Modbus®

DCT 531

Industrial Pressure Transmitter with RS485 Modbus RTU

Stainless Steel Sensor

accuracy according to IEC 60770:
standard: 0.25 % FSO
option: 0.1 % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 400 bar

Output signal

RS485 with Modbus RTU protocol

Special characteristic

- pressure value
- perfect thermal behaviour
- excellent long term stability
- reset function

Optional versions

- pressure port
  G 1/2" flush up to max. 40 bar
- pressure sensor welded
- customer specific versions

The **DCT 531** with RS485 interface uses the communication protocol Modbus RTU which has found the way in industrial communication as an open protocol. The Modbus protocol is based on a master slave architecture with which up to 247 slaves can be questioned by a master.

Due to the usage of high quality materials and components, the **DCT 531** is suitable for almost every industrial application, if the medium is compatible with stainless steel 316L.

The modular concept of the device allows customized mechanical connections, so it is easy to adapt the pressure transmitter to different conditions on-site.

Preferred areas of use are

- Plant and machine engineering
- Energy industry

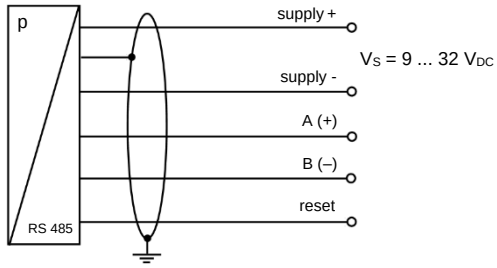
CE ROHS REACH Modbus®

Input pressure range												
Nominal pressure gauge	[bar]	-1…0	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6
Nominal pressure absolute	[bar]	-	-	-	-	0.40	0.60	1	1.6	2.5	4	6
Overpressure	[bar]	5	0.5	1	1	2	5	5	10	10	20	40
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50

Nominal pressure gauge / absolute	[bar]	10	16	25	40	60	100	160	250	400
Overpressure	[bar]	40	80	80	105	210	600	600	1000	1000
Burst pressure ≥	[bar]	50	120	120	210	420	1000	1000	1250	1250
Vacuum resistance		p_N ≥ 1 bar: unlimited vacuum resistance					p_N < 1 bar: on request			

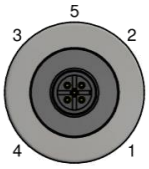
Output signal	
Digital	RS 485 with Modbus RTU protocol (pressure)
Supply	
Direct current	V_S = 9 … 32 V_{DC}
Performance	
Accuracy [1]	standard: ≤ ± 0.25 % FSO option: ≤ ± 0.10 % FSO
Long term stability	≤ ± 0.1 % FSO / year at reference conditions
Measuring rate	500 Hz
Delay time	500 msec
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)	
Thermal effects (offset and span)	
Tolerance band	≤ ± 0.75 % FSO
In compensated range	-20 ... 85 °C
Permissible temperatures	
Medium	-40 ... 125 °C
Electronics / environment	-40 ... 85 °C
Storage	-40 ... 100 °C
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	on supply connection no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Mechanical stability	
Vibration	10 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	100 g / 11 msec according to DIN EN 60068-2-27
Materials	
Pressure port / housing	stainless steel 1.4404 (316 L)
Seals	standard: FKM option: EPDM; welded version [2] (for p_N ≤ 40 bar) others on request
Diaphragm	stainless steel 1.4435 (316 L)
Media wetted parts	pressure port, seal, diaphragm
[2] welded version only with pressure ports according to EN 837, p_N ≤ 40 bar	
Miscellaneous	
Weight	approx. 210 g
Ingress protection	IP 67
Current consumption	max. 10 mA
Operational life	100 million load cycles
Installation position	any [3]
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) [4]
[3] Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point for pressure ranges p_N ≤ 1 bar.	
[4] This directive is only valid for devices with maximum permissible overpressure > 200 bar	

Wiring diagram



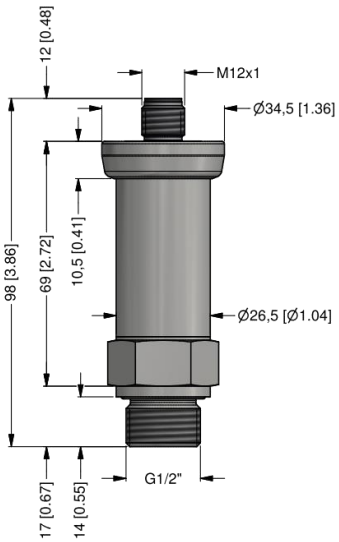
Pin configuration / electrical connection

Electrical connection	M12x1, metal (5-pin)
Supply +	1
Supply –	3
A (+)	2
B (–)	4
Reset	5
Shield	plug housing



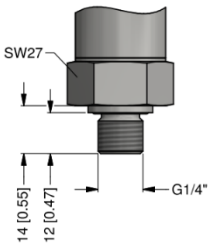
Dimensions (mm / in)

standard

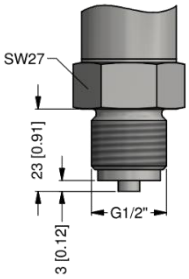


G1/2" DIN 3852
with M12x1

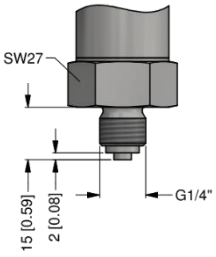
options



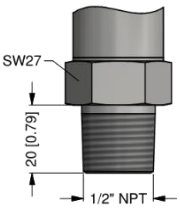
G1/4" DIN 3852



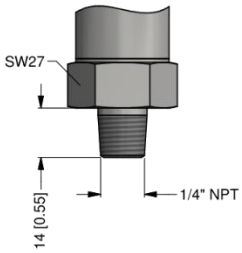
G1/2" EN 837



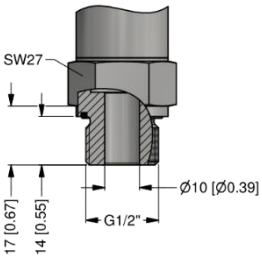
G1/4" EN 837



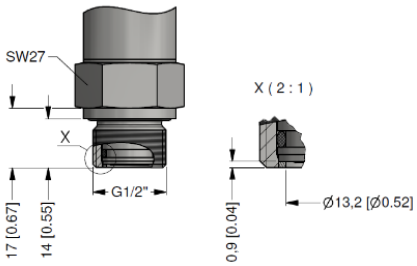
1/2" NPT



1/4" NPT



G1/2" DIN 3852
open port (p_N ≤ 40 bar)



G1/2" DIN 3852 with
semi-flush sensor (p_N ≤ 40 bar)

⇨ **metric threads and other versions on request**

LPT 533-IO

Industrial Pressure Transmitter with IO-Link Interface

Stainless Steel Sensor

accuracy according to IEC 60770:
standard: ≤ ± 0.35 % FSO
option: ≤ ± 0.25 % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 400 bar

Digital output signal

- IO-Link according to specification V 1.1
- data transfer 38.4 kbit/sec
- smart sensor profile

Special characteristic

- perfect thermal behaviour
- excellent long term stability

Optional versions

- pressure port
  G 1/2" flush up to 40 bar
- welded sensor
- customer specific versions

IO-Link is a digital interface for sensors and actuators, which is worldwide standardized by IEC 61131-9. IO-Link does not have a bus topology, but it is a powerful point-to-point communication, where the device can be parametrized, and the measured values transferred. The integration to the master is easy by using the IODD-file.

The sensor technology of the **LPT 533-IO** is the same as those of the proven pressure transmitter DMP 331 / DMP 333, whereby the **LPT 533-IO** is suitable for almost every industrial application, if medium is compatible with stainless steel 316L.

The modular concept of the pressure transmitter allows customized electrical or mechanical connections, so it is easy to adapt the **LPT 533-IO** to different conditions on-site.

Preferred areas of use are

- Plant and machine engineering
- Energy industry

LPT 533-IO

Industrial Pressure Transmitter with IO-Link Interface — Technical Data

Input pressure range												
Nominal pressure gauge	[bar]	-1…0	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6
Nominal pressure abs.	[bar]	-	-	-	-	0.40	0.60	1	1.6	2.5	4	6
Overpressure	[bar]	5	0.5	1	1	2	5	5	10	10	20	40
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50

Nominal pressure gauge / abs.	[bar]	10	16	25	40	60	100	160	250	400
Overpressure	[bar]	40	80	80	105	210	600	600	1000	1000
Burst pressure ≥	[bar]	50	120	120	210	420	1000	1000	1250	1250
Vacuum resistance		p_N ≥ 1 bar: unlimited vacuum resistance				p_N < 1 bar: on request				

Output signal / Supply	
Standard	IO-Link (measured value transmission) V_S = 18 ... 30 V_{DC} SIO (switching output)
IO-Link	V 1.1 / slave / smart sensor profile
Data transfer	COM 2 38.4 kbit/sec
Mode	SIO / IO-Link
Standard	IEC 61131-9
Performance	
Accuracy [1]	standard for p_N ≥ 0.4 bar: ≤ ± 0.35 % FSO for p_N < 0.4 bar: ≤ ± 0.50 % FSO option for p_N ≥ 0.4 bar: ≤ ± 0.25 % FSO
Switching current (SIO-Mode)	max. 200 mA
Switching frequency	max. 200 Hz
Switching cycles	> 100 x 10^6
Long term stability	≤ ± 0.1 % FSO / year at reference conditions
Turn-on time	SIO mode: approx. 20 msec
Response time	SIO mode: < 4 msec
Measuring rate	400 Hz
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)	

Thermal effects (offset and span)				
Nominal pressure p_N	[bar]	-1 … 0	< 0.40	≥ 0.40
Tolerance band	[% FSO]	≤ ± 0.75	≤ ± 1	≤ ± 0.75
in compensated range	[°C]	-20 ... 85	0 ... 70	-20 … 85

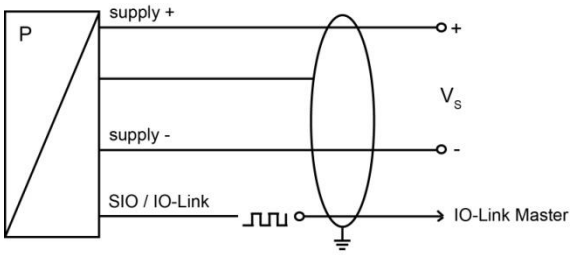
Permissible temperatures	
Medium	-25 ... 125 °C
Electronics / environment	-25 ... 85 °C
Storage	-40 ... 85 °C
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Mechanical stability	
Vibration	10 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	500 g / 1 msec according to DIN EN 60068-2-27
Materials	
Pressure port / housing	stainless steel 1.4404 (316 L)
Seals (media wetted)	standard: FKM options: EPDM welded version [2] (for p_N ≤ 40 bar) others on request
Diaphragm	stainless steel 1.4435 (316 L)
Media wetted parts	pressure port, seal, diaphragm
[2] welded version only with pressure ports according to EN 837, p_N ≤40 bar	

Miscellaneous	
Current consumption	max. 15 mA
Weight	approx. 140 g
Installation position	any [3]
Protection class	IP 67
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) [4]

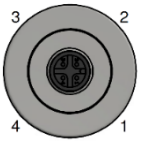
[3] Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point for pressure ranges p_N ≤ 1 bar.

[4] This directive is only valid for devices with maximum permissible overpressure > 200 bar.

Wiring diagrams

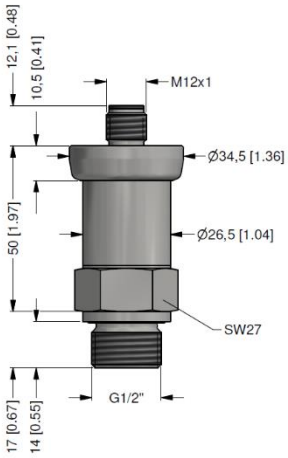


Pin configuration

Electrical connection	M12x1 / metal (4-pin)	
Supply +	1	
Supply –	3	
SIO / IO Link	4	
Shield	housing	

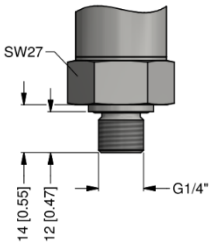
Dimensions (mm / in)

standard

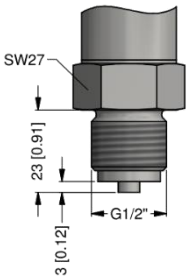


G1/2" DIN 3852
with M12x1

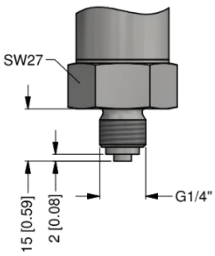
optionally



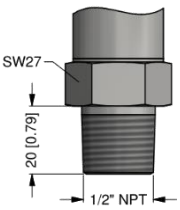
G1/4" DIN 3852



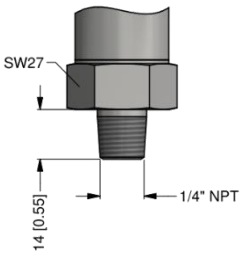
G1/2" EN 837



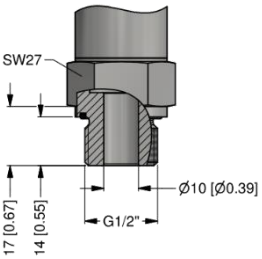
G1/4" EN 837



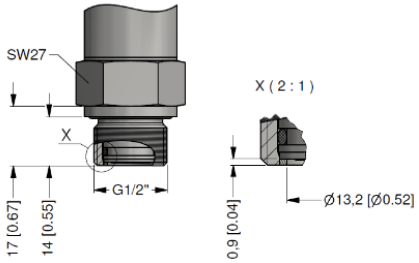
1/2" NPT



1/4" NPT



G1/2" DIN 3852 open port,
$p_N \leq 40$ bar



G1/2" DIN 3852
with flush sensor, $p_N \leq 40$ bar

⇨ **metric threads and other versions on request**

Ordering code **LPT 533-IO**

LPT 533-IO ☐☐☐-☐☐☐☐-☐☐-☐-☐☐☐-☐☐☐-☐-☐☐☐

	Code	
Pressure		
gauge	D C 2	
absolute [1]	D C 3	
Input [bar]		
0.10 [1]	1 0 0 0	
0.16 [1]	1 6 0 0	
0.25 [1]	2 5 0 0	
0.40	4 0 0 0	
0.60	6 0 0 0	
1.0	1 0 0 1	
1.6	1 6 0 1	
2.5	2 5 0 1	
4.0	4 0 0 1	
6.0	6 0 0 1	
10	1 0 0 2	
16	1 6 0 2	
25	2 5 0 2	
40	4 0 0 2	
60	6 0 0 2	
100	1 0 0 3	
160	1 6 0 3	
250	2 5 0 3	
400	4 0 0 3	
-1 … 0	X 1 0 2	
customer	9 9 9 9	consult
Output		
IO-Link / SIO	IO	
Accuracy		
standard for $p_N \geq$ 0.4 bar 0.35 % FSO	3	
standard for $p_N <$ 0.4 bar 0.50 % FSO	5	
option for $p_N \geq$ 0.4 bar 0.25 % FSO	2	
customer	9	consult
Electrical connection		
male plug M12x1 (4-pin) / metal	M 1 7	
customer	9 9 9	consult
Mechanical connection		
G1/2" DIN 3852	1 0 0	
G1/2" EN 837	2 0 0	
G1/4" DIN 3852	3 0 0	
G1/4" EN 837	4 0 0	
G1/2" DIN 3852 with flush sensor [2]	F 0 0	
G1/2" DIN 3852 open pressure port [2]	H 0 0	
1/2" NPT	N 0 0	
1/4" NPT	N 4 0	
customer	9 9 9	consult
Seals		
FKM	1	
EPDM	3	
without (welded version) [3]	2	
customer	9	consult
Special version		
standard	0 0 0	
customer	9 9 9	consult

[1] absolute pressure possible from 0.4 bar
[2] not possible for nominal pressure p_N > 40 bar
[3] welded version only with pressure ports according to EN 837, possible for $p_N \leq$ 40 bar

DMP 331i
DMP 333i

Precision Pressure Transmitter

Stainless Steel Sensor

accuracy according to IEC 60770:
0.1 % FSO

Nominal pressure

from 0 ... 400 mbar up to 0 ... 600 bar

Output signal

2-wire: 4 ... 20 mA
3-wire: 0 … 10 V
others on request

Product characteristics

- thermal error in compensated range
  -20 ... 80 °C: 0.2 % FSO
  TC 0.02 % FSO / 10K
- Turn-Down 1:10
- communication interface for adjusting of offset, span and damping

Optional versions

- IS-versions
  Ex ia = intrinsically safe
  for gases and dusts
- adjustment of nominal pressure ranges (factory-provided)

The precision pressure transmitter **DMP 331i** and **DMP 333i** demonstrate the further development of our industrial pressure transmitters.

The signal processing of sensor signal is done by digital electronics with 16-bit ana-logue
digital converter. Consequently, it is possible to conduct an active compensation and the transmitters with excellent measurements and exceptionally attractive price to offer on the market.

Preferred areas of use are

- Laboratory techniques
- Energy production (gas consumption and thermal energy measurement)

Pressure ranges DMP 331i [1]								
Nominal pressure gauge / absolute	[bar]	0.4	1	2	4	10	20	40	60
Overpressure	[bar]	2	5	10	20	40	80	105	105
Burst pressure	[bar]	3	7.5	15	25	50	120	210	210

Vacuum ranges						
Nominal pressure gauge	[bar]	-0.4 ... 0.4	-1 ... 1	-1 ... 2	-1 ... 4	-1 ... 10
Overpressure	[bar]	2	5	10	20	40
Burst pressure	[bar]	3	7.5	15	25	50

Pressure ranges DMP 333i [1]					
Nominal pressure gauge / absolute	[bar]	100	200	400	600
Overpressure	[bar]	210	600	1000	1000
Burst pressure	[bar]	420	1000	1250	1250

[1] On customer request we adjust the device within the turn-down-possibility by software on the required pressure range.

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V_S = 12 ... 36 V_{DC}
Option IS-version	2-wire: 4 ... 20 mA / V_S = 14 ... 28 V_{DC}
Options analogue signal	2-wire: 4 ... 20 mA with communication interface [2] 3-wire: 0 ... 10 V / V_S = 14 ... 36 V_{DC} 0 ... 10 V with communication interface [2]

[2] only possible with el. connection Binder series 723 (7-pin)

Performance	
Accuracy	IEC 60770 [3]: ≤ ± 0.1 % FSO
performance after turn-down - TD ≤ 1:5 - TD > 1:5	 no change of accuracy [4] for calculation use the following formula (for nominal pressure ranges ≤ 0.40 bar see note 4): ≤ ± [0.1 + 0.015 x turn-down] % FSO with turn-down = nominal pressure range / adjusted range e.g. with a turn-down of 1:10 following accuracy is calculated: ≤ ± (0.1 + 0.015 x 10) % FSO i.e. accuracy is ≤ ± 0.25 % FSO
Permissible load	current 2-wire: R_{max} = [(V_S – $V_{S\ min}$) / 0.02 A] Ω voltage 3-wire: R_{min} = 10 kΩ
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Long term stability	≤ ± (0.1 x turn-down) % FSO / year at reference conditions
Response time	approx. 5 msec
Adjustability (with option communication interface RS232)	configuration of following parameters possible (interface / software necessary [5]): electronic damping: 0 ... 100 sec offset: 0 ... 90 % FSO turn down of span: max. 1:10

[3] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)
[4] except nominal pressure ranges ≤ 0 .40 bar; for these calculation of accuracy is as follows:
≤ ± (0.1 + 0.02 x turn-down) % FSO e.g. turn-down of 1:3: ≤ ± (0.1 + 0.02 x 3) % FSO i.e. accuracy is ≤ ± 0.16 % FSO
[5] software, interface, and cable have to be ordered separately (software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or higher, and XP)

Thermal effects (offset and span) / Permissible temperatures		
Tolerance band	[% FSO]	≤ ± (0.2 x turn-down) in compensated range -20 ... 80 °C
TC, average	[% FSO / 10 K]	± (0.02 x turn-down) in compensated range -20 ... 80 °C
Permissible temperatures		medium: -25 ... 125 °C electronics / environment: -25 ... 85 °C storage: -40 ... 100 °C

Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326

Materials	
Pressure port	stainless steel 1.4404 (316 L)
Housing	stainless steel 1.4404 (316 L)
Option compact field housing	stainless steel 1.4301 (304); cable gland M12x1.5, brass, nickel plated (clamping range 2 … 8 mm)
Seals	FKM NBR welded version [6] others on request
Diaphragm	stainless steel 1.4435 (316L)
Media wetted parts	pressure port, seal, diaphragm

[6] welded version only with pressure ports according to EN 837; welded version not available with pressure ranges > 60 bar

Mechanical stability		
Vibration	10 g RMS (20 ... 2000 Hz)	according to DIN EN 60068-2-6
Shock	100 g / 11 msec.	according to DIN EN 60068-2-27

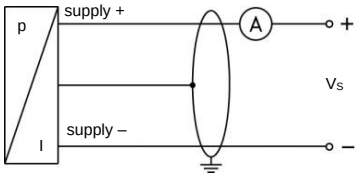
Explosion protection (only for 4 ... 20 mA / 2-wire)	
Approvals DX19-DMP 331i DX19-DMP 333i	IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T135 °C Da
Safety technical max. values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, $C_i \approx 0$ nF, $L_i \approx 0$ µH, the supply connections have an inner capacity of max. 27 nF to the housing
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -40/-20 ... 65 °C
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1µH/m

Miscellaneous		
Current consumption	signal output current: max. 25 mA	signal output voltage: max. 7 mA
Weight	approx. 200 g	
Installation position	any [7]	
Operational life	100 million load cycles	
CE-conformity	EMC Directive: 2014/30/EU	Pressure Equipment Directive: 2014/68/EU (module A) [8]
ATEX Directive	2014/34/EU	

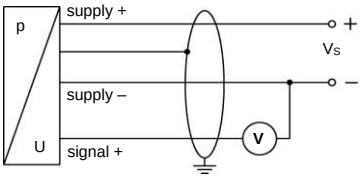
[7] *Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point for pressure ranges $p_N \leq 1$ bar.*
[8] *This directive is only valid for devices with maximum permissible overpressure > 200 bar.*

Wiring diagrams

2-wire-system (current)



3-wire-system (voltage)

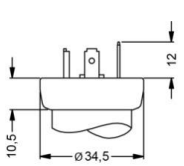


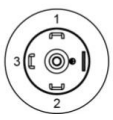
Pin configuration

Electrical connections		ISO 4400	Binder 723 (5-pin)	Binder 723/423 (7-pin)	M12x1/metal (4-pin)	Bayonet MIL-C-26482 (10-6) 2-wire	Bayonet MIL-C-26482 (10-6) 3-wire	compact field housing	cable colours (IEC 60757)
supply +		1	3	3	1	A	A	IN +	WH (white)
supply –		2	4	1	2	B	D	IN –	BN (brown)
signal + (only for 3-wire)		3	1	6	3	-	B	OUT +	GN (green)
shield		ground pin ⏚	5	2	4	pressure port		⏚	GNYE (green-yellow)
Communication interface RS232 [9]	RxD	-	-	4	-	-		-	-
	TxD	-	-	5	-	-		-	-
	GND	-	-	7	-	-		-	-

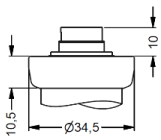
[9] *may not be transmitted directly with the PC (the suitable adapter is available as accessory)*

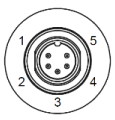
Electrical connections (dimensions in mm)



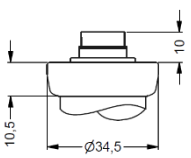


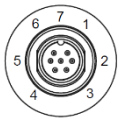
ISO 4400
(IP 65)



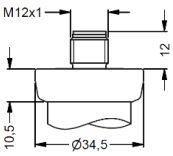


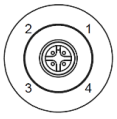
Binder series 723, 5-pin
(IP 67)



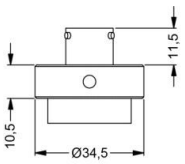


Binder series 723, 7-pin
(IP 67)

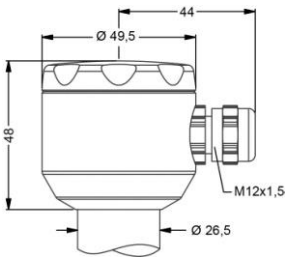




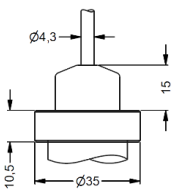
M12x1, 4-pin
(IP 67)



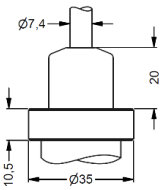
Bayonet MIL-C-26482 (10-6)
(IP 67)



compact field housing
(IP 67)



cable outlet with PVC cable
(IP 67) [10]



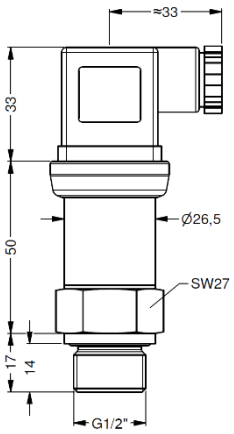
cable outlet, cable with
ventilation tube (IP 68) [11]

➪ **universal-field housing stainless steel 316L with cable gland M20x1.5 (ordering code 880) and other versions on request**

[10] *standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)*
[11] *different cable types and lengths available, permissible temperature depends on kind of cable*

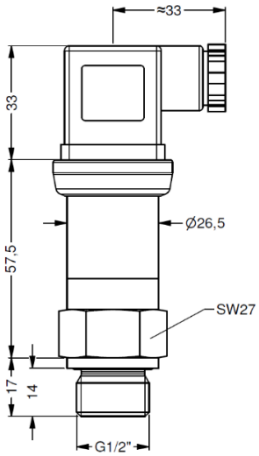
Mechanical connections (dimensions in mm)

DMP331i [12]



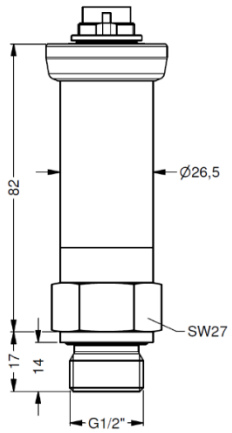
G1/2" DIN 3852

DMP 333i [12, 13]



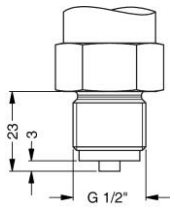
G1/2" DIN 3852

DMP 331i with communication interface RS232

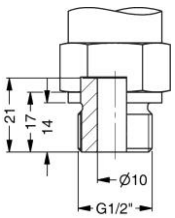


G1/2" DIN 3852

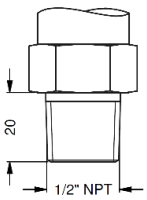
Optional



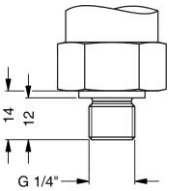
G1/2" EN 837



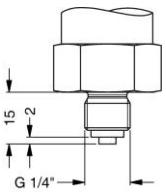
G1/2" DIN 3852
open port, $p_N \leq 40$ bar



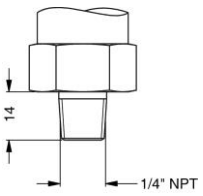
1/2" NPT



G1/4" DIN 3852



G1/4" EN 837



1/4" NPT

⇨ **metric threads and others on request**

[12] with electrical connection Bayonet MIL-C-26482 (10-6) increases the length of devices by 5 mm
[13] for nominal pressure p_N > 400 bar increases the length without IS-version by 19 mm and with IS-version by 39 mm
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Ordering code **DMP 331i / DMP 333i**

DMP 331i / DMP 333i ☐☐☐ - ☐☐☐☐ - ☐ - ☐ - ☐☐☐ - ☐☐☐ - ☐ - ☐☐☐

	[mH$_2$O]	[bar]	Code	
Pressure				
For DMP 331i				
gauge			1 1 0	
absolute			1 1 1	
For DMP 333i				
gauge [1]			1 3 0	
absolute			1 3 1	
Input	[mH$_2$O]	[bar]		
For DMP 331i [2]				
	4	0.40	4 0 0 0	
	10	1.0	1 0 0 1	
	20	2.0	2 0 0 1	
	40	4.0	4 0 0 1	
	100	10	1 0 0 2	
	200	20	2 0 0 2	
	400	40	4 0 0 2	
	600	60	6 0 0 2	
For DMP 333i [2]				
		100	1 0 0 3	
		200	2 0 0 3	
		400	4 0 0 3	
		600	6 0 0 3	
For DMP 331i				
		-0.40 … 0.40	S 4 0 0	
		-1 … 1	S 1 0 2	
		-1 … 2	V 2 0 2	
		-1 … 4	V 4 0 2	
		-1 … 10	V 1 0 3	
customer			9 9 9 9	consult
Output				
4 … 20 mA / 2-wire			1	
intrinsic safety 4 … 20 mA / 2-wire			E	
0 … 10 V / 3-wire			3	
customer			9	consult
Accuracy (at nominal pressure)				
0.1 % FSO			1	
customer			9	consult
Electrical connection				
male and female plug ISO 4400			1 0 0	
male plug Binder series 723 (5-pin)			2 0 0	
male plug Binder series 723 (7-pin) and female plug Binder series 423 (7-pin)			A 0 0	
male plug M12x1 (4-pin) / metal - for analog output			M 1 0	
male plug M12x1 (4-pin) / metal - for digital output			M 1 3	
Bayonet MIL-C-26482 (10-6); 2 wire			B G 0	
Bayonet MIL-C-26482 (10-6); 3 wire			B G 4	
cable outlet with PVC cable (IP67) [3]			T A 0	
cable outlet, cable with ventilation tube (IP68) [4]			T R 0	
compact field housing stainless steel 1.4301 (304)			8 5 0	
customer			9 9 9	consult
Mechanical connection				
G1/2" DIN 3852			1 0 0	
G1/2" EN 837			2 0 0	
G1/4" DIN 3852			3 0 0	
G1/4" EN 837			4 0 0	
G1/2" DIN 3852 with flush sensor [5]			F 0 0	
G1/2" DIN 3852 open pressure port [5]			H 0 0	
1/2" NPT			N 0 0	
1/4" NPT			N 4 0	
customer			9 9 9	consult
Seals				
For DMP 331i				
FKM			1	
without (welded version) [5, 6]			2	
For DMP 333i				
FKM			1	
NBR			5	
customer			9	consult
Special version				
standard			1 1 1	
communication interface RS232 [7]			1 2 1	
customer			9 9 9	consult

[1] measurement starts with ambient pressure

[2] pressure ranges ≤ 60 bar as DMP 331i; pressure ranges > 60 bar as DMP 333i

[3] [redacted]ion tube (permissible temperature: -5 ... 70 °C); others on request

[4] code TR0 = PVC cable, cable with ventilation tube available in different types and lengths

[5] only possible for DMP 331i and $p_N \leq 40$ bar

[6] welded version only with pressure ports according to EN 837

[7] Communication interface RS232 only possible with el. connection Binder serie 723/423 (7pin). Software, Interface and cable for DMP 331i and DMP 333i with option RS232 have to be order separately (ordering code: CIS-G; software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or newer and XP). Windows® is a registrated trademark of Microsoft Corporation

DRUCK & TEMPERATUR
LEITENBERGER GMBH

DMP 320

Precision Pressure Transmitter with Fast Response Time

Stainless Steel Sensor

accuracy according to IEC 60770:
0.1% FSO

Nominal pressure

from 0...100 mbar up to 0...600 bar

Output signal

3-wire: 0.1 … 10 V
4 … 20 mA
others on request

Product characteristics

- extremely fast response time ≤ 0.5 ms
- internal sample rate 10 kHz
- accuracy 0.1% FSO
- excellent thermal behaviour
- outstanding long term stability

optional versions

- customer specific versions

DMP 320 stands for speed and precision.

With a response time of ≤ 0.5 msec and a sampling rate of 10 kHz, the pressure transmitter was designed for applications, in which an extremely fast and exact pressure measuring is required. Pressure curves, peaks and hits can be monitored and evaluated exactly.

The signal processing of the sensor signal is done by newly developed digital electronics, which detect the signal with a sampling rate of 10 kHz. Sensor-specific deviations such as non-linearity, hysteresis and temperature errors are compensated actively.

Preferred areas of use are

- Plant and machine engineering
- Energy industry

DMP 320

Industrial Pressure Transmitter — Technical Data

Input pressure range											
Nominal pressure gauge [bar]	-1…0	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6
Nominal pressure abs. [bar]	-	-	-	-	0.40	0.60	1	1.6	2.5	4	6
Overpressure [bar]	5	0.5	1	1	2	5	5	10	10	20	40
Burst pressure ≥ [bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50

Nominal pressure gauge /abs [bar]	10	16	25	40	60	100	160	250	400	600
Overpressure [bar]	40	80	80	105	210	600	600	1000	1000	1000
Burst pressure ≥ [bar]	50	120	120	210	420	1000	1000	1250	1250	1250
Vacuum resistance	P_N ≥ 1 bar: unlimited vacuum resistance P_N < 1 bar: on request									

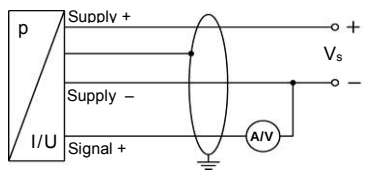
Output signal / Supply		
3-wire	0.1 … 10 V / V_S = 14 … 30 V_{DC}	
3-wire	4 ... 20 mA / V_S = 14 ... 30 V_{DC}	
Performance		
Accuracy [1]	≤ ± 0.1 % FSO	
Permissible load	Current 3-wire:	R_{max} = 500 Ω
	Voltage 3-wire:	R_{min} = 10 kΩ
Influence effects	supply:	0.05 % FSO / 10 V
	load:	0.05 % FSO / kΩ
Long term stability	≤ ± 0.1 % FSO / year	
Response time	≤ 0.5 ms	
[1] *accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)*		
Thermal effects (Offset and Span) / Permissible temperatures		
Tolerance band [% FSO]	≤ ± 0.2 in compensated range -20 ... 80 °C	
TC, average [% FSO / 10 K]	± 0.02 in compensated range -20 ... 80 °C	
Permissible temperatures	medium:	-40 ... 125°C
	electronics / environment:	-40 ... 85°C
	storage:	-40 ... 100°C
Electrical protection		
Short-circuit protection	permanent	
Reverse polarity protection	no damage, but also no function	
Electromagnetic compatibility	emission and immunity according to EN 61326	
Mechanical stability		
Vibration	10 g RMS (25 ... 2000 Hz)	according to DIN EN 60068-2-6
Shock	500 g / 1 ms	according to DIN EN 60068-2-27
Materials		
Pressure Port	stainless steel 1.4404	
Housing	stainless steel 1.4404	
Option compact field housing	stainless steel 1.4305, cable gland M12x1,5, brass, nickel plated	others on request
Seals (media wetted)	standard: FKM	
	options: EPDM	others on request
Diaphragm	stainless steel 1.4435	
Media wetted parts	pressure port, seal, diaphragm	
Miscellaneous		
Current consumption	3-wire voltage: < 30 mA	3-wire current: < 55 mA
Weight	approx. 200 g	
Installation position	any [2]	
Operational life	100 million load cycles	
CE-conformity	EMC Directive: 2014/30/EU	Pressure Equipment Directive: 2014/68/EU (module A) [3]

[2] *Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation ther can be slight deviations in the zero point for pressure ranges P_N ≤ 1 bar.*

[3] *This directive is only valid for devices with maximum permissible overpressure > 200 bar*

Wiring diagrams

3-wire-system (current / voltage)

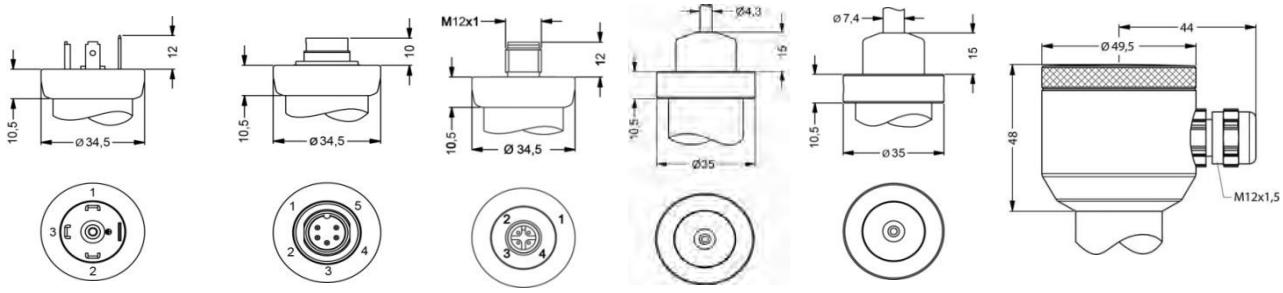


Pin configuration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1/metal (4-pin)	field housing	cable colour (IEC 60757)
Supply +	1	3	1	IN +	wh (white)
Supply –	2	4	2	IN –	bn (brown)
Signal +	3	1	3	OUT +	gn (green)
Shield	ground pin	5	4	⏚	gnye (green-yellow)

Electrical connections (dimensions in mm)

Standard **Optional**



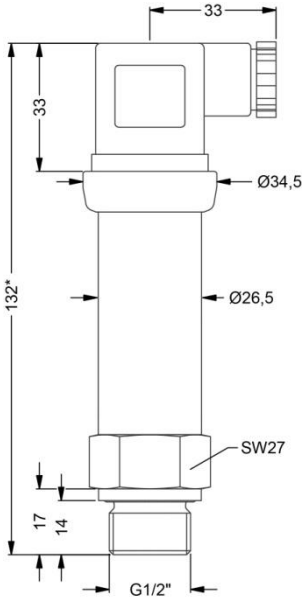
ISO 4400 (IP65)	Binder Serie 723 5-pin (IP67)	M12x1, 4-pin (IP67)	cable outlet with PVC cable (IP67) [4]	cable outlet, cable with ventilation tube (IP68) [5]	compact field housing (IP 67)

⇨ **universal field housing stainless steel 1.4404 with cable gland M20x1,5 (ordering code 880) and other versions on request**

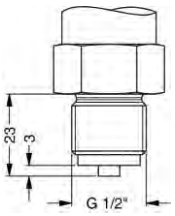
[4] standard: 2 m PVC-cable without ventilation tube (permissible temperature: -5 … 70°C)
[5] different cable types and lengths available, permissible temperature depends on kind of cable

Mechanical connections (dimensions in mm)

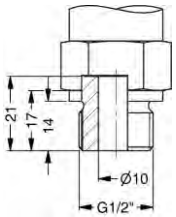
Standard **Optional**



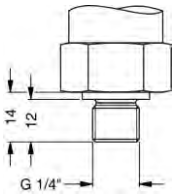
G1/2" DIN 3852 with ISO 4400



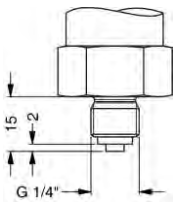
G1/2" EN 837



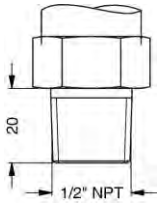
G1/2" DIN 3852 open port, $P_N \leq 40$ bar



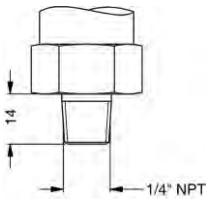
G1/4" DIN 3852



G1/4" EN 837



1/2" NPT



1/4" NPT

⇨ **metric threads and other versions on request**

⇨ *** for nominal pressure P_N > 40 bar the length of devices increases by 9 mm**

DMP 320

DMP 320 ☐☐☐-☐☐☐☐-☐-☐-☐☐☐-☐☐☐-☐-☐☐☐

Deutsch		English		Code	
Messgröße		**Pressure**			
relativ		gauge		1 1 C	
absolut		absolute		1 1 D	
Eingang	**[bar]**	**Input**	**[bar]**		
	0,10		0.10	1 0 0 0	
	0,16		0.16	1 6 0 0	
	0,25		0.25	2 5 0 0	
	0,40		0.40	4 0 0 0	
	0,60		0.60	6 0 0 0	
	1,0		1.0	1 0 0 1	
	1,6		1.6	1 6 0 1	
	2,5		2.5	2 5 0 1	
	4,0		4.0	4 0 0 1	
	6,0		6.0	6 0 0 1	
	10		10	1 0 0 2	
	16		16	1 6 0 2	
	25		25	2 5 0 2	
	40		40	4 0 0 2	
	60		60	6 0 0 2	
	100		100	1 0 0 3	
	160		160	1 6 0 3	
	250		250	2 5 0 3	
	400		400	4 0 0 3	
	600		600	6 0 0 3	
	-1 … 0		-1 … 0	X 1 0 2	
Sondermessbereiche		customer		9 9 9 9	auf Anfrage
Ausgang		**Output**			
0,1 … 10 V / 3 Leiter		0,1 … 10 V / 3 wire		3A	
4 … 20 mA / 3-Leiter		4 … 20 mA / 3-wire		7	
andere		customer		9	auf Anfrage
Genauigkeit		**Accuracy**			
	0,1 %		0.1 %	1	
andere		customer		9	auf Anfrage
Elektrischer Anschluss		**Electrical connection**			
Stecker und Kabeldose ISO 4400		male and female plug ISO 4400		1 0 0	
Stecker Binder Serie 723 (5-polig)		male plug Binder series 723 (5-pin)		2 0 0	
Kabelausgang mit PVC-Kabel		cable outlet with PVC cable		T A 0	
Kabelausgang		cable outlet		T R 0	
Stecker M12x1 (4-polig) / Metall		male plug M12x1 (4-pin) / metal		M 1 0	
Kompakt-Feldgehäuse		compact field housing		8 5 0	
	Edelstahl 1.4305		stainless steel 1.4305		
andere		customer		9 9 9	auf Anfrage
Mechanischer Anschluss		**Mechanical connection**			
G1/2" DIN 3852		G1/2" DIN 3852		1 0 0	
G1/2" EN 837		G1/2" EN 837		2 0 0	
G1/4" DIN 3852		G1/4" DIN 3852		3 0 0	
G1/4" EN 837		G1/4" EN 837		4 0 0	
G1/2" DIN 3852 offener Anschluss		G1/2" DIN 3852 open pressure port		H 0 0	
1/2" NPT		1/2" NPT		N 0 0	
1/4" NPT		1/4" NPT		N 4 0	
andere		customer		9 9 9	auf Anfrage
Dichtung		**Seals**			
FKM		FKM		1	
EPDM		EPDM		3	
andere		customer		9	auf Anfrage
Sonderausführungen		**Special version**			
Standard		standard		0 0 0	
andere		customer		9 9 9	auf Anfrage

[1] Absolutdruck möglich ab 0,4 bar
absolute pressure possible from 0.4 bar

[2] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch (Temperatureinsatzbereich: -5 .. 70°C), andere auf Anfrage
standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 … 70°C), others on request

[3] Kabel mit Luftschlauch (Code TR0 = PVC-Kabel), Kabel in verschiedenen Ausführungen und Längen lieferbar; Kabel nicht im Preis enthalten
cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable

[4] nur für $P_N \leq 40$ bar
only for $P_N \leq 40$ bar

DRUCK & TEMPERATUR
LEITENBERGER GMBH

DMP 333

Industrial Pressure Transmitter For High Pressure

Stainless Steel Sensor

accuracy according to IEC 60770:
standard: 0.35 % FSO
option: 0.25 / 0.1 % FSO

Nominal pressure

from 0 ... 100 bar up to 0 ... 600 bar

Output signals

2-wire: 4 ... 20 mA
3-wire: 0 … 20 mA / 0 … 10 V
others on request

Special characteristics

- excellent long-term stability, also with high dynamic pressure loads
- insensitive to pressure peaks
- high overpressure capability

Optional versions

- IS-version
  Ex ia = intrinsically safe for gases and dusts
- SIL 2 version
  according to IEC 61508 / IEC 61511
- customer specific versions

The pressure transmitter type **DMP 333** has been especially designed for use in hydraulic applications with high static and dynamic pressure. The transmitter is characterized by an excellent long term stability, also under fast changing pressure as well as positive and negative pressure peaks.

The modular concept of the device allows to combine different stainless steel sensors and electronic modules with a variety of electrical and mechanical versions.Thus a diversity of variations is created, meeting almost all requirements in hydraulic applications.

Preferred areas of use are

Plant and Machine Engineering
- machine tools
- hydraulic presses
- injection moulding machine
- handling equipment
- elevated platforms
- test benches

Mobile Hydraulics

Input pressure range						
Nominal pressure gauge [1] / abs.	[bar]	100	160	250	400	600
Overpressure	[bar]	210	600	1000	1000	1000
Burst pressure ≥	[bar]	1000	1000	1250	1250	1800
[1] measurement starts with ambient pressure						

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V_S = 8 ... 32 V_{DC} SIL-version: V_S = 14 … 28 V_{DC}
Option IS-protection	2-wire: 4 ... 20 mA / V_S = 10 ... 28 V_{DC} SIL-version: V_S = 14 … 28 V_{DC}
Options 3-wire	3-wire: 0 ... 20 mA / V_S = 14 ... 30 V_{DC} 0 ... 10 V / V_S = 14 ... 30 V_{DC}
Performance	
Accuracy [2]	standard: ≤ ± 0.35 % FSO option 1: ≤ ± 0.25 % FSO option 2: ≤ ± 0.1 % FSO
Permissible load	current 2-wire: $R_{max} = [(V_S - V_S\ min) / 0.02\ A]\ \Omega$ current 3-wire: R_{max} = 500 Ω voltage 3-wire: R_{min} = 10 kΩ
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Long term stability	≤ ± 0.1 % FSO / year at reference conditions
Response time	2-wire: ≤ 10 msec 3-wire: ≤ 3 msec
[2] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)	
Thermal effects (Offset and Span)	
Tolerance band	≤ ± 0.75 % FSO
in compensated range	0 ... 70 °C
Permissible temperatures	
Permissible temperatures	medium: -40 ... 125 °C electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Mechanical stability	
Vibration	10 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	100 g / 11 msec according to DIN EN 60068-2-27
Materials	
Pressure port	stainless steel 1.4404 (316 L)
Housing	stainless steel 1.4404 (316 L)
Option compact field housing	stainless steel 1.4305 (303), cable gland brass, nickel plated others on request
Seals (media wetted)	standard: FKM options: EPDM (for P_N ≤ 160 bar) others on request
Diaphragm	stainless steel 1.4435 (316 L)
Media wetted parts	pressure port, seals, diaphragm
Explosion protection (only for 4 ... 20 mA / 2-wire)	
Approvals DX19-DMP 333	**IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X** zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T 85°C Da
Safety technical maximum values	U_i = 28 V_{DC}, I_i = 93 mA, P_i = 660 mW, C_i ≈ 0 nF, L_i ≈ 0 µH, the supply connections have an inner capacity of max. 27 nF to the housing
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -20 ... 70 °C
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1µH/m

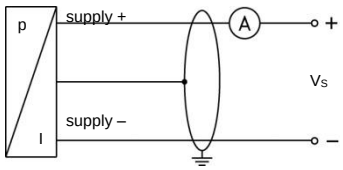
Miscellaneous

Option SIL[3] 2	according to IEC 61508 / IEC 61511
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 140 g
Installation position	any[4]
Operational life	> 100 x 10^6 pressure cycles
CE-conformity	EMC Directive: 2004/108/EC Pressure Equipment Directive: 97/23/EC (module A) [5]
ATEX Directive	94/9/EG

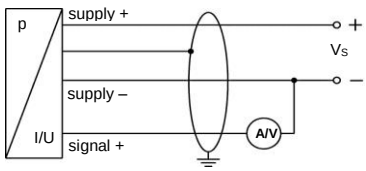
[3] only for 4 … 20 mA / 2-wire, not in combination with the accuracy 0.1%
[4] Pressure transmitters are calibrated in a vertical position with the pressure connection down.
[5] This directive is only valid for devices with maximum permissible overpressure > 200 bar

Wiring diagrams

2-wire-system (current)



3-wire-system (current / voltage)

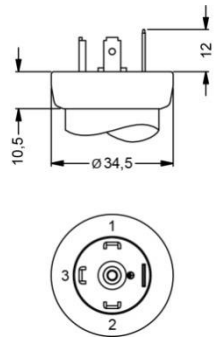


Pin configuration

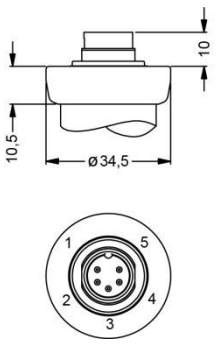
Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1/metal (4-pin)	Bayonet MIL-C-26482 (10-6) 2-wire	Bayonet MIL-C-26482 (10-6) 3-wire	field housing	cable colours (DIN 47100)
Supply +	1	3	1	A	A	IN +	wh (white)
Supply –	2	4	2	B	D	IN –	bn (brown)
Signal + (for 3-wire)	3	1	3	-	B	OUT +	gn (green)
Shield	ground pin	5	4	pressure port		⏚	ye/gn (yellow/green)

Electrical connections (dimensions in mm)

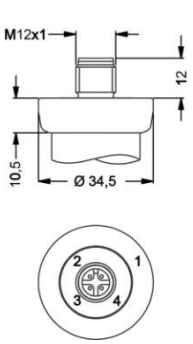
standard **option**



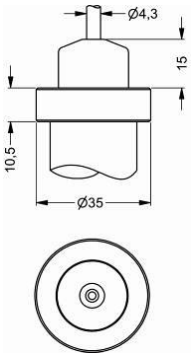
ISO 4400
(IP 65)



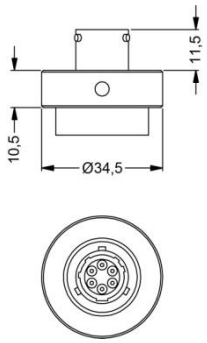
Binder Series 723 5-pin
(IP 67)



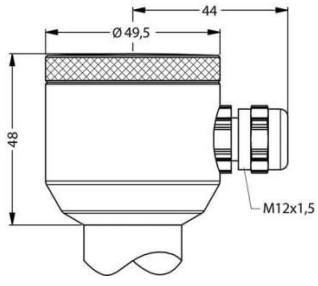
M12x1 4-pin
(IP 67)



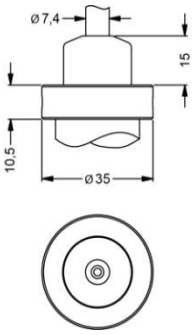
cable outlet with PVC cable
(IP 67) [6]



Bayonet MIL-C-26482 (10-6)
(IP 67)



compact field housing
(IP 67)



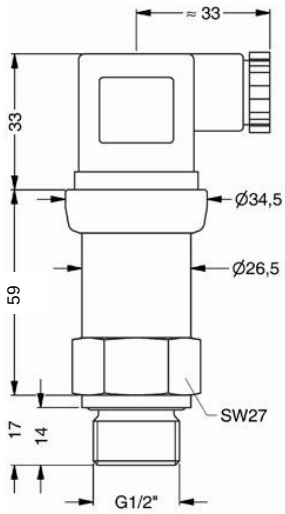
cable outlet, cable with ventilation tube
(IP 68) [7]

⇨ **universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request**

[6] standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)
[7] different cable types and lengths available, permissible temperature depends on kind of cable

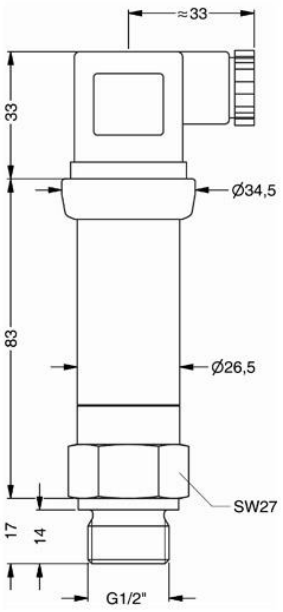
Mechanical connections (dimensions in mm)

standard for accuracy 0.35 / 0.25 %



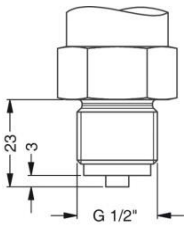
G1/2" DIN 3852
with ISO 4400

**standard for accuracy 0.1 % ;
SIL- and SIL-IS-version**

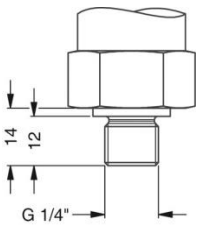


G1/2" DIN 3852
with ISO 4400

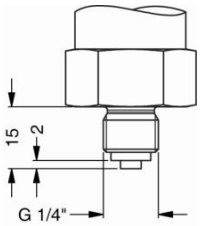
option



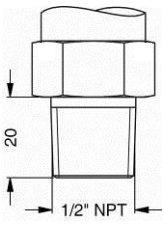
G1/2" EN 837



G1/4" DIN 3852



G1/4" EN 837



1/2" NPT

⇨ **metric threads and other versions on request**

DMP 333

DMP 333 ☐☐☐-☐☐☐☐-☐-☐-☐☐☐-☐☐☐-☐-☐☐☐

Messgröße		**Pressure**			
	relativ		gauge [1]	130	
	absolut		absolute	131	
Eingang	**[bar]**	**Input**	**[bar]**		
	100		100	1003	
	160		160	1603	
	250		250	2503	
	400		400	4003	
	600		600	6003	
	Sondermessbereiche		customer	9999	auf Anfrage consult
Ausgang		**Output**			
	4 … 20 mA / 2-Leiter		4 … 20 mA / 2-wire	1	
	0 … 20 mA / 3-Leiter		0 … 20 mA / 3-wire	2	
	0 … 10 V / 3-Leiter		0 … 10 V / 3-wire	3	
	Ex-Schutz 4 … 20 mA / 2-Leiter		Intrinsic safety 4 … 20 mA / 2-wire	E	
	SIL2 4 … 20 mA / 2-Leiter		SIL2 4 … 20 mA / 2-wire	1S	
	SIL2 mit Ex-Schutz 4 … 20 mA / 2-Leiter		SIL2 with Intrinsic safety 4 … 20 mA / 2-wire	ES	
	andere		customer	9	auf Anfrage consult
Genauigkeit		**Accuracy**			
Standard	0,35 %	standard	0.35 %	3	
Option 1	0,25 %	option 1	0.25 %	2	
Option 2	0,1 %	option 2	0.1 % [2]	1	
	andere		customer	9	auf Anfrage consult
Elektrischer Anschluss		**Electrical connection**			
	Stecker und Kabeldose ISO 4400		Male and female plug ISO 4400	100	
	Stecker Binder Serie 723 (5-polig)		Male plug Binder series 723 (5-pin)	200	
	Kabelausgang mit PVC-Kabel		Cable outlet with PVC cable [3]	TA0	
	Kabelausgang		Cable outlet [4]	TR0	
	Stecker M12x1 (4-polig) / Metall		Male plug M12x1 (4-pin) / metal	M10	
	Bajonett MIL-C-26482 (10-6); 2-Leiter		Bayonet MIL-C-26482 (10-6); 2 wire	BG0	
	Bajonett MIL-C-26482 (10-6); 3-Leiter		Bayonet MIL-C-26482 (10-6); 3 wire	BG1	
	Kompakt-Feldgehäuse Edelstahl 1.4305		Compact field housing stainless steel 1.4305	850	
	andere		customer	999	auf Anfrage consult
Mechanischer Anschluss		**Mechanical connection**			
	G1/2" DIN 3852		G1/2" DIN 3852	100	
	G1/2" EN 837		G1/2" EN 837	200	
	G1/4" DIN 3852		G1/4" DIN 3852	300	
	G1/4" EN 837		G1/4" EN 837	400	
	1/2" NPT		1/2" NPT	N00	
	andere		customer	999	auf Anfrage consult
Dichtung		**Seals**			
	FKM		FKM	1	
	EPDM		EPDM [5]	3	
	andere		customer	9	auf Anfrage consult
Sonderausführungen		**Special version**			
	Standard		standard	000	
	andere		customer	999	auf Anfrage consult

Preise EXW Thierstein, ausschl. Verpacl **Prices EXW Thierstein, excluding package**

[1] Messanfang bei Umgebungsdruck	measurement starts with ambient pressure
[2] nicht in Verbindung mit SIL	not in combination with SIL
[3] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch ('	standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 … 70 °C), optionally without ventilation tube
[4] Kabel mit Luftschlauch (Code TR0 = PVC-Kabel), Kab	cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, permissible temperature depends on kind of cable, price without cable
[5] nur möglich für $P_N \leq 160$ bar	possible for nominal pressure ranges $P_N \leq 160$ bar

DRUCK & TEMPERATUR
LEITENBERGER GMBH

DMP 343

Industrial
Pressure Transmitter

Without Media Isolation

accuracy according to IEC 60770:
0.35 % FSO

Industrial
Pressure Transmitter

DMP 343

Nominal pressure:

from 0 ... 10 mbar
up to0 ... 1000 mbar

Product characteristics

- ► excellent linearity
- ► small thermal effect
- ► excellent long term stability

Optional versions

- ► IS-version:
  Ex ia = intrinsically safe for
  gases and dusts
- ► SIL 2 application
  according to IEC 61508 / IEC 61511
- ► different electrical and
  mechanical connections
- ► customer specific versions

The pressure transmitter **DMP 343** has been especially designed for the measurement of very low gauge pressure and for vacuum applications. Permissible media are gases, pressurized air and non-aggressive low viscos oils.
The **DMP 343** features excellent thermal behaviour and outstanding long term stability. A variety of standard output signals as well as mechanical and electrical connections make the **DMP 343** covering a wide field of applications.

Preferred areas of use are

- Plant and Machine Engineering
- Heating and Air Conditioning

Input pressure range												
Nominal pressure gauge [mbar]	-1000 … 0	10	16	25	40	60	100	160	250	400	600	1000
Overpressure [bar]	3	0.2	0.2	0.2	0.5	0.5	1	2	3	3	3	3
Burst pressure [bar]	5	0.3	0.3	0.3	0.75	0.75	1.5	3	5	5	5	5

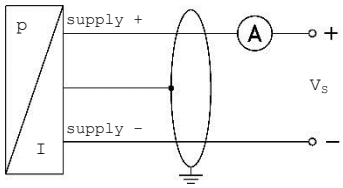
Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V_S = 8 ... 32 V_{DC}
Option IS-protection	2-wire: 4 ... 20 mA / V_S = 10 ... 28 V_{DC}
Options 3-wire	3-wire: 0 ... 20 mA / V_S = 14 ... 30 V_{DC} 0 ... 10 V / V_S = 14 ... 30 V_{DC}
Performance	
Accuracy [1]	standard: ≤± 0.35 % FSO nominal pressure ≤ 100 mbar: ≤± 0.50 % FSO
Permissible load	current 2-wire: $R_{max} = [(V_S – V_{S\ min}) / 0.02]$ Ω current 3-wire: R_{max} = 500 Ω voltage 3-wire: R_{min} = 10 kΩ
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Response time	2-wire: ≤ 10 msec 3-wire: ≤ 3 msec
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)	

Thermal effects (Offset and Span)				
Nominal pressure P_N [mbar]	-1000 ... 0	≤ 100	≤ 400	> 400
Tolerance band [% FSO]	≤ ± 0.75	≤ ± 1.5	≤ ± 1	≤ ± 0.75
in compensated range [°C]	-20 … 85	0 … 50	0 … 70	-20 … 85

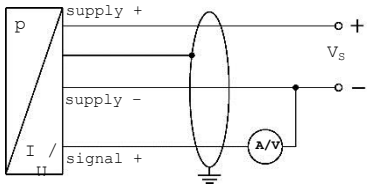
Permissible temperatures	
Permissible temperatures	medium: -40 ... 125 °C electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Mechanical stability	
Vibration	10 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	500 g / 1 msec according to DIN EN 60068-2-27
Materials	
Pressure port	stainless steel 1.4404 (316L)
Housing	stainless steel 1.4404 (316L)
Seals (media wetted)	FKM
Sensor	stainless steel 1.4404 (316L), silicon, epoxy or RTV, mineral glass
Media wetted parts	pressure port, seals, sensor
Explosion protection (only for 4 … 20 mA / 2-wire)	
Approval DX19-DMP 343	IBExU10ATEX1068X Zone 0: II 1 G Ex ia IIC T4 Ga Zone 20: II 1 D Ex iaD 20 T85 °C
Safety technical maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i ≈ 0nF, L_i ≈ 0 µH
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -25 ... 70 °C
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1µH/m
Miscellaneous	
Option SIL 2 application	according to IEC 61508 / IEC 61511
Current consumption	signal output current: max. 25 mA signal output voltage: max. 5 mA
Weight	approx. 140 g
Installation position	any
CE-conformity	EMC Directive: 2004/108/EC

Wiring diagrams

2-wire-system (current)



3-wire-system (current / voltage)I

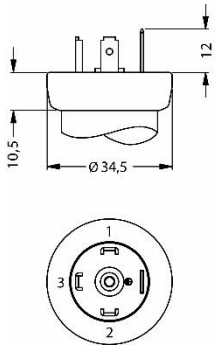


Pin configuration

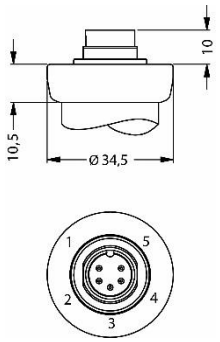
Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	field housing	cable colours (DIN 47100)
Supply +	1	3	1	IN +	wh (white)
Supply –	2	4	2	IN -	bn (brown)
Signal + (only for 3-wire)	3	1	3	OUT+	gn (green)
Shield	ground pin	5	4	⏚	gn/ye (green / yellow)

Electrical connections (dimensions in mm)

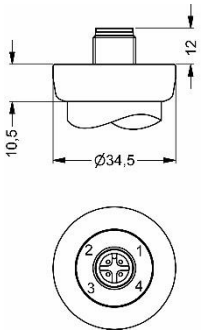
standard **option**



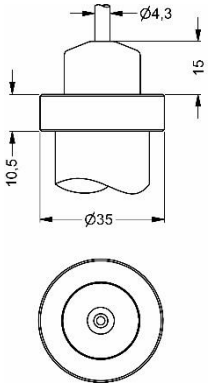
ISO 4400
(IP 65)



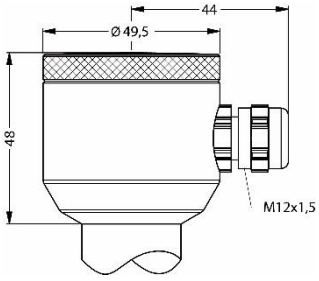
Binder Series 723 5-pin
(IP 67)



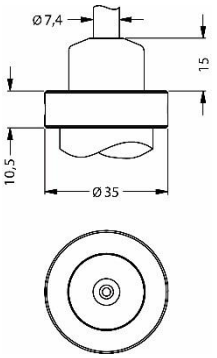
M12x1 4-pin
(IP 67)



cable outlet with PVC cable
(IP 67) [2]



compact field housing
(IP 67)



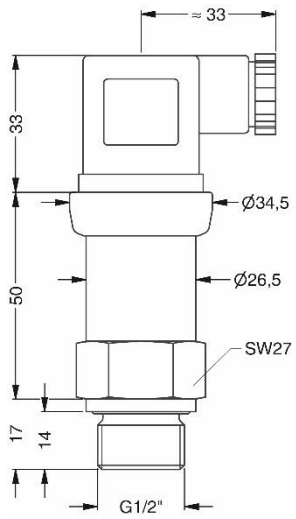
cable outlet, cable with ventilation tube
(IP 68) [3]

⇨ **universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request**

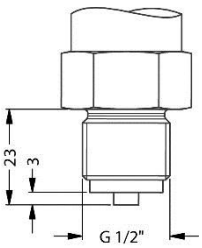
[2] *standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C)*
[3] *different cable types and lengths available, permissible temperature depends on kind of cable*

Mechanical connection (dimensions in mm)

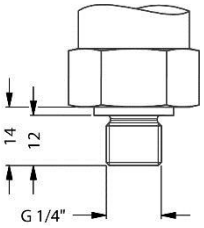
standard **option**



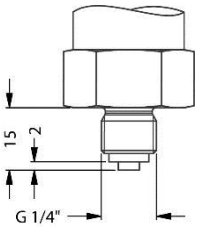
G1/2" DIN 3852
with ISO 4400



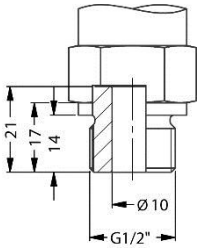
G1/2" EN 837



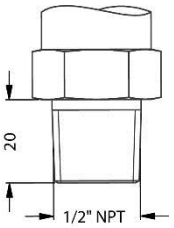
G1/4" DIN 3852



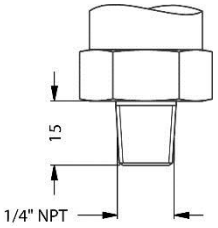
G1/4" EN 837



G1/2" open port



1/2" NPT



1/4" NPT

⇨ metric threads and others on request

DMP 343

DMP 343 ☐☐☐-☐☐☐☐-☐-☐-☐☐☐-☐☐☐-☐-☐☐☐

Messgröße			
relativ		1 0 0	
Eingang	[mbar]		
10		0 1 0 0	
16		0 1 6 0	
25		0 2 5 0	
40		0 4 0 0	
60		0 6 0 0	
100		1 0 0 0	
160		1 6 0 0	
250		2 5 0 0	
400		4 0 0 0	
600		6 0 0 0	
1000		1 0 0 1	
-1000 … 0		X 1 0 2	
Sondermessbereiche		9 9 9 9	auf Anfrage
Ausgang			
4 … 20 mA / 2-Leiter		1	
0 … 20 mA / 3-Leiter		2	
0 … 10 V / 3-Leiter		3	
Ex-Schutz 4 … 20 mA / 2-Leiter		E	
andere		9	auf Anfrage
Genauigkeit			
Standard für P_N > 100 mbar	0,35 %	3	
Standard für $P_N \leq$ 100 mbar	0,5 %	5	
Elektrischer Anschluss			
Stecker und Kabeldose ISO 4400		1 0 0	
Stecker Binder Serie 723 (5-polig)		2 0 0	
Kabelausgang mit PVC-Kabel [1]		T A 0	
Kabelausgang [2]		T R 0	
Stecker M12x1 (4-polig) / Metall		M 1 0	
Kompakt-Feldgehäuse Edelstahl 1.4305		8 5 0	
andere		9 9 9	auf Anfrage
Mechanischer Anschluss			
G1/2" DIN 3852		1 0 0	
G1/2" EN 837		2 0 0	
G1/4" DIN 3852		3 0 0	
G1/4" EN 837		4 0 0	
G1/2" DIN 3852 offener Anschluss		H 0 0	
1/2" NPT		N 0 0	
1/4" NPT		N 4 0	
andere [3]		9 9 9	auf Anfrage
Dichtung			
FKM		1	
andere		9	auf Anfrage
Sonderausführungen			
Standard		0 0 0	
andere		9 9 9	auf Anfrage

[1] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch (Temperatureinsatzbereich: -5 … 70 °C), optional Kabel mit Belüftungsschlauch

[2] Kabel mit Luftschlauch (Code TR0 = PVC-Kabel), Kabel in verschiedenen Ausführungen und Längen lieferbar; Kabel nicht im Preis enthalten

[3] metrische Gewinde und andere auf Anfrage

DMK 387

Pressure Transmitter

Ceramic sensor

accuracy according to IEC 60770:
standard: 0.35 % FSO
option: 0.25 % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 60 bar

Output signal

2-wire: 4 ... 20 mA
3-wire and others on request

Product characteristics

- diaphragm
  ceramics 99.9 % Al_2O_3
- high long-term stability

Optional versions

- IS-version
  Ex ia = intrinsically safe for
  gases and dust
- different kinds of inch threads
- **pressure port in** PVDF or **PP-HT**
  for aggressive media

The pressure transmitter **DMK 387** has been specially designed for applications in plant and machine engineering as well as laboratory techniques and is suitable for measuring small system pressure and filling heights.

By using our own-developed capacitive sensor, available in Al_2O_3 99.9%, the **DMK 387** offers a high overpressure resistance and a high temperature and media resistance. The pressure transmitter is available in an intrinsically safe version for usage in explosive environments.

Preferred areas of use

- Plant and machine engineering
- Laboratory techniques
- Water
- Aggressive media

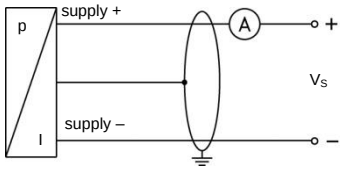
Input pressure range																	
Nominal pressure gauge	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60
Level	[mH_2O]	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600
Overpressure	[bar]	3	4	5	5	5	7	7	12	12	20	20	20	40	70	70
Burst pressure ≥	[bar]	4	6	8	8	7	9	9	18	18	25	30	30	45	80	80
Permissible vacuum	[bar]	-0.2	-0.3	-0.5				-1								

Output signal / Supply			
Standard	2-wire: 4 ... 20 mA / V_S = 14 ... 36 V_{DC}		
Option IS-version	2-wire: 4 ... 20 mA / V_S = 14 ... 28 V_{DC}		
On request	3-wire: 0 ... 10 V / V_S = 14 ... 36 V_{DC}		
Performance			
Accuracy [1]	standard: ≤ ± 0.35 % FSO option: ≤ ± 0.25 % FSO		others on request
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S\,min}) / 0.02\ A]\ \Omega$ voltage 3-wire: R_{min} = 10 kΩ		
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ		
Long term stability	≤ ± 0.1 % FSO / year		
Turn-on time	450 msec		
Mean response time	≤ 70 msec		
Measuring rate	80 Hz		
[1] accuracy according to IEC 60770 - limit point adjustment (non-linearity, hysteresis, repeatability)			
Thermal effects (offset and span)			
Tolerance band	≤ ± 1 % FSO		
in compensated range	-20 … 80 °C		
Permissible temperatures			
Medium [2]	-40 ... 125 °C		
Electronics / environment	-40 ... 85 °C		
Storage	-40 ... 85 °C		
[2] for pressure port in PVDF or PP-HT the operation medium temperature is -30 … 60 °C			
Electrical protection			
Short-circuit protection	permanent		
Reverse polarity protection	no damage, but also no function		
Electromagnetic compatibility	emission and immunity according to EN 61326		
Mechanical stability			
Vibration	10 g RMS (25 ... 2000 Hz)	according to DIN EN 60068-2-6	
Materials			
Pressure port / housing	standard: options for G3/4" flush:	pressure port stainless steel 1.4404 (316 L) PVDF PP-HT	housing stainless steel 1.4404 (316 L) PVDF PP-HT
Option compact field housing	stainless steel 1.4301 (304) cable gland M12x1.5, brass, nickel plated (clamping range 2 … 8 mm)		
Seals (O-rings)	FKM, EPDM, FFKM		others on request
Diaphragm	ceramics Al_2O_3 99.9 %		others on request
Media wetted parts	pressure port, seals, diaphragm		
Explosion protection (only for 4 … 20 mA / 2-wire)			
Approval DX14B-DMK 387	IBExU 15 ATEX 1066 X / IECEx IBE 18.0019X pressure port: stainless steel zone 0: II 1G Ex ia IIC T4 Ga pressure port: PVDF or PP-HT zone 1: II 2G Ex ia IIC T4 Gb for all pressure ports zone 20: II 1D Ex ia IIIC T135 °C Da		
Safety technical maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i = 14 nF, L_i = 0 µH, the supply connections have an inner capacity of max. 27 nF to the housing		
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -25 ... 65 °C		
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1 µH/m		

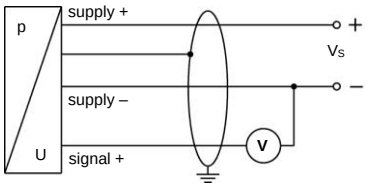
Miscellaneous	
Current consumption	max. 22 mA
Weight	approx. 180 g
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU

Wiring diagrams

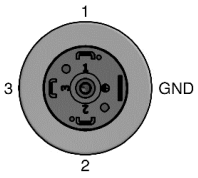
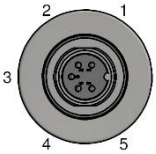
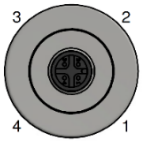
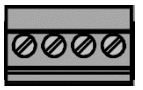
2-wire-system (current)



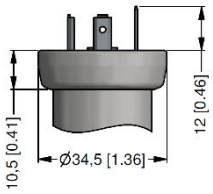
3-wire-system (voltage)



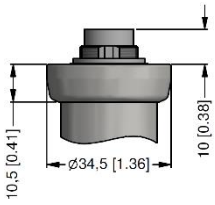
Pin configuration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	compact field housing	cable colours (IEC 60757)
					
supply + supply – signal + (only 3-wire)	1 2 3	3 4 1	1 2 3	V_S+ V_S- S+	WH (white) BN (brown) GN (green)
Shield	ground pin ⏚	5	4	GND	GNYE (green-yellow)

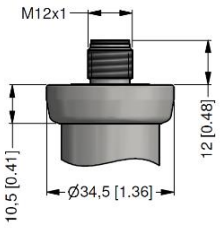
Electrical connections (dimensions mm / in)



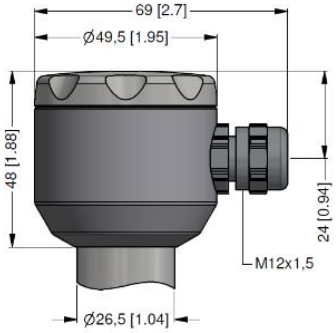
ISO 4400
(IP 65)



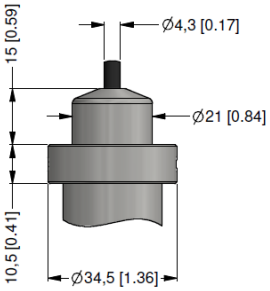
Binder series 723, 5-pin
(IP 67)



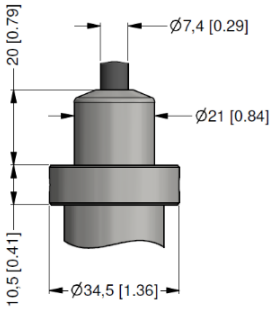
M12x1, 4-pin
(IP 67)



compact field housing
(IP 67)



cable outlet
with PVC-cable (IP 67) [3]

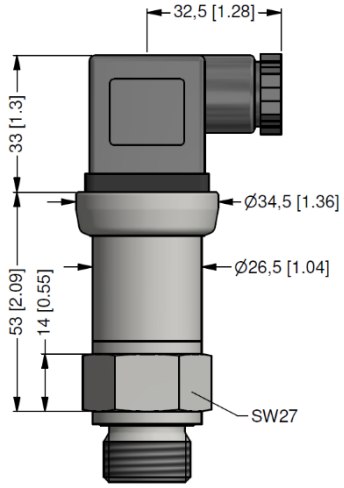


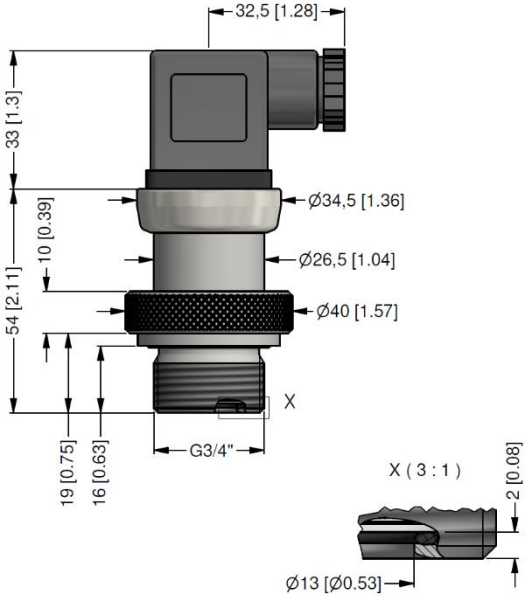
cable outlet, cable with
ventilation tube (IP 68) [4]

⇨ **universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request**

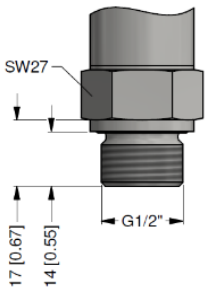
[3] standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)
[4] different cable types and lengths available, permissible temperature depends on kind of cable

Dimensions (mm / in)

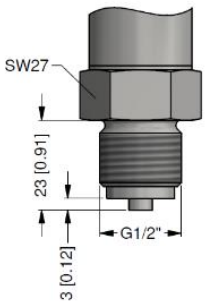




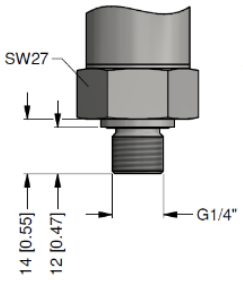
G 3/4" flush [5]



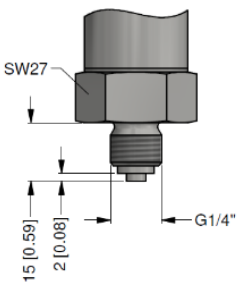
G1/2" DIN 3852



G1/2" EN 837



G1/4" DIN 3852



G1/4" EN 837

[5] *not in combination with field housing*

Ordering code **DMK 387**

DMK 387 □□□ - □□□□ - □ - □ - □□□ - □□□ - □ - □ - □ - □□□

Section / option		Code	
Pressure			
gauge in bar		2 8 5	
gauge in mH_2O		2 8 6	
Input [mH_2O]	[bar]		
1.0	0.1	1 0 0 0	
1.6	0.16	1 6 0 0	
2.5	0.25	2 5 0 0	
4.0	0.40	4 0 0 0	
6.0	0.60	6 0 0 0	
10	1.0	1 0 0 1	
16	1.6	1 6 0 1	
25	2.5	2 5 0 1	
40	4.0	4 0 0 1	
60	6.0	6 0 0 1	
100	10	1 0 0 2	
160	16	1 6 0 2	
250	25	2 5 0 2	
400	40	4 0 0 2	
600	60	6 0 0 2	
customer		9 9 9 9	consult
Output			
4 … 20 mA / 2-wire		1	
0 … 10 V / 3-wire		3	consult
intrinsic safety 4 … 20 mA / 2-wire		E	
customer		9	consult
Accuracy			
standard	0.35 % FSO	3	
option	0.25 % FSO	2	
customer		9	consult
Electrical connection			
male and female plug ISO 4400		1 0 0	
male plug Binder series 723 (5-pin)		2 0 0	
cable outlet with PVC cable (IP67) [1]		T A 0	
cable outlet, cable with ventilation tube (IP68) [2]		T R 0	
male plug M12x1 (4-pin) / metal		M 1 0	
compact field housing stainless steel 1.4301 (304)		8 5 0	
customer		9 9 9	consult
Mechanical connection [3]			
G1/2" DIN 3852		1 0 0	
G1/2" EN 837		2 0 0	
G1/4" DIN 3852		3 0 0	
G1/4" EN 837		4 0 0	
G3/4" with flush sensor [4]		K 0 0	
customer		9 9 9	consult
Seal			
FKM		1	
EPDM		3	
FFKM		7	
customer		9	consult
Pressure port			
stainless steel 1.4404 (316L)		1	
PVDF [5]		B	
PP-HT [5]		R	
customer		9	consult
Diaphragm			
ceramics Al_2O_3 99,9 %		C	
customer		9	consult
Special version			
standard		0 0 0	
customer		9 9 9	consult

[1] standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C); others on request

[2] code TR0 = PVC cable, cable with ventilation tube available in different types and lengths

[3] metric threads and others on request

[4] not in combination with field housing

[5] only for mechanical connection G3/4"; for pressure port in PVDF or PP-HT the operation medium temperature is -30 … 60 °C

DRUCK & TEMPERATUR
LEITENBERGER GMBH

DMK 331P

Industrial
Pressure Transmitter

Pressure Ports
With Flush Welded
Stainless Steel Diaphragm

accuracy according to IEC 60770:
0.5 % FSO

Industrial
Pressure Transmitter

DMK 331P

Nominal pressure:

from 0 ... 60 bar
up to 0 ... 400 bar

Output signals:

2-wire: 4 ... 20 mA
3-wire: 0 … 20 mA / 0 … 10 V
others on request

Special characteristics:

- suited for viscous and pasty media

Optional versions:

- IS-version
  Ex ia = intrinsically safe for gases and dusts
- SIL 2
  according to IEC 61508 / IEC 61511
- food compatible oil filling with FDA approval
- cooling element for media temperatures up to 300 °C
- customer specific versions

The pressure transmitter **DMK 331P** is suitable for measuring the pressure of viscous and pasty media, where a totally flush pressure port is required.

As on all industrial pressure transmitters made by DRUCK & TEMPERATUR Leitenberger GmbH, you may choose between various electrical and mechanical connections also on **DMK 331P**.

Preferred areas of use are:

Plant and Machine Engineering

Food Industry

Preferred used for:

Viscous and Pasty Media

Input pressure range						
Nominal pressure gauge / abs.	[bar]	60	100	160	250	400
Overpressure	[bar]	100	200	400	400	600
Burst pressure ≥	[bar]	120	250	500	500	650

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V_S = 8 ... 32 V_{DC}
Option IS-protection	2-wire: 4 ... 20 mA / V_S = 10 ... 28 V_{DC}
Options 3-wire	3-wire: 0 ... 20 mA / V_S = 14 ... 30 V_{DC} 0 ... 10 V / V_S = 14 ... 30 V_{DC}
Performance	
Accuracy [1]	≤± 0.5 % FSO
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S\ min}) / 0.02\ A]\ \Omega$ current 3-wire: R_{max} = 500 Ω voltage 3-wire: R_{min} = 10 kΩ
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Long term stability	≤± 0.3 % FSO / year at reference conditions
Response time	2-wire: ≤ 10 msec 3-wire: ≤ 3 msec

[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

Thermal effects (Offset and Span) [2] / Permissible temperatures			
Thermal error	≤± 0.2 % FSO / 10 K		
in compensated range	-20 ... 85°C		
Permissible temperatures [3]	medium:	-40 ... 125 °C for filling fluid silicon oil -10 ... 125 °C for filling fluid food compatible oil	
	electronics / environment:	-40 ... 85 °C	
	storage:	-40 ... 100 °C	
Permissible temperature medium for cooling element 300°C	filling fluid silicon oil	overpressure: -40 ... 300 °C	vacuum: -40 ... 150 °C
	filling fluid food compatible oil	overpressure: -10 ... 250 °C	vacuum: -10 ... 150 °C

[2] an optional cooling element can influence thermal effects for offset and span depending on installation position and filling conditions.

[3] max. temperature of the medium for overpressure > 0 bar: 150 °C for 60 minutes with a max. environmental temperature of 50 °C

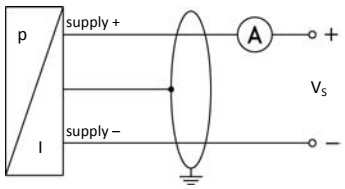
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Mechanical stability	
Vibration	20 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	500 g / 1 msec according to DIN EN 60068-2-27
Filling fluids	
Standard	silicon oil
Options	food compatible oil (with FDA approval) (Mobil DTE FM 32; Category Code: H1; NSF Registration No.: 130662) others on request
Materials	
Pressure port	stainless steel 1.4404 (316 L)
Housing	stainless steel 1.4404 (316 L)
Option compact field housing	stainless steel 1.4305 (303) with cable gland brass, nickel plated others on request
Seals (media wetted)	standard: FKM (recommended for medium temperatures ≤ 200 °C) option: FFKM (recommended for medium temperatures > 200 °C) others on request
Diaphragm	stainless steel 1.4435 (316 L)
Media wetted parts	pressure port, seals, diaphragm
Explosion protection (only for 4 ... 20 mA / 2-wire)	
Approval DX 19 - DMK 331P	IBExU 10 ATEX 1068 X zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ta IIIC T 85°C, IP6x **in preparation**
Safety technical maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, $C_i \approx$ 0 nF, $L_i \approx$ 0 µH
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -20 ... 70 °C
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1µH/m

Miscellaneous	
Option SIL 2	according to IEC 61508 / IEC 61511
Current consumption	signal output current: max. 25 mA signal output voltage: max. 5 mA
Weight	min. 200 g (depending on process connection)
Installation position	any (standard calibration in a vertical position with the pressure port connection down
Operational life	> 100 x 10^6 pressure cycles
CE-conformity	EMC Directive: 2004/108/EC Pressure Equipment Directive: 97/23/EC (module A) [4]

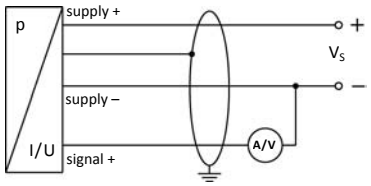
[4] *This directive is only valid for devices with maximum permissible overpressure > 200 bar*

Wiring diagrams

2-wire-system (current)



3-wire-system (current / voltage)

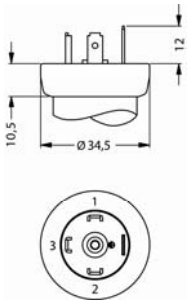


Pin configuration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	field housing	cable colours (DIN 47100)
Supply +	1	3	1	IN +	wh (white)
Supply –	2	4	2	IN –	bn (brown)
Signal + (only for 3-wire)	3	1	3	OUT +	gn (green)
Shield	ground pin	5	4	⏚	gn/ye (green / yellow)

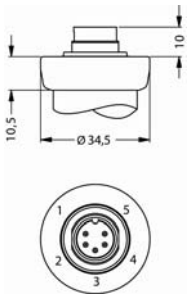
Electrical connection (dimensions in mm)

standard

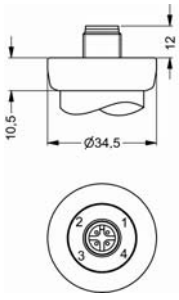


ISO 4400
(IP 65)

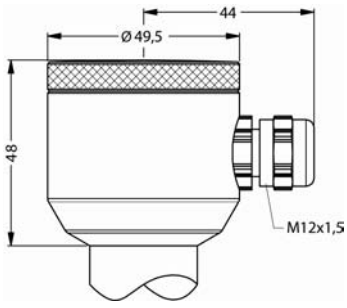
option



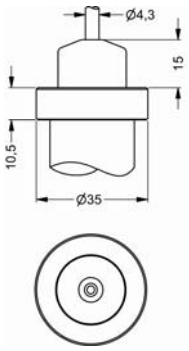
Binder Series 723 5-pin
(IP 67)



M12x1 4-pin
(IP 67)



compact field housing
(IP 67)



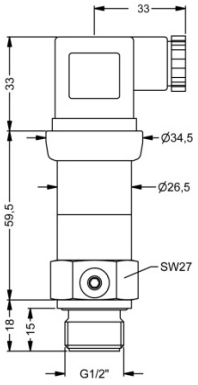
cable outlet with PVC cable
(IP 67) [5]

➪ **universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request**

[5] *standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C)*

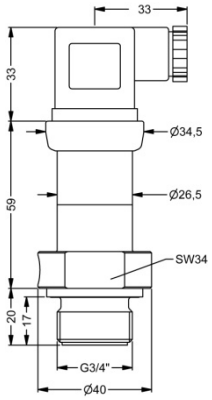
Mechanical connection (dimensions in mm)

standard

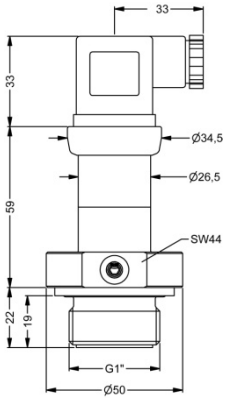


G1/2" flush
with ISO 4400

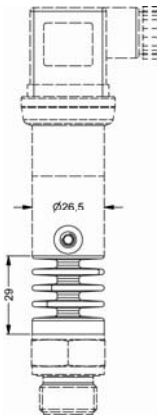
option



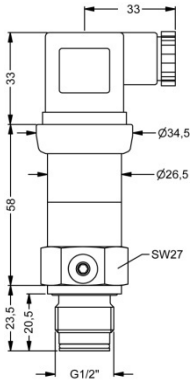
G3/4“ flush
with ISO 4400



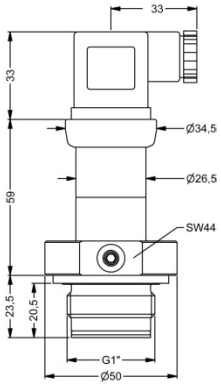
G1“ flush
with ISO 4400



cooling element
300 °C [6]



G1/2“ flush
with radial o-ring



G1“flush
with radial o-ring

⇨ **SIL- and SIL-Ex version: total length increases by 26.5 mm!**
⇨ **metric threads and other versions on request**

[6] *possible for nominal pressure ranges $P_N \leq 160$ bar*

DMK 331P

DMK 331P ☐☐☐-☐☐☐☐-☐-☐-☐☐☐-☐☐☐-☐-☐-☐-☐☐☐

Messgröße		
relativ	505	
absolut	506	
Eingang [bar]		
60	6002	
100	1003	
160	1603	
250	2503	
400	4003	
Sondermessbereiche	9999	auf Anfrage
Ausgang		
4 … 20 mA / 2-Leiter	1	
0 … 20 mA / 3-Leiter	2	
0 … 10 V / 3-Leiter	3	
Ex-Schutz 4 … 20 mA / 2-Leiter	E	
SIL2 4 … 20 mA / 2-Leiter	1S	
SIL2 mit Ex-Schutz 4 … 20 mA / 2-Leiter	ES	
andere	9	auf Anfrage
Genauigkeit		
0,5 %	5	
andere	9	auf Anfrage
Elektrischer Anschluss		
Stecker und Kabeldose ISO 4400	100	
Stecker Binder Serie 723 (5-polig)	200	
Kabelausgang mit PVC-Kabel [1]	TA0	
Stecker M12x1 (4-polig) / Metall	M10	
Kompakt-Feldgehäuse Edelstahl 1.4305	850	
andere	999	auf Anfrage
Mechanischer Anschluss		
G1/2" DIN 3852 mit frontbündiger Membrane	Z00	
G3/4" DIN 3852 mit frontbündiger Membrane	Z30	
G1" DIN 3852 mit frontbündiger Membrane	Z31	
G1" DIN 3852 mit rad. O-Ring und frontbündiger Membrane	Z57	
G 1/2" DIN 3852 mit rad. O-Ring und frontbündiger Membrane	Z61	
andere	999	auf Anfrage
Trennmembrane		
Edelstahl 1.4435 (316L)	1	
andere	9	auf Anfrage
Dichtung		
FKM	1	
FFKM [2]	7	
andere	9	auf Anfrage
Füllflüssigkeit		
Silikonöl	1	
Lebensmitteltaugliches Öl	2	
andere	9	auf Anfrage
Sonderausführungen		
Standard	000	
mit Temperaturentkoppler bis 300°C [3]	200	
andere	999	auf Anfrage

[1] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch (Temperatureinsatzbereich: -5 … 70°C)
[2] nur möglich für $P_N \leq 100$ bar
[3] nur möglich für $P_N \leq 160$ bar

17.600 G

OEM Pressure Transmitter Heavy Duty

Applications:

- mobile hydraulic
- presses
- general mechanical engineering
- oxygen application

Characteristics:

- stainless steel sensor, welded
- accuracy 0.5 % FSO according to IEC 60770
- nominal pressure ranges from 0 … 6 bar up to 0 … 600 bar

Technical Data

Input pressure range												
Nominal pressure gauge	[bar]	6	10	16	25	40	60	100	160	250	400	600
Overpressure (static)	[bar]	12	20	32	50	80	120	200	320	500	800	1 200
Burst pressure ≥	[bar]	30	50	80	125	200	300	500	800	1 400	2 000	3 000
Vacuum resistance		unlimited										

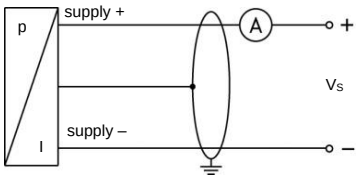
Output signal / Supply				
Standard	2-wire:	4 ... 20 mA	/	V_S = 8 ... 32 V_{DC}
Options	3-wire:	0 ... 10 V	/	V_S = 14 ... 30 V_{DC}
	3-wire ratiometric:	10 ... 90 % of V_S	/	V_S = 2.7 ... 5 V_{DC}
Performance				
Accuracy [1]	≤ ± 0.5 % FSO			
Permissible load	2-wire: $R_{max} = [(V_S - V_{S\,min}) / 0.02\ A]\ \Omega$		3-wire:	R_{min} = 10 kΩ
Influence effects	supply: 0.05 % FSO / 10 V		load:	0.05 % FSO / kΩ
Response time	2-wire: ≤ 10 msec		3-wire:	≤ 3 msec
Long term stability	≤ ± 0.3 % FSO / year at reference conditions			
Measuring rate	1 kHz			
[1] *accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)*				
Thermal effects (offset and span) / Permissible temperatures				
Thermal error	≤ ± 0.3 % FSO / 10 K	in compensated range	0 ... 70 °C	
Permissible temperatures	medium: -40 ... 125 °C	electronics / environment: -40 ... 85 °C		storage: -40 ... 85 °C
Electrical protection				
Short-circuit protection	permanent	3-wire ratiometric: none		
Reverse polarity protection	no damage, but also no function			
Electromagnetic protection	emission and immunity according to EN 61326			
Mechanical stability				
Vibration	20 g, 25 Hz … 2 kHz	according to DIN EN 60068-2-6		
Shock	500 g / 1 msec	according to DIN EN 60068-2-27		

Materials	
Pressure port	stainless steel 1.4571 (316Ti)
Housing	stainless steel 1.4301 (304)
Seal of pressure port	FKM for G 1/4″ DIN 3852 others on request
Seal of sensor	none (welded)
Diaphragm	stainless steel 1.4542 (630)
Media wetted parts	pressure port, seal of pressure port, diaphragm
Miscellaneous	
Weight	approx. 120 g
Current consumption	2-wire: max. 25 mA 3-wire ratiometric: typ. 3 mA 3-wire voltage: max. 7 mA (short circuit current: max. 20 mA)
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) [2]

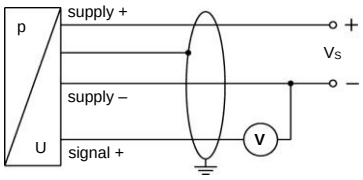
[2] This directive is only valid for devices with maximum permissible overpressure > 200 bar

Wiring diagrams

2-wire-system (current)



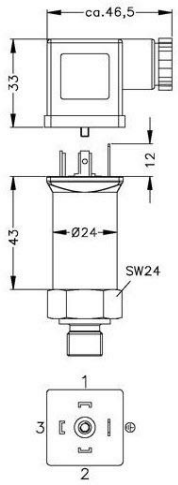
3-wire-system (voltage)



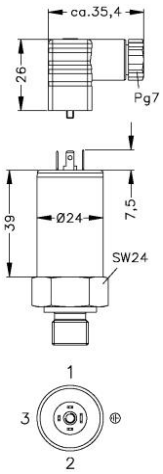
Pin configuration

Electrical connection	ISO 4400	Micro (contact distance 9.4 mm)	M12x1 (4-pin), metal	cable colours (IEC 60757)
Supply +	1	1	1	WH (white)
Supply –	2	2	2	BN (brown)
Signal + (for 3-wire)	3	3	3	GN (green)
Shield	ground pin ⏚	ground pin ⏚	4	GNYE (green-yellow)

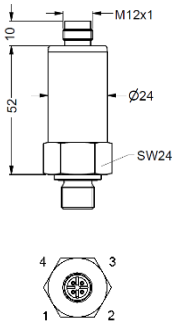
Electrical connections (dimensions in mm)



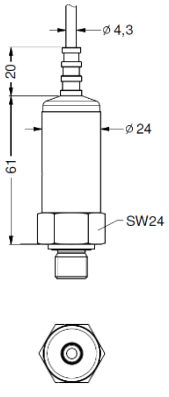
ISO 4400
(IP 65)



Micro, contact
distance 9.4 mm (IP 65)



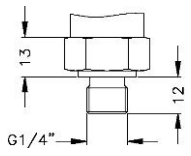
M12x1, 4-pin
(IP 67)



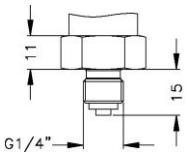
cable outlet with
PVC-cable (IP 67) [3,4]

[3] standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)
[4] different cable types and lengths available, permissible temperature depends on kind of cable

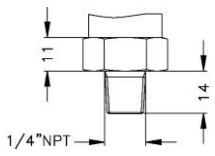
Mechanical connection (dimensions in mm)



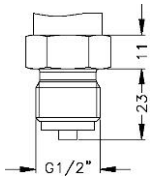
G1/4" DIN 3852
(not for oxygen)



G1/4" EN 837



1/4" NPT



G1/2" EN 837

Ordering code 17.600 G

17.600 G - □□□□ - □ - □ - □ - □□□ - □□□ - □ - □□□

Input	**[bar]**																		
	6	6	0	0	1														
	10	1	0	0	2														
	16	1	6	0	2														
	25	2	5	0	2														
	40	4	0	0	2														
	60	6	0	0	2														
	100	1	0	0	3														
	160	1	6	0	3														
	250	2	5	0	3														
	400	4	0	0	3														
	600	6	0	0	3														
	customer	9	9	9	9														consult
Pressure																			
	gauge					R													
Output																			
	4 … 20 mA / 2-wire						1												
	0 … 10 V / 3-wire						3												
	10 …90% of Vs / 3-wire ratiometric						R												
Accuracy																			
	0.5 % FSO							5											
	customer							9											consult
Electrical connection																			
	male and female plug ISO 4400								1	0	0								
	male and female plug Micro								C	1	0								
	male plug M12x1 (4-pin), metal								M	2	0								
	cable outlet with PVC-cable [1]								T	M	0								
	customer								9	9	9								consult
Mechanical connection / Seal																			
	G1/4" DIN 3852 / on pressure port: FKM											3	0	0	P				
	G1/4" EN 837 / without											4	0	0	2				
	1/4" NPT / without											N	4	0	2				
	G1/2" EN 837 / without											2	0	0	2				
	customer											9	9	9	9				consult
Special version																			
	standard															0	0	0	
	oxygen application [2]															0	0	7	
	oil and grease free															0	0	8	
	customer															9	9	9	consult

[1] standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 … 70 °C)

[2] not possible with G1/4" DIN 3852

DRUCK & TEMPERATUR
LEITENBERGER GMBH

18.601 G

OEM Pressure Transmitter
Low Pressure

Applications:

- general industrial applications

Characteristics:

- piezoresistive stainless steel sensor
- accuracy 0.5 % FSO according to IEC 60770
- nominal pressure ranges from 0 … 100 mbar up to 0 … 6 bar

CE

Technical Data

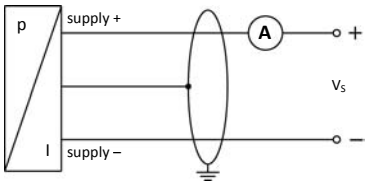
Input pressure range											
Nominal pressure gauge	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6
Overpressure	[bar]	1	1	1	1	3	3	6	10	10	21
Burst pressure ≥	[bar]	1.5	1.5	1.5	1.5	5	5	10	17.5	17.5	35
Vacuum resistance		unlimited									

Output signal / Supply				
Standard	2-wire:	4 ... 20 mA	/ V_S =	8 ... 32 V_{DC}
Options 3-wire	3-wire:	0 ... 10 V	/ V_S =	14 ... 30 V_{DC}
	3-wire ratiometric:	V_{Sig} = 0.5 … 4.5 V	/ V_S =	5 ± 0.5 V_{DC}
Performance				
Accuracy [1,2]	≤± 0.5 % FSO			
Permissible load	2-wire: $R_{max} = [(V_S - V_{S\ min}) / 0.02]$ Ω 3-wire: R_{min} = 10 kΩ			
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ			
Response time	2-wire: ≤ 10 msec		3-wire:	≤ 3 msec
Measuring rate	1 kHz			
[1] *accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)* [2] *for pressure ranges ≤ 160 mbar accuracy is ≤± 1% FSO*				
Thermal effects (Offset and Span) / Permissible temperatures				
Thermal error	≤± 0.3 % FSO / 10 K			in compensated range 0 ... 70 °C
Permissible temperatures	medium / electronics / environment:	-25 ... 85 °C		storage: -40 ... 85 °C
Electrical protection				
Short-circuit protection	permanent			3-wire ratiometric: none
Reverse polarity protection	no damage, but also no function			
Electromagnetic compatibility	emission and immunity according to EN 61326			
Mechanical stability				
Vibration	10 g, 25 Hz … 2 kHz	according to DIN EN 60068-2-6		
Shock	100 g / 1 msec	according to DIN EN 60068-2-27		

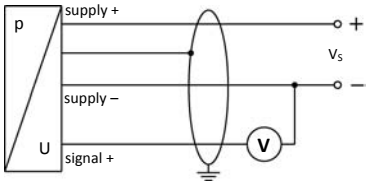
Materials	
Pressure port / housing	stainless steel 1.4301
Seals	FKM
Diaphragm	stainless steel 1.4435
Media wetted parts	Pressure port, seals, diaphragm
Miscellaneous	
Weight	approx. 120 g
Current consumption	2-wire: max. 25 mA 3-wire ratiometric: typ. 1.5 mA 3-wire voltage: typ. 5 mA (short circuit current: max. 20 mA)
CE-conformity	EMC Directive: 2004/108/EC

Wiring diagrams

2-wire-system (current)



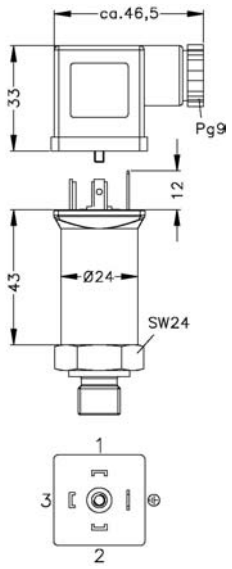
3-wire-system (voltage)



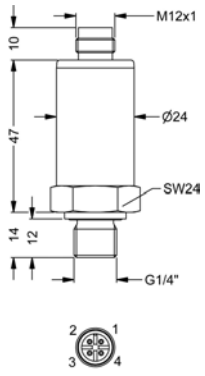
Pin configuration

Electrical connection	ISO 4400	M12x1 (4-pin)	cable colours (DIN 47100)
Supply +	1	1	wh (white)
Supply –	2	2	bn (brown)
Signal + (for 3-wire)	3	3	gn (green)
Shield	ground pin	4	gn/ye (yellow / green)

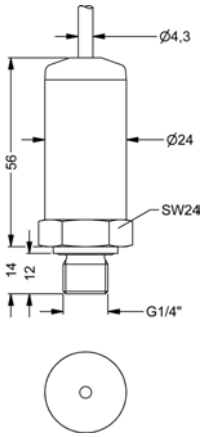
Electrical connections (dimensions in mm)



ISO 4400
(IP 65)



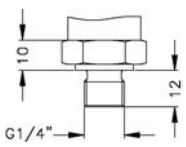
M12x1, 4-pin
(IP 67)



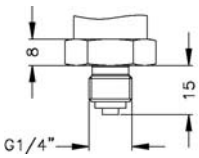
cable outlet
with PVC-cable (IP 67) [3,4]

[3] *standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)*
[4] *different cable types and lengths available, permissible temperature depends on kind of cable*

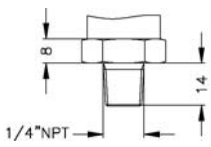
Mechanical connection (dimensions in mm)



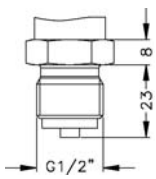
G1/4“ DIN 3852



G1/4“ EN 837



1/4“ NPT



G1/2“ EN 837

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Spezifikationsblatt / *specification sheet*

18.601 G

18.601 G -□□□□-□-□-□-□□□-□□□-□-□□□

Eingang	**[bar]**																						
0,10 [1]		1	0	0	0																		
0,16 [1]		1	6	0	0																		
0,25		2	5	0	0																		
0,40		4	0	0	0																		
0,6		6	0	0	0																		
1,0		1	0	0	1																		
1,6		1	6	0	1																		
2,5		2	5	0	1																		
4,0		4	0	0	1																		
6,0		6	0	0	1																		
Sondermessbereiche		9	9	9	9																		auf Anfrage
Messgröße																							
relativ						R																	
Ausgang																							
4 ... 20 mA / 2-Leiter						1																	
0 ... 10 V / 3-Leiter						3																	
0,5 ... 4,5 V / 3-Leiter ratiometrisch						R																	
andere						9																	auf Anfrage
Genauigkeit																							
0,5 % FSO							5																
andere							9																auf Anfrage
Elektrischer Anschluss																							
Stecker und Kabeldose ISO 4400								1	0	0													
Stecker M12x1 (4-polig), Kunststoff								M	0	0													
Kabelausgang mit 2 m PVC-Kabel [2]								T	A	0													
andere								9	9	9													auf Anfrage
Mechanischer Anschluss																							
G1/4" DIN 3852											3	0	0										
G1/4" EN 837											4	0	0										
1/4" NPT											N	4	0										
G1/2" EN 837											2	0	0										
andere											9	9	9										auf Anfrage
Dichtung																							
FKM														1									
andere														9									auf Anfrage
Sonderausführungen																							
Standard																	0	0	0				
andere																	9	9	9				auf Anfrage

[1] bei Druckbereichen ≤ 160 mbar beträgt die Genauigkeit ≤ ± 1 % FSO

[2] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch (Temperatureinsatzbereich: -5 … 70 °C)

DMP 334i

Precision-Pressure Transmitter for High Pressure

Thinfilm Sensor

accuracy according to IEC 60770:
0.1 % FSO

Nominal pressure

from 0 ... 600 bar up to 0 ... 2200 bar

Analogue output

2-wire: 4 ... 20 mA
others on request

Special characteristics

- welded pressure sensor
- turn-down 1:10
- excellent accuracy
- robust and long-term stable

Optional versions

- communication interface for adjusting offset, span and damping
- pressure port
  M20x1.5 or 9/16 UNF
- different kinds of electrical connections

The precision pressure transmitter **DMP 334i** is a consistent further development of the approved industrial pressure transmitter DMP 334. Basic element is a thinfilm sensor which is welded with the pressure port.

The integrated digital electronics compensates actively sensor specific deviations like non-linearity and thermal error.

It is therefore possible to offer a high pressure transmitter with excellent metrological qualities.

Preferred areas of use are

Plant and machine engineering

Test benches

Commercial vehicles and mobile hydraulics

Input pressure range						
Nominal pressure gauge	[bar]	600 [1]	1000	1600	2000	2200
Overpressure	[bar]	800	1400	2200	2800	2800

[1] only available with pressure port G1/2" EN 837

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V_S = 12 ... 36 V_{DC}
Option	2-wire: 4 ... 20 mA with communication interface [2]

[2] only possible with el. connection Binder series 723 (7-pin)

Performance	
Accuracy	IEC 60770 [3]: ≤ ± 0.1 % FSO
performance after turn-down	
- TD ≤ 1:5	no change of accuracy
- TD > 1:5	for calculation use the following formula: ≤ ± (0.1 + 0.015 x turn down) % FSO with turn-down = nominal pressure range / adjusted range e.g. with a turn-down of 1:10 following accuracy is calculated: ≤ ± (0.1 + 0.015 x 10) % FSO i.e. accuracy is ≤ ± 0.25 % FSO
Permissible load	$R_{max} = [(V_S - V_{S\ min}) / 0.02\ A]\ \Omega$
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Long term stability	≤ ± (0.1 x turn-down) % FSO / year at reference conditions
Response time	approx. 10 msec
Adjustability	configuration of following parameters possible (interface / software necessary [4]): - electronic damping: 0 ... 100 sec - offset: 0 ... 90 % FSO - turn down of span: max. 1:10

[3] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)
[4] software, interface, and cable have to be ordered separately (software appropriate for Windows® 95, 98, 2000, NT Version 4.0 or higher, and XP)

Thermal effects (offset and span) / Permissible temperatures			
TC, average	< 0.25 % FSO / 10 K	in compensated range - 20 ... 85 °C	
Permissible temperatures	medium: - 40 ... 140 °C	electronics / environment: - 25 ... 85 °C	storage: -40 ... 100 °C

Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326

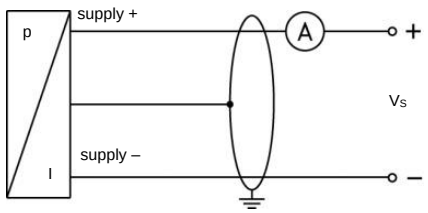
Mechanical stability		
Vibration	10 g RMS (20 ... 2000 Hz)	according to DIN EN 60068-2-6
Shock	100 g / 11 msec.	according to DIN EN 60068-2-27

Materials	
Pressure port	stainless steel 1.4542 (17-4 PH)
Housing	stainless steel 1.4404 (316L)
Option compact field housing	stainless steel 1.4301 (304); cable gland M12x1.5, brass, nickel plated (clamping range 2 … 8 mm)
Seals	none (welded)
Diaphragm	stainless steel 1.4542 (17-4 PH)
Media wetted parts	pressure port, diaphragm

Miscellaneous		
Current consumption	max. 25 mA	
Weight	approx. 300 g	
Installation position	any	
Operational life	p_N = 600 bar: 100 million load cycles	p_N > 600 bar: 10 million load cycles
CE-conformity	EMC Directive: 2014/30/EU	Pressure Equipment Directive: 2014/68/EU (module A)

