


● Characteristics

	- Input:	pressure 0...0,1 up to 0...1000 bar
	- Output:	4...20 mA current loop HART (2-wire)
	- Voltage supply:	out of current loop (12...40 VDC)
	- Accuracy:	see technical details
	- Process connection:	several options
	- Electrical connection:	lateral, Option: upwards
	- Electrical connection:	several plugs / cable
	- Temperature range:	-20...+80 °C (operation)
	- Adjustment:	software
	- Temperature medium:	-30...+100 °C
- Protection:	at least IP65 / IP68	

● Technical data

Input		
Pressure:	relative: 0...0,1 up to 0...1000 bar / -1...0 bar	absolute: 0...0,25 up to 0...16 bar
Pressure ranges:	see table page 2 (with overpressure safety, burst pressure)	
Output		
Current signal:	4...20 mA with superimposed communication signal (HART), 2-wire current loop	
Current range:	3,6...21 mA	
Signal on error:	21 mA (sensor break, sensor open circuit, sensor short circuit, underflow)	
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)
	Adjustment:	in vertical mounting position with 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 coefficient (TC) within compensated temperature range
	TC zero:	<0,2% of span / 10 K <0,4% span / 10 K for ranges <250 mbar
	TC span:	<0,2% span / 10 K
Measuring amplifier:	Reference conditions:	15...25 °C / 860...1060 mbar / 45...75% rH / 24 VDC
	Resolution:	16 Bit
	Accuracy:	0,3% of range
	Filter setting:	0...99 s
	Transmission behaviour:	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 s

● Applications

For use in industrial plants, terotechnology and public utility (eg tanks for drinking water). With the numerous electrical connections and the configuration via HART protocol, the pressure sensor is also suitable for applications with higher requirements.



● Technical data (continued)

Supply

Voltage: HART current loop: 12...40 VDC VDC
 Load: $R = (U_B - 12 \text{ V}) / 21 \text{ mA}$
 Reverse battery protection: available (no function, no damage)

Ambient conditions

Temperature: Operating range: -20...80 °C
 0...+80 °C (compensated range)
 Storing: -20...+85 °C
 Medium: -30...+100 °C

Condensation: uncritical
 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 (EN837) / G 1/4 (EN837) / G 1/4 (DIN 3852-E) / 1/2 NPT / 1/4 NPT
 for NPT thread: nominal size for "US standard tapered pipe thread NPT"
 Electrical connection: lateral
 Option: upwards
 Plugs and cables: see page 3
 Material: Process connection: stainless steel CrNi (contact with medium)
 Body: PBT GF30
 Cover: PBT GF30
 Transmission fluid: syntetic oil (internal), no transmission fluids for models with pressure ranges >25 bar
 Weight: approx. 230 g
 Protection of device: Ingress protection: at least IP 65 (electronics)
 PCB: potted

Pressure table

Pressure range	0,1	0,16	0,25	0,4	0,6	1	1,6	2,5
Overpressure safety	1	1,5	2	2	4	5	10	10
Burst pressure	2	2	2,4	2,4	4,8	6	12	12
Pressure range	4	6	10	16	25	40	60	100
Overpressure safety	17	35	35	80	50	80	120	200
Burst pressure	20,5	42	42	96	96	400	550	800
Pressure range	160	250	400	600	1000			
Overpressure safety	320	500	800	1200	1500			
Burst pressure	1000	1200	1700	2400	3000			

● **Electrical connection**

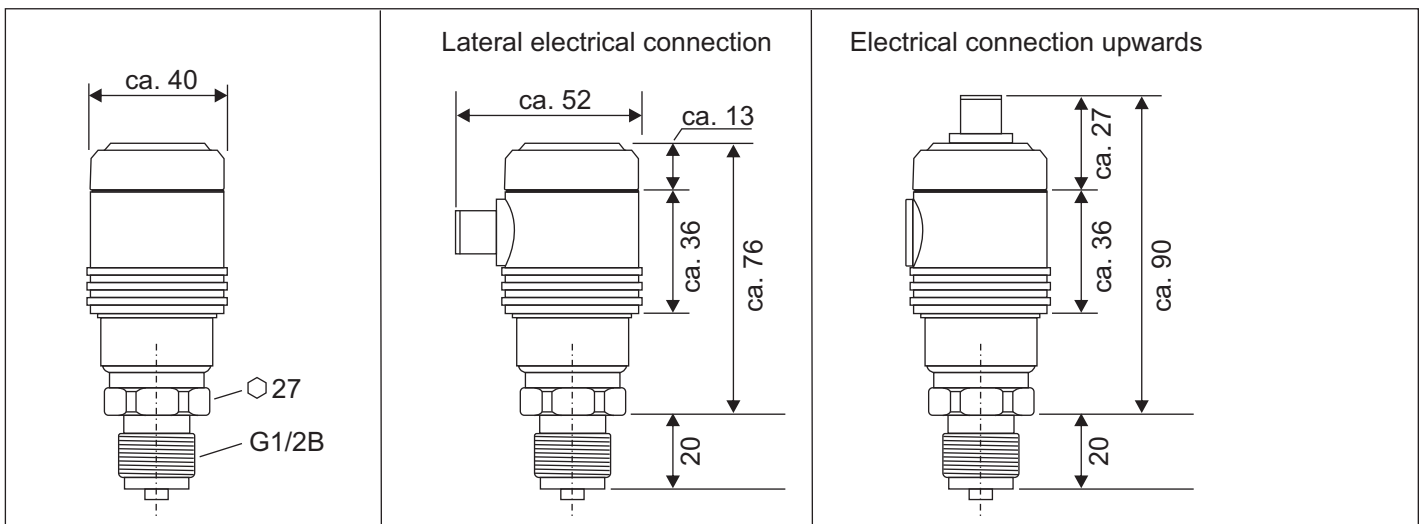
M12x1	Super Seal	Deutsch	Deutsch	Bayonet	Valve	MIL	Cable
							
