology)
Setting range:	Switchpoint and hysteresis at any point in measurement range
Switching delay:	0,0...999,9 s
Failsafe function:	adjustable
Galvanic isolation:	Switch outputs and measuring amplifier are isolated

Supply

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

Environmental Conditions

Temperature:	Operating range:	-20...80 °C
		0...+80 °C (compensated range)
	Storage:	-20...+85 °C
	Medium:	-30...+100 °C
CE-conformity:	Pressure equipment directive:	2014/68/EU EMC directive: 2014/30/EU
Shock resistance:	1000 g as per IEC 60068-2-27 (mechanical shock)	
Vibration resistance:	20 g as per IEC 60068-2-6 (vibration under resonance)	

Mechanics

Dimensions:	see page 3	
Pressure connection:	flange hygiene version	
	Guaranteed roughness: Membrane:	Ra ≤ 0,4 µm
	Laser weld seam:	Ra ≤ 0,8 µm
	Turned parts:	Ra ≤ 0,8 µm
Electrical connection:	see page 3	
Material:	Process connection:	stainless steel CrNiMo (in contact with medium)
	Casing body:	PBT Gf30
	Display body:	polycarbonate
Transmission fluid:	synthetic oil (intern)	
Vacuum resistance:	available	
Weight:	approx. 368 g	
Equipment protection:	Protection class:	at least IP65 (electronics), with mating plugs plugged in
PCBs:	potted	

Pressure Table Relative / ±Ranges / Absolute (in bar)

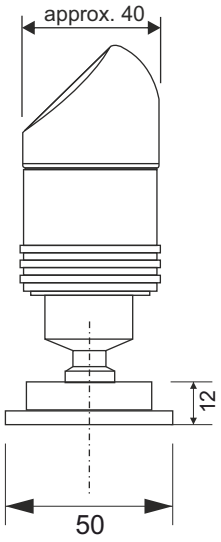
Pressure Range Overload limit	0,16 1	0,25 3	0,4 3	0,6 3	1 10	1,6 10	2,5 10	4 20	6 20	10 25
Pressure Range Overload limit	16 25	25 25	-0,16...0 1	-0,25...0 3	-0,4...0 3	-0,6...0 3	-1...0 10	-1...0,6 10	-1...1,5 10	-1...3 20
Pressure Range Overload limit	-1...5 20	-1...9 25	-1...15 25	-1...24 25	0...1 10	0...1,6 10	0...2,5 10	0...4 20	0...6 20	

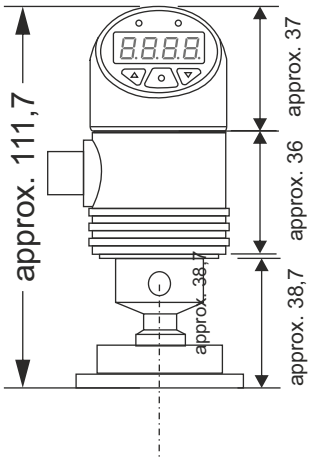
Electrical Connection, Limit Values

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	

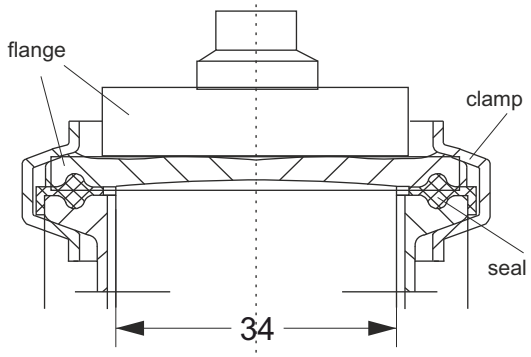
Dimensions (in mm)





Process Connection (in mm)

flange, welded
0...0,16 up to 0...25 bar



Note:

All measurements for 1 ½“ connection as per DIN 32676 row C (tri-clamp), for pipes as per ASME BPE.

Other connections available on request.

Please note:

Special connections can have a lower pressure limit.

Technical information about female threads and welding sockets available on request

Ordering Code

O	Q	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:	Flange hygiene version	H
Contact with medium:	CrNiMo-steel	0
Pressure range:	Please specify[1)]	X
Limit 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

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) Pressure relative, 0...25 bar / limit values: 40% - 80%

3) Please select according to *Technical Data*.

Accessories:

DEV-HM (HART-interface, 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, version 42-810