Wiring diagram

2-wire-system (current)



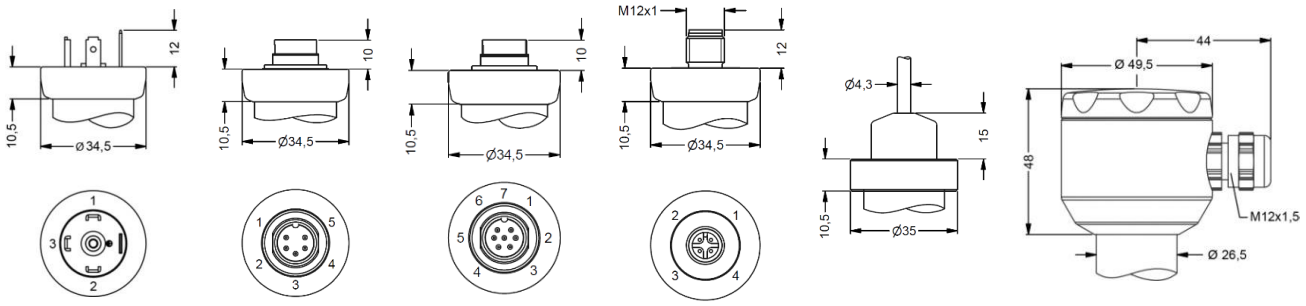
Pin configuration

Electrical connections		ISO 4400	Binder 723 (5-pin)	Binder 723/423 (7-pin)	M12x1/ metal (4-pin)	compact field housing	cable colours (IEC 60757)
	Supply +	1	3	3	1	IN +	WH (white)
	Supply –	2	4	1	2	IN –	BN (brown)
	Shield	ground pin ⏚	5	2	4	⏚	GNYE (green-yellow)
Communication interface [5]	RxD	-	-	4	-	-	-
	TxD	-	-	5	-	-	-
	GND	-	-	7	-	-	-

[5] *may not be connected directly with the PC (the suitable adapter is available as accessory)*

Electrical connections (dimensions in mm)

standard **options**



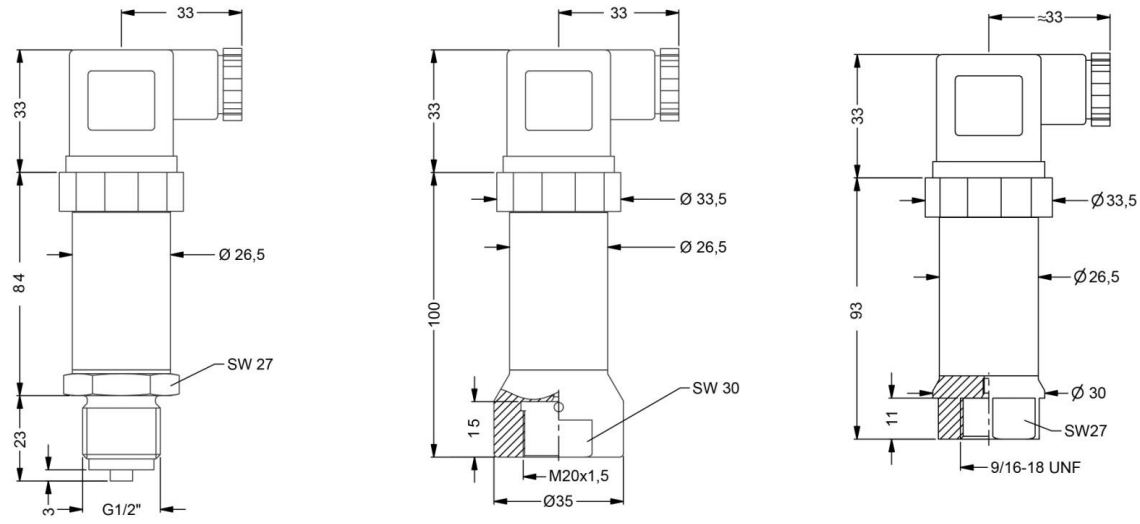
ISO 4400 (IP 65) | Binder Series 723 5-pin (IP 67) | Binder Series 723 7-pin (IP 67) | M12x1 4-pin (IP 67) | cable outlet with PVC cable (IP 67) [6] | compact field housing (IP 67)

⇨ **universal field housing in stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request**

[6] *standard: 2 m PVC cable (without ventilation tube, permissible temperature: -5 ... 70 °C)*

Mechanical connection (dimensions in mm)

standard [7] **options** [7]



G1/2" EN 837 [8] | M20x1.5 internal thread | 9/16-18 UNF internal thread

[7] *adjustable version is only possible in combination with Binder Series 723, 7-pin*
[8] *According to EN 837, the pressure port and the complement at pressure over 1000 bar must be preferably made of stainless steel with a tensile strength of R_P > 260 N/mm² in accordance with DIN 17440. The maximum allowed pressure is 1600 bar!*

Ordering code **DMP 334i**

DMP 334i ☐☐☐ - ☐☐☐☐ - ☐ - ☐ - ☐☐☐ - ☐☐☐ - ☐ - ☐☐☐

Pressure		
gauge	1 4 0	
Input [bar]		
600 [1]	6 0 0 3	
1000	1 0 0 4	
1600	1 6 0 4	
2000	2 0 0 4	
2200	2 2 0 4	
customer	9 9 9 9	consult
Output		
4 … 20 mA / 2-wire	1	
customer	9	consult
Accuracy		
0.1 % FSO	1	
customer	9	consult
Electrical connection		
male and female plug ISO 4400	1 0 0	
male plug Binder series 723 (5-pin)	2 0 0	
male plug Binder series 723 (7-pin) and female plug Binder series 423 (7-pin)	A 0 0	
cable outlet with PVC cable (IP67) [2]	T A 0	
male plug M12x1 (4-pin) / metal	M 1 0	
compact field housing stainless steel 1.4301 (304)	8 5 0	
customer	9 9 9	consult
Mechanical connection		
G1/2" EN 837 [3]	2 0 0	
M20x1.5 internal thread	D 2 8	
9/16 UNF internal thread	V 0 0	
customer	9 9 9	consult
Seal		
without (welded version)	2	
customer	9	consult
Special version		
standard	1 1 1	
RS232 interface [4]	1 2 1	
customer	9 9 9	consult

[1] only available with pressure port G1/2" EN 837

[2] standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 … 70 °C), others on request

[3] According to EN 837, the pressure port and the complement, at pressure over 1000 bar must be preferably made of stainless steel with a tensile strength of R_P > 260 N/mm² in accordance with DIN 17440. The maximum allowed pressure is 1600 bar!

[4] RS232 interface only possible with electrical connection Binder serie 723/423 (7-pin)
software, interface and cable for DMP 334i with option RS232 have to be order separately
(ordering code: CIS Set 510; software appropriate for Windows® 95, 98, 2000, NT version 4.0 or newer and XP)

Windows® is a registrated trademark of Microsoft Corporation

DRUCK & TEMPERATUR
LEITENBERGER GMBH

DMP 321

Industrial
Pressure Transmitter

Stainless Steel Sensor

accuracy according to IEC 60770:
standard: 0.25 % FSO
option: 0.1 % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 600 bar

Output signals

2-wire: 4 ... 20 mA
3-wire: 0 … 20 mA / 0 … 10 V
others on request

Special characteristics

- perfect thermal behaviour
- excellent long-term stability
- compact design

Optional versions

- IS-version
  Ex ia = intrinsically safe for gases and dusts
- pressure sensor welded
- customer specific versions

The pressure transmitter DMP 321 is the consistent further development of our in many applications approved DMP 331. It shows an improved signal behavior and sets new standards in the industrial class.

Its metallic diaphragm made of stainless steel (1.4435 / 316L) offers a good corrosion resistance in many industrial processes.

The modular device concept allows to combine different pressure ranges with a variety of electrical and mechanical connections.Thus a diversity of variations is created, meeting almost all requirements in industrial applications.

Preferred areas of use are

- Plant and Machine Engineering
- Environmental Engineering
- Energy Industry
- Mobile Hydraulics

Input pressure range												
Nominal pressuregauge	[bar]	-1…0	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6
Nominal pressure abs.	[bar]	-	-	-	-	0.40	0.60	1	1.6	2.5	4	6
Overpressure	[bar]	5	0.5	1	1	2	5	5	10	10	20	40
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50

Nominal pressure gauge / abs.	[bar]	10	16	25	40	60	100	160	250	400	600
Overpressure	[bar]	40	80	80	105	210	600	600	1000	1000	1000
Burst pressure ≥	[bar]	50	120	120	210	420	1000	1000	1250	1250	1800
Vacuum resistance		P_N ≥ 1 bar: unlimited vacuum resistance P_N < 1 bar: on request									

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V_S = 8 ... 32 V_{DC}
Option IS-protection	2-wire: 4 ... 20 mA / V_S = 10 ... 28 V_{DC}
Options 3-wire	3-wire: 0 ... 20 mA / V_S = 14 ... 30 V_{DC} 0 ... 10 V / V_S = 14 ... 30 V_{DC}
Performance	
Accuracy [1]	standard: ≤ ± 0.25 % FSO option 1: ≤ ± 0.1 % FSO
Permissible load	current 2-wire: R_{max} = [(V_S – V_S min) / 0.02 A] Ω current 3-wire: R_{max} = 500 Ω voltage 3-wire: R_{min} = 10 kΩ
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Long term stability	≤ ± 0.1 % FSO / year at reference conditions
Response time	2-wire: ≤ 10 msec 3-wire: ≤ 3 msec
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)	
Thermal effects (Offset and Span)	
Tolerance band	≤ ± 0.75 % FSO
in compensated range	-20 ... 85 °C
Permissible temperatures	
Permissible temperatures	medium: -40 ... 125 °C electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Mechanical stability	
Vibration	10 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	100 g / 11 msec according to DIN EN 60068-2-27
Materials	
Pressure port	stainless steel 1.4404 (316 L)
Housing	stainless steel 1.4404 (316 L)
Option compact field housing	stainless steel 1.4305 (303), cable gland brass, nickel plated others on request
Seals (media wetted)	standard: FKM options: EPDM (for P_N ≤ 160 bar) welded version [2] others on request
Diaphragm	stainless steel 1.4435 (316 L)
Media wetted parts	pressure port, seals, diaphragm
[2] welded version only with pressure ports according to EN 837, P_N ≤ 40 bar	
Explosion protection (only for 4 ... 20 mA / 2-wire)	
Approvals DX19-DMP 321	**IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X** zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T 85°C Da
Safety technical maximum values	U_i = 28 V_{DC}, I_i = 93 mA, P_i = 660 mW, C_i ≈ 0 nF, L_i ≈ 0 µH, the supply connections have an inner capacity of max. 27 nF to the housing
Ambient temperature range	in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -20 ... 70 °C
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1µH/m

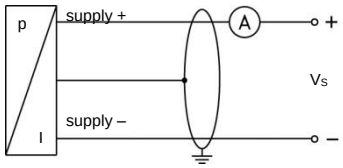
Miscellaneous

Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 140 g
Installation position	any [3]
Operational life	> 100 x 10^6 pressure cycles
CE-conformity	EMC Directive: 2004/108/EC Pressure Equipment Directive: 97/23/EC (module A)[4]
ATEX Directive	94/9/EG

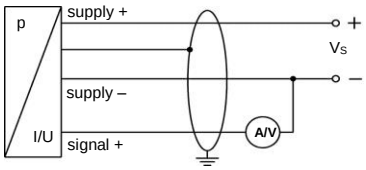
[3] Pressure transmitters are calibrated in a vertical position with the pressure connection down.
[4] This directive is only valid for devices with maximum permissible overpressure > 200 bar

Wiring diagrams

2-wire-system (current)



3-wire-system (current / voltage)

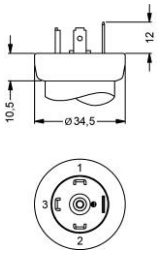


Pin configuration

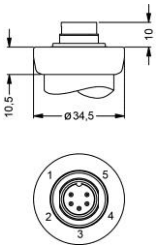
Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	field housing	cable colours (DIN 47100)
Supply +	1	3	1	IN +	wh (white)
Supply –	2	4	2	IN –	bn (brown)
Signal + (only for 3-wire)	3	1	3	OUT +	gn (green)
Shield	ground pin	5	4	⏚	ye/gn (yellow / green)

Electrical connections (dimensions in mm)

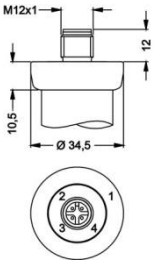
standard **option**



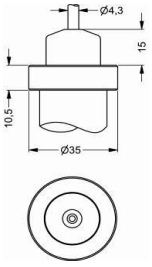
ISO 4400
(IP 65)



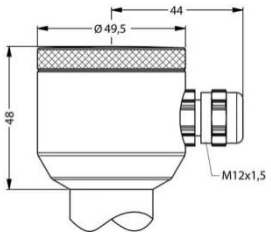
Binder Series 723 5-pin
(IP 67)



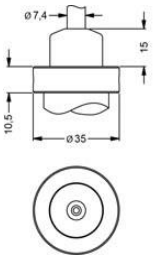
M12x1 4-pin
(IP 67)



cable outlet with PVC cable
(IP 67) [5]



compact field housing
(IP 67)



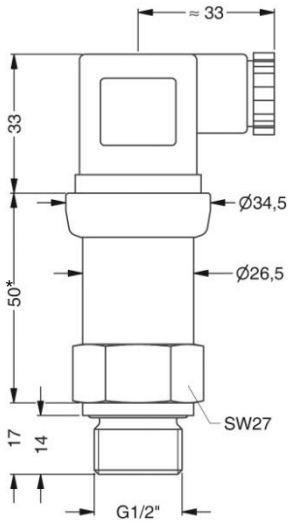
cable outlet,
cable with ventilation tube
(IP 68) [6]

⇨ **universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request**

[5] standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)
[6] different cable types and lengths available, permissible temperature depends on kind of cable

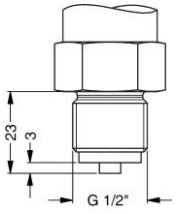
Mechanical connections (dimensions in mm)

standard

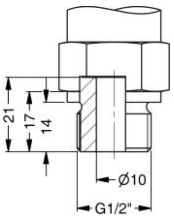


1/2" DIN 3852
with ISO 4400

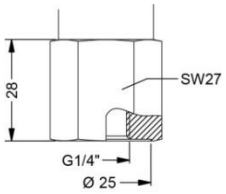
option



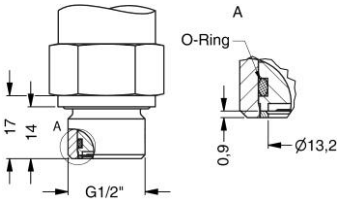
G1/2" EN 837



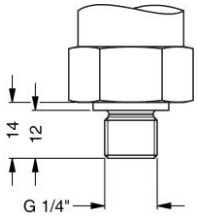
G1/2" open port



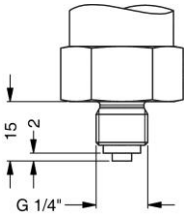
G ¼" DIN3852
internal thread



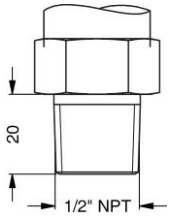
G1/2" DIN 3852
with flush sensor



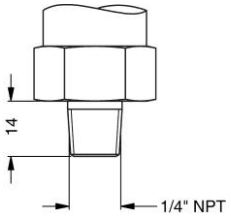
G1/4" DIN 3852



G1/4" EN 837



1/2" NPT



1/4" NPT

⇨ **metric threads and other versions on request**

* for nominal pressure P_N > 60 bar increases the length of devices by 9 mm!