4-, 5-, 8-pole	3-pole	3-pole	4-pole	4-pole	4-pole	6-pole	4-pole

● **HART Communication and configuration**

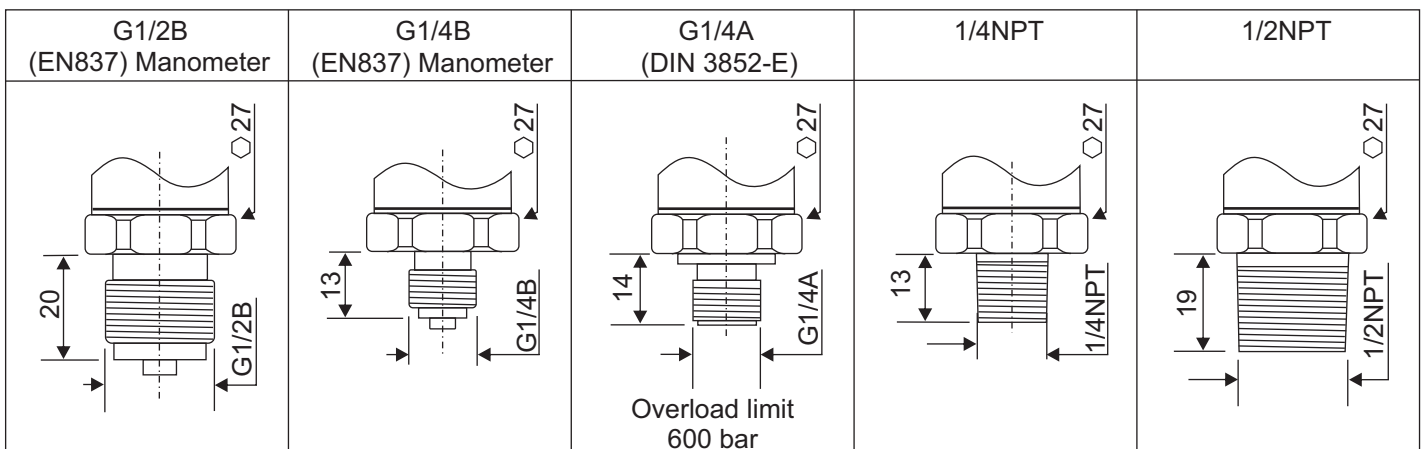
The HART-Tool is a graphical user interface for the MS series with menu-driven program for configuration. It can be used for putting into operation, configuration, analysis of signals, data backup and documentation of the device. Connection via HART interface DEV-HM for operating systems: Windows 2000, Windows XP, Windows 7 and 8.1. 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)

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

● **Dimensions (in mm)**



● **Pressure connection (in mm)**



● **Order code**

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Kind of pressure:	Relative pressure	0																	
	Absolute pressure	1																	
Temperature medium:	-30...+100 °C		0																
Process connection:	G1/2" (EN 837), manometer		0																
	G1/4" (EN 837), manometer		1																
	G1/4" (DIN 3852 E)		2																
	1/2"NPT		3																
	1/4"NPT		4																
	Other connection (to indicate)		5																
Contact with medium:	CrNi steel		0																
Pressure range:	To indicate ¹⁾									X									
Electrical connection:	Lateral (standard)										0								
	Upwards										1								
Electrical connection:	M12, 4-pole																		0
	M12, 5-pole																		1
	M12, 8-pole																		2
	Deutsch DT04, 3-pole																		3
	Deutsch DT04, 4-poe																		4
	Super Seal 1.5, 3-pole																		5
	Bayonet (DIN), 4-pole																		6
	Valve plug, 4-pole																		7
	Cable, 2 m																		8
	MIL, 6-pole																		9
Configuration:	Factory setting ²⁾																		0
	Customized (please indicate) ³⁾																		1
Other:	Special model																		0

- 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 / K = 0...1000 / L = -1...0 bar
- 2) Measuring range: / Indicating range
- 3) All settings, which are possible according the technical data, can be selected. For not given values the details of factory-set are used.

Accessories:		
DEV-HM (Interface HART, USB, software)		Order No.: