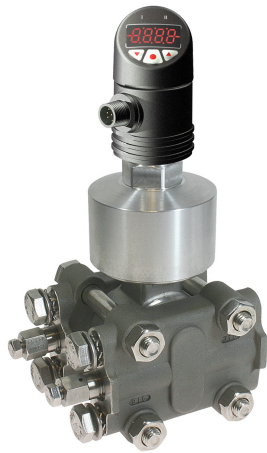


## ● Characteristics

1500 - MODULAR - ECONOMIC - SERIE



- Input:	differential pressure (range: 10 mbar to 100 bar)
- Output:	4...20 mA current loop (12...45 VDC) HART
- Accuracy:	0,075%, 0,1% of range (URL, LRL)
- Setting:	with keys and/or software
- Material adapter:	for process adapter M56: Stainless steel 1.4571
- Material process:	for pressurized parts: 1.4435
- Electr. connection:	several options available, see page 5
- Process connection:	1/4-18 NPT
- Operating temp.:	-20...+70 °C
- Protection classt:	IP65
- Display:	3 capacitive keys, 4-digits, 180° mirrorable

## ● Technical Data

### Input

Differential pressure: 10 mbar / 60 mbar / 400 mbar / 2,5 bar / 20 bar / 100 bar  
 Static pressure: Dependent on measurement range, see pressure table on page 4

### Output

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

### Performance Parameters

Accuracy:	Type 10 mbar / 60 mbar:	0,1% of terminal value up to range spreading 5:1 ±(0,1+0,01*URL/URV) at range spreading 5:1 up to 50:1
	Types 400 mbar to 100 bar:	0,075% of terminal value up to range spreading 10:1 ±(0,0751+0,00751*URL/URV) at range spreading 10:1 up to 100:1
Influence:	Static pressure:	Zero point: ±0,1%/70 bar - range: ±0,2%/70 bar
	Supply:	<0,005% of nominal range/1V
	Vibration:	<0,01% of nominal range/g at 200 Hz
	Fitting position:	Zero point offset compensable
	Range shift:	Without
	Temperature:	<0,45%/55°C
	Stability	±0,1% of nominal range / 1 year
	Reference conditions:	15...25 °C / 860...1060 mbar / 45...75% rH
	Transient response time:	<10 ms
Measurement amplifier:	Resolution:	16 bit
	Accuracy:	0,3% of range
	Filter adjustment:	0...99 s
	Transient response:	linear with pressure
	Measurement rate:	10 measurements/s
	Setting:	with keys / via software (HART-communication)
	Switch-on delay:	<5 s
	Response time:	20 ms

## ● Applications

The MEDS is suitable for the measuring of differential pressures. The sensor has configurable limit contacts and an integrated display. It is suitable for demanding applications of the industrial sector, especially chemical industry and process engineering.



## ● Technical Data (Continued)

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

### Display

Display:	7- segment, 8,5 mm, rot, 4-digits, mirrorable by 180°
Display head:	rotatable by approx. 330°
Storage:	minimum / maximum values
Indication:	- measured value    - measurement unit- operation menu
Decimal point:	automatic or manual setting, dependant on measurement range / unit
Representation:	xxxx / xxx.x / xx.xx / x.xxx

### Limit Contacts

Electronics:	2x PNP or NPN (30 VDC, 200 mA) option: 2x PNP or NPN (30 VDC, 1000 mA)
Indication:	1 LED red per limit value
Voltage drop:	<1 V
Setting:	with 3 keys (TouchM-technology)
Setting range:	switch point and hysteresis any value within measurement range
Switch-on delay:	0,0...999,9 s
Failsafe function:	adjustable
Galvanic isolation:	switching outputs are separated from measurement amplifier

### Supply

Voltage:	HART current loop: 12...45 VDC
Load:	$R = (U_B - 12 \text{ V}) / 21 \text{ mA}$
Reverse voltage protection:	yes (no function, no damage)
Insulation resistance:	>250 MΩ
Overvoltage protection:	500 V
Short-circuit strength:	permanent