DRUCK & TEMPERATUR
LEITENBERGER GMBH

Spezifikationsblatt / specification sheet

DMP 321

DMP 321 ☐☐☐ - ☐☐☐☐ - ☐ - ☐ - ☐☐☐ - ☐☐☐ - ☐ - ☐☐☐

Deutsch	English	Code		
Messgröße	**Pressure**			
relativ	gauge	1 1 5		
absolut	absolute [1]	1 1 6		
Eingang [bar]	**Input [bar]**			
0,10	0.10 [1]	1 0 0 0		
0,16	0.16 [1]	1 6 0 0		
0,25	0.25 [1]	2 5 0 0		
0,40	0.40	4 0 0 0		
0,60	0.60	6 0 0 0		
1,0	1.0	1 0 0 1		
1,6	1.6	1 6 0 1		
2,5	2.5	2 5 0 1		
4,0	4.0	4 0 0 1		
6,0	6.0	6 0 0 1		
10	10	1 0 0 2		
16	16	1 6 0 2		
25	25	2 5 0 2		
40	40	4 0 0 2		
60	60	6 0 0 2		
100	100	1 0 0 3		
160	160	1 6 0 3		
250	250	2 5 0 3		
400	400	4 0 0 3		
600	600	6 0 0 3		
-1 … 0	-1 … 0	X 1 0 2		
Sondermessbereiche	customer	9 9 9 9	auf Anfrage	consult
Ausgang	**Output**			
4 … 20 mA / 2-Leiter	4 … 20 mA / 2-wire	1		
0 … 20 mA / 3-Leiter	0 … 20 mA / 3-wire	2		
0 … 10 V / 3-Leiter	0 … 10 V / 3-wire	3		
Ex-Schutz 4 … 20 mA / 2-Leiter	Intrinsic safety 4 … 20 mA / 2-wire	E		
andere	customer	9	auf Anfrage	consult
Genauigkeit	**Accuracy**			
Standard 0,25 %	standard 0.25 %	2		
Option 0,1 %	option 0.1 %	1		
andere	customer	9	auf Anfrage	consult
Elektrischer Anschluss	**Electrical connection**			
Stecker und Kabeldose ISO 4400	Male and female plug ISO 4400	1 0 0		
Stecker Binder Serie 723 (5-polig)	Male plug Binder series 723 (5-pin)	2 0 0		
Kabelausgang mit PVC-Kabel	Cable outlet with PVC cable [2]	T A 0		
Kabelausgang	Cable outlet [3]	T R 0		
Stecker M12x1 (4-polig) / Metall	Male plug M12x1 (4-pin) / metal	M 1 0		
Kompakt-Feldgehäuse Edelstahl 1.4305	Compact field housing stainless steel 1.4305	8 5 0		
andere	customer	9 9 9	auf Anfrage	consult
Mechanischer Anschluss	**Mechanical connection**			
G1/2" DIN 3852	G1/2" DIN 3852	1 0 0		
G1/2" EN 837	G1/2" EN 837	2 0 0		
G1/4" DIN 3852	G1/4" DIN 3852	3 0 0		
G1/4" DIN 3852, Innengewinde	G1/4" DIN 3852, internal thread	J 0 0		
G1/4" EN 837	G1/4" EN 837	4 0 0		
G1/2" DIN 3852 mit quasi-frontbündiger Messzelle	G1/2" DIN 3852 with flush sensor	F 0 0		
G1/2" DIN 3852 offener Anschluss	G1/2" DIN 3852 open pressure port	H 0 0		
1/2" NPT	1/2" NPT	N 0 0		
1/4" NPT	1/4" NPT	N 4 0		
andere	customer	9 9 9	auf Anfrage	consult
Dichtung	**Seals**			
FKM	FKM	1		
EPDM	EPDM	3		
ohne (Schweißversion)	without (welded version) [4]	2		
andere	customer	9	auf Anfrage	consult
Sonderausführungen	**Special version**			
Standard	standard	0 0 0		
andere	customer	9 9 9	auf Anfrage	consult

Preise EXW Kirchentellinsfurt, ausschl. Verpackung / Prices EXW Kirchentellinsfurt, excluding package

[1] Absolutdruck möglich ab 0,4 bar / absolute pressure possible from 0.4 bar

[2] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch (Temperatureinsatzbereich: -5 … 70 °C), optional Kabel mit Belüftungsschlauch
standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 … 70 °C), optionally without ventilation tube

[3] Kabel mit Luftschlauch (Code TR0 = PVC-Kabel), Kabel in verschiedenen Ausführungen und Längen lieferbar, Tenperatureinsatzbereich abhängig vom Kabel; Kabel nicht im Preis enthalten
cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, permissible temperature depends on kind of cable, price without cable

[4] Schweißversion nur bei Anschlüssen nach EN 837, nur möglich für P_N ≤ 40 bar / welded version only with pressure ports according to EN 837, possible for PN ≤ 40 bar

Rel. 20160311

DRUCK & TEMPERATUR
LEITENBERGER GMBH

DMP 334

Industrial Pressure Transmitter for very high Pressure

Thinfilm Sensor

accuracy
according to IEC 60770:
0.35 % FSO

Industrial - Pressure Transmitter

DMP 334

Nominal pressure ranges:

from 0 ... 600 bar
up to 0 ... 2200 bar

Analogue output:

2-wire: 4 ... 20 mA
3-wire: 0 … 10 V
others on request

Special characteristics:

- ► extremly robust and excellent long-term stability
- ► pressure sensor welded

Optional versions:

- ► IS-version
  Ex ia = intrinsically safe for gases and dusts
- ► pressure port M20 x 1.5 or 9/16 UNF
- ► adjustability of span and offset
- ► different kinds of elecrrical connections

CE Ex

The industrial pressure transmitter **DMP 334** has been especially designed for use in hydraulic systems up to 2200 bar.

The base element of **DMP 334** is a thinfilm sensor, that is welded with the pressure port and meets high demands of foolproofness and reliability.

All of characteristics and the excellent mesurement data of **DMP 334** as well as distinguished offset stability offer a pressure transmiter with easy handling, reliability and robustness for hydraulic user. The **DMP 334** is deliverable with pressure ports of extrem pressure technics.

Preferred areas of use are:

Plant and Machine Engineering

Commercial Vehicles and
Mobile Hydraulics

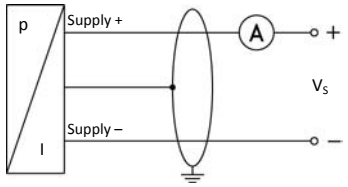
DMP 334

Industrial Pressure Transmitter — Technical Data

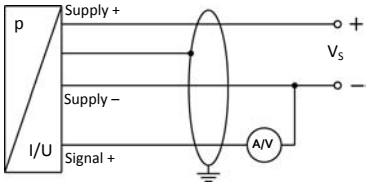
Input pressure range						
Nominal pressure gauge	[bar]	600 [1]	1000	1600	2000	2200
Overpressure	[bar]	800	1400	2200	2800	2800
[1] *only available with pressure port G1/2" EN 837*						
Output signal / Supply						
Standard		2-wire: 4 ... 20 mA / V_S = 12 ... 36 V_{DC}				
Option IS-protection		2-wire: 4 ... 20 mA / V_S = 14 ... 28 V_{DC}				
Option 3-wire		3-wire: 0 ...10 V / V_S = 14 ... 36 V_{DC}				
Performance						
Accuracy		≤± 0.35 % FSO IEC 60770 [2]				
Permissible load		current 2-wire: R_{max} = [(V_S – V_S min) / 0.02 A] Ω voltage 3-wire: R_{min} = 10 kΩ				
Influence effects		supply: 0.05 % FSO / 10 V			load: 0.05 % FSO / kΩ	
Long term stability		≤± 0.2 % FSO / year				
Response time		< 5 msec				
Adjustability		Adjustment of offset is possible within the range of ± 5 % of the nominal pressure range, without an influence of characteristic curve and accuracy.				
[2] *accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)*						
Thermal effects (Offset and Span) / Permissible temperatures						
Thermal error		≤± 0.25 % FSO / 10 K	in compensated range -20 ... 85 °C			
Permissible temperatures		medium: -40 ... 140 °C	electronics / environment: -25 ... 85 °C		storage: -40 ... 100 °C	
Electrical protection						
Short-circuit protection		permanent				
Reverse polarity protection		no damage, but also no function				
Electromagnetic compatibility		emission and immunity according to EN 61326				
Mechanical stability						
Vibration		10 g RMS (20 ... 2000 Hz)				
Shock		100 g / 11 msec.				
Materials						
Pressure port		stainless steel 1.4542 (17-4 PH)				
Housing		standard: stainless steel 1.4404 (316L) field housing: stainless steel 1.4404 (316L), cable gland: brass, nickel plated				
Seals (media wetted)		none (welded version)				
Diaphragm		stainless steel 1.4542 (17-4 PH)				
Media wetted parts		pressure port / diaphragm				
Explosion protection (with option IS-protection)						
Approval DX13-DMP 334		zone 0: II 1 G Ex ia IIC T4 zone 20: II 1 D Ex tD A20 IP65 T 85°C				
Safety technical maximum values		U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i ≤ 1nF, L_i ≤ 10 µH				
Permissible temperatures for environment		in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -25 ... 70 °C				
Connecting cables (by factory)		cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance:signal line/shield also signal line/signal line: 1 µH/m				
Miscellaneous						
Current consumption		signal output current: max. 25 mA signal output voltage: max. 7 mA				
Weight		approx. 200 g				
Installation position		any				
CE-conformity		EMC Directive: 2004/108/EC		Pressure Equipment Directive: 97/23/EC (module A)		

Wiring diagrams

2-wire-system (current)



3-wire-system (current / voltage)

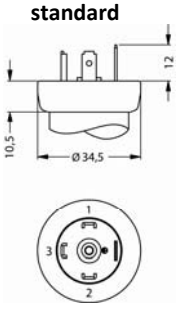


Pin configuration

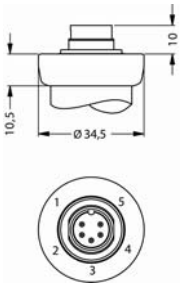
Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 (4-pin)	Field housing	Cable colours (DIN 47100)
Supply +	1	3	1	IN +	white
Supply –	2	4	2	IN -	brown
Signal + (for 3-wire)	3	1	3	OUT+	green
Shield	ground pin	5	4	⏚	yellow / green

Electrical connections (dimensions in mm)

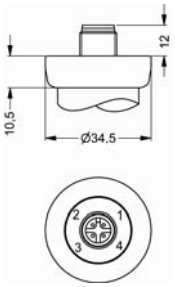
standard **option**



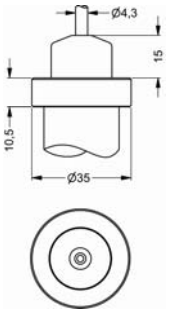
ISO 4400 (IP 65)



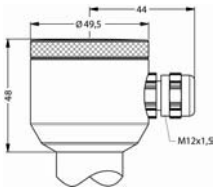
Binder series 723 (IP 67)



M12x1 4-pin (IP 67)



cable outlet (IP 67) [3]

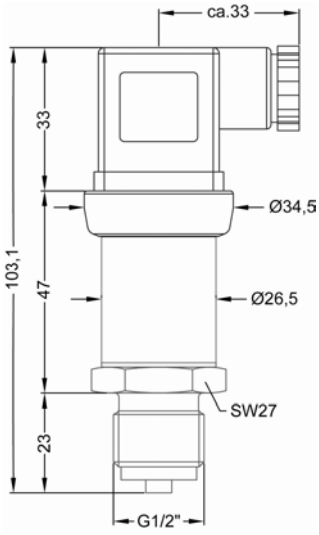


compact field housing(IP 67)

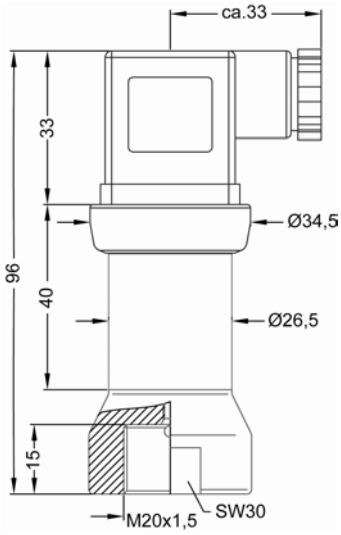
[3] *standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)*

Mechanical connection (dimensions in mm)

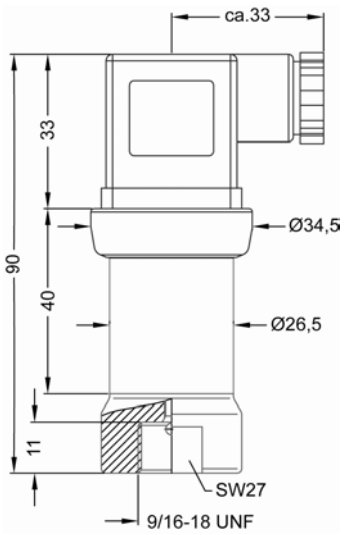
standard [4] **option** [4]



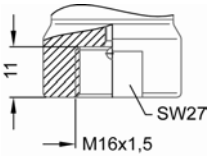
G1/2" EN 837 [5]



M20x1.5 internal thread



⇨ IS-version: total length increases by 25 mm!



9/16-18 UNF internal thread

[4] *adjustable version is not possible in combination with IS-version, compact field housing and cable outlet*

[5] *According to EN 837, the pressure port and the complement at pressure over 1000 bar must be preferably made of stainless steel with a tensile strength of $R_p > 260$ N/mm² in accordance with DIN 17440. The maximum allowed pressure is 1600 bar!*

DMP 334

DMP 334 □□□-□□□□-□-□-□□□-□□□-□-□□□

Messgröße																			
relativ	1	4	0																
Eingang	**[bar]**																		
600 [1]				6	0	0	3												
1000				1	0	0	4												
1600				1	6	0	4												
2000				2	0	0	4												
2200				2	2	0	4												
Sondermessbereiche				9	9	9	9												auf Anfrage
Ausgang																			
4 ... 20 mA / 2-Leiter								1											
0 ... 10 V / 3-Leiter								3											
Ex-Schutz 4 ... 20 mA / 2-Leiter								E											
andere								9											auf Anfrage
Genauigkeit																			
0,35 %									3										
andere									9										auf Anfrage
Elektrischer Anschluss																			
Stecker und Kabeldose ISO 4400										1	0	0							
Stecker Binder Serie 723 (5-polig)										2	0	0							
Kabelausgang mit PVC-Kabel [2, 3]										T	A	0							
Stecker M12x1 (4-polig) / Metall										M	1	0							
Kompakt-Feldgehäuse Edelstahl 1.4404										8	5	0							
andere										9	9	9							auf Anfrage
Mechanischer Anschluss																			
G1/2" EN 837 [4]													2	0	0				
M20x1,5 Innengewinde													D	2	8				
9/16 UNF Innengewinde													V	0	0				
andere													9	9	9				auf Anfrage
Dichtung																			
ohne (Schweißversion)																2			
andere																9			auf Anfrage
Sonderausführungen																			
Standard																	0	0	0
verstellbar [5]																	0	4	1
andere																	9	9	9 auf Anfrage

[1] nur möglich mit Druckanschluss G1/2" EN 837

[2] Kabel in verschiedenen Ausführungen und Längen lieferbar

[3] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch (Temperatureinsatzbereich: -5 ... 70 °C), optional Kabel mit Belüftungsschlauch

[4] Laut EN 837 müssen bei Drücken ab 1000 bar Druckanschluss und Gegenstück vorzugweise aus einem nichtrostenden Stahl nach DIN 17440 mit einer Festigkeit von R_P > 260 N/mm² hergestellt sein. Der maximal zulässige Druck ist 1600 bar!

[5] nicht möglich in Verbindung mit Ex-Ausführung, Kompakt-Feldgehäuse und Kabelausgang mit PVC-Kabel

DRUCK & TEMPERATUR
LEITENBERGER GMBH

DMK 331

Industrial
Pressure Transmitter

Ceramic Sensor

accuracy according to IEC 60770:
0.5 % FSO

Industrial
Pressure Transmitter

DMK 331

Nominal pressure:

from 0 ... 400 mbar
up to 0 ... 600 bar

Output signals:

2-wire: 4 ... 20 mA
3-wire: 0 … 20 mA / 0 … 10 V
others on request

Special characteristics:

- ► pressure port G 1/2" flush for pasty and polluted media
- ► pressure port G 1/2" open port PVDF for aggressive media
- ► oxygen application

Optional versions:

- ► IS-version
  Ex ia = intrinsically safe for
  gases and dusts
- ► SIL 2
  according to IEC 61508 / IEC 61511
- ► customer specific versions

The industrial pressure transmitter **DMK 331** with ceramic sensor has been especially designed for pasty, polluted or aggressive media and for oxygen applications at low pressure range.

As with all industrial pressure transmitters made by DRUCK & TEMPERATUR Leitenberger GmbH, you may choose between various electrical and mechanical connections also on **DMK 331**.

Preferred areas of use are:

- Plant and Machine Engineering
- Energy Industry
- Environmental Engineering (water - sewage - recycling)
- Medical Technology

DMK 331

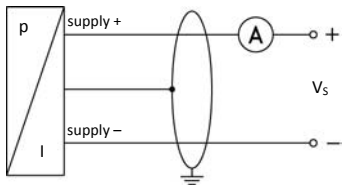
Industrial Pressure Transmitter — Technical Data

Input pressure range [1]																			
Nominal pressure gauge	[bar]	-1...0	0.4	0.6	1	1,6	2,5	4	6	10	16	25	40	60	100	160	250	400	600
Nominal pressure abs.	[bar]	-	-	0.6	1	1,6	2,5	4	6	10	16	25	40	60	100	160	250	400	600
Overpressure	[bar]	4	1	2	2	4	4	10	10	20	40	40	100	100	200	400	400	600	800
Burst pressure ≥	[bar]	7	2	4	4	5	5	12	12	25	50	50	120	120	250	500	500	650	880
Vacuum resistance		$P_N \geq 1$ bar: unlimited vacuum resistance $P_N < 1$ bar: on request																	
[1] *PVDF pressure port possible for nominal pressure ranges up to 60 bar*																			

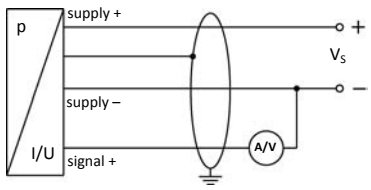
Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V_S = 8 ... 32 V_{DC}
Option IS-protection	2-wire: 4 ... 20 mA / V_S = 10 ... 28 V_{DC}
Options 3-wire	3-wire: 0 ... 20 mA / V_S = 14 ... 30 V_{DC} 0 ... 10 V / V_S = 14 ... 30 V_{DC}
Performance	
Accuracy [2]	≤± 0.5 % FSO
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S\,min}) / 0.02]\ \Omega$ current 3-wire: $R_{max} = 500\ \Omega$ voltage 3-wire: $R_{min} = 10\ k\Omega$
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Long term stability	≤± 0.3 % FSO / year at reference conditions
Response time	2-wire: ≤ 10 msec 3-wire: ≤ 3 msec
[2] *accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)*	
Thermal effects (Offset and Span) / Permissible Temperatures	
Thermal error	≤± 0.2 % FSO / 10 K
in compensated range	-25 ... 85 °C
Permissible temperatures	medium: -40 ... 125 °C electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Mechanical stability	
Vibration	10 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	500 g / 1 msec according to DIN EN 60068-2-27
Materials	
Pressure port	standard: stainless steel 1.4404 (316 L) optional for G1/2" open port with nominal pressure range up to 60 bar: PVDF others on request
Housing	stainless steel 1.4404 (316 L)
Option compact field housing	stainless steel 1.4305 (303) with cable gland brass, nickel plated others on request
Seals (media wetted)	standard: FKM options: EPDM (for $P_N \leq 160$ bar), NBR others on request
Diaphragm	ceramic Al_2O_3 96 %
Media wetted parts	pressure port, seals, diaphragm
Explosion protection (with option IS-protection)	
Approval DX19-DMK 331	IBExU 10 ATEX 1068 X stainless steel pressure port: zone 0: II 1G Ex ia IIC T4 Ga zone 20 : II 1D Ex ta IIIC T 85°C, IP6x **in preparation** plastic pressure port: zone 1: II 2G Ex ia IIC T4 Ga zone 21: II 2D Ex tD A21 IP6x T 85°C **in preparation**
Safety technical maximum values	$U_i = 28\ V_{DC}$, $I_i = 93$ mA, $P_i = 660$ mW, $C_i \approx 0$ nF, $L_i \approx 0$ µH
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -20 ... 70 °C
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance:signal line/shield also signal line/signal line: 1µH/m
Miscellaneous	
Option SIL 2	according to IEC 61508 / IEC 61511
Option oxygen application	for $P_N \leq 25$ bar: O-ring in special material with oxygen-approval (FKM)
Current consumption	signal output current: max. 25 mA signal output voltage: typ. 5 mA
Weight	approx. 140 g
Installation position	any
Operational life	> 100 x 10^6 pressure cycles
CE-conformity	EMC