### Environmental Conditions

Temperature:	operating range:	-40...85 °C (0...+85 °C compensated range)
	storage:	-40...+85 °C
	medium:	-40...+100 °C
Shock resistance:	1000 g as per IEC 60068-2-27 (mechanical shock)	
Vibration resistance:	20 g as per IEC 60068-2-6 (vibration at resonance)	
Humidity:	5...98% rH	

### Mechanics

Dimensions:	see page 5	
Pressure connection:	1/4-18 NPT	
Electrical connection:	several, see page 5	
Material:	process connection:	stainless steel 1.4435 (in contact with medium)
	process adapter M56:	stainless steel 1.4571
	body:	PBT GF30
	head of display:	polycarbonate
Transmission fluid:	synthetic oil (internal)	
Vakuum resistance:	yes	
Weight:	approx. 3,04 kg	
Equipment protection:	Protection class:	at least IP65 (electronics), with plugged mating plugs
	PCB:	potted
Measuring principle:	capacitive	
Norms:	IEC 61000-4-3 / pressure equipment directive 2014/68/EU	

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## ● **HART-Communication and Configuration**

The HART-Tool is a graphical user interface for the ME series with a menu-driven program for configuration. It can be used for start-up, configuration, signal analysis, data backup and device documentation. 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 communication resistance of 250  $\Omega$  has to be taken into account.

## ● Technical Data (Continued)

### Pressure Table

**Measurand:** differential pressure  
 derived from this: flow rate (volumetric- and mass flow)  
 level (level, volume, mass)

**Measuring ranges:** 10 mbar up to 100 bar

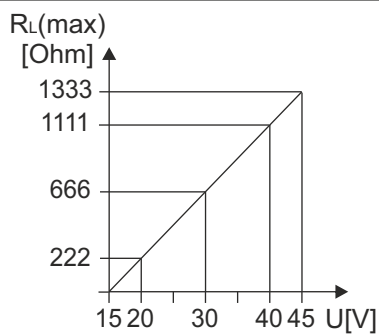
nominal range [mbar]	range limit lower (LRL) [mbar]	range limit upper (URL) [mbar]	working range smallest adjustable [mbar]	overload limit [bar]
10	-10	+10	0,2	160
60	-60	+60	0,6	160
400	-400	+400	4	160
2500	-2500	+2500	25	160
20000	-20000	+20000	200	400
100000	-100000	+100000	1000	400

### Output

**Output signal:** 4...20 mA, 2-wire connection  
 with superimposed communication signal HART-protocol

**Signal range:** 3,6...22,8 mA

**Load:**  $R = (U_B - 12 \text{ V}) / 21 \text{ mA}$










Voltage supply: 12...45 VDC

$R_{Lmax}$ : Maximum load resistance

U: Supply voltage

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

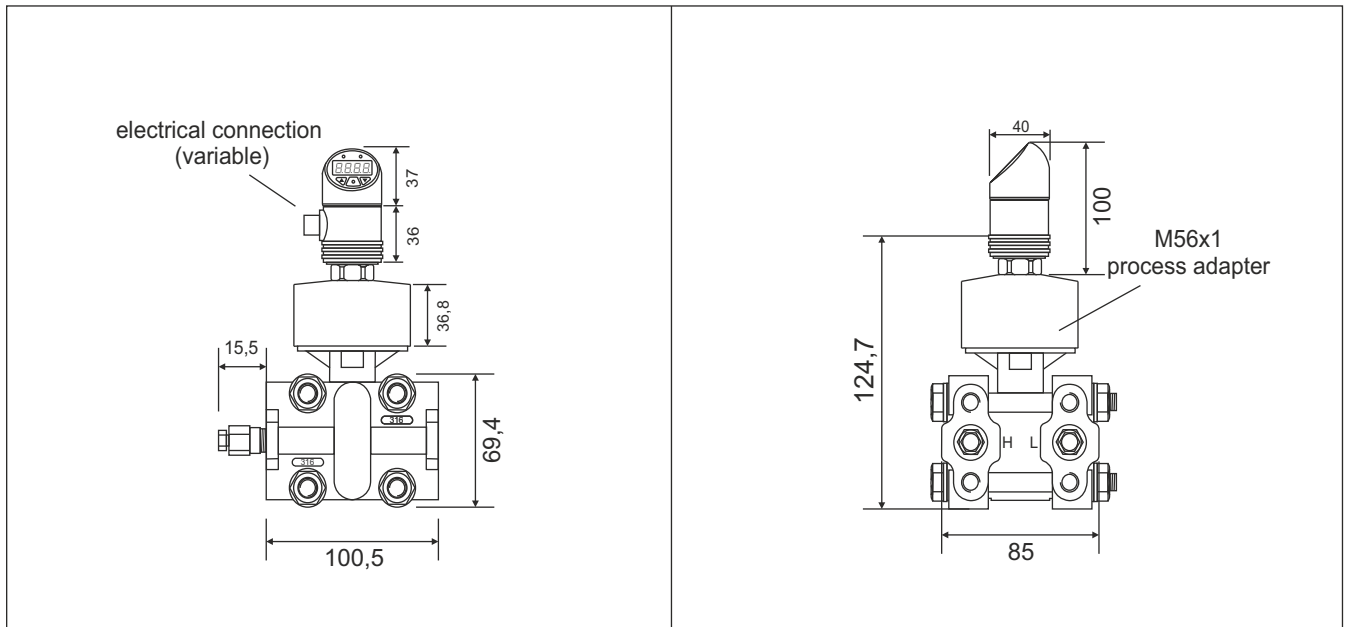
● **Electrical Connections, Limit Values**

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

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

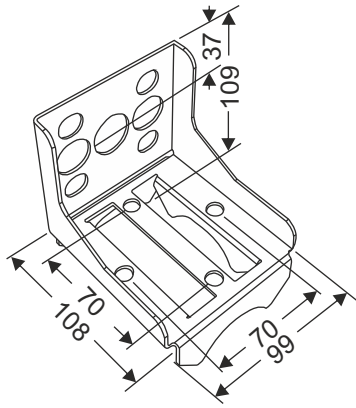
● **Dimensions (in mm and approximately)**



● **Pressure Connection (in mm)**

	<p><b>Pressure connection:</b> 1/4-18 NPT 1.4435</p> <p><b>Measuring membrane:</b> Stainless steel 1.4435</p> <p><b>Mounting:</b> M10</p> <p><b>Supplied accessories:</b> 2 vent valves 1.4435</p>
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● **Wall and Pipe Mounting**



Dimensions in mm

A zinc-plated steel mount for mounting the device on walls or pipes is included in the scope of delivery.

Scope of delivery: Mount, bracket for pipe mounting with nuts and washers.

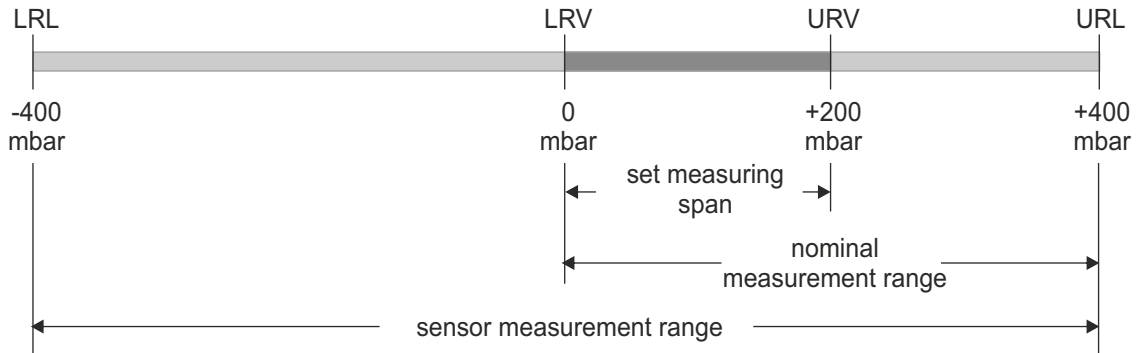
A stainless steel mount is available as option (surcharge).

● **Definitions**

LRL: Lower range limit  
LRV: Lower range value

URL: Upper range limit  
URV: Upper range value

**Example 1**

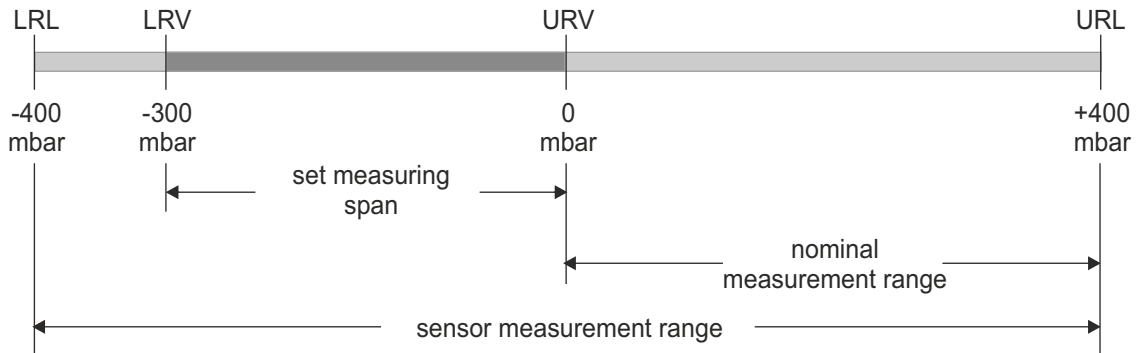


**|LRV| < |URV|:** Lower range value (LRV) = 0 mbar      Upper range value (URV) = 200 mbar  
Upper range limit (URL) = 400 mbar

**Turn down:** URL / |URV| = 400 mbar / 200 mbar      Turn down = 2 : 1

**Set span:** URV - LRV = 200 mbar - 0 mbar      Measuring span set = 200 mbar  
(The span is zero point based.)

**Example 2**



**|LRV| > |URV|:** Lower range value (LRV) = -300 mbar      Upper range value (URV) = 0 mbar  
Upper range limit (URL) = 400 mbar

**Turn down:** URL / |LRV| = 400 mbar / 300 mbar      Turn down = 1,33 : 1

**Set span:** URV - LRV = 0 mbar - (-300 mbar)      Measuring span set = 300 mbar  
(The span is zero point based.)

● **Order Code**

**N J X X X X X X - X X X X**

<b>Pressure type:</b>	Differential pressure	0																	
<b>Temperature medium:</b>	-40...+100 °C	0																	
<b>Process connection:</b>	1/4-18 NPT		B																
<b>Contact with medium:</b>	Edelstahl 1.4435	0																	
<b>Pressure range:</b>	0...10 mbar																		7
	0...60 mbar																		8
	0...400 mbar																		9
	0...2,5 bar																		A
	0...20 bar																		B
	0...100 bar																		C
<b>Limit contacts:</b>	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
<b>Electr. connection:</b>	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
	Bayonet (DIN), 4-pole																		6
	Valve plug, 4-pole																		7
	MIL, 6-pole																		9
<b>Wall / Pipe mounting:</b>	Steel																		0
	Stainless steel (surcharge) <sup>1</sup>																		1
<b>Configuration:</b>	Factory setting <sup>2</sup>																		0
	Customized (please specify) <sup>3</sup>																		1
<b>Special model:</b>	No																		0
	Yes (please specify)																		1

- 1) Scope of delivery for the differential pressure transmitter MEDS includes a zinc-plated steel mount as standard. For a surcharge, a stainless steel mount is available as option.
- 2) Measurement range: Indicating range / limit values: 40% / 80%
- 3) Please select according to technical data. For values not given, factory settings will be used.

**Accessories:**  
 DEV-HM (HART-interface, USB, software) Best.-No.: 01310-00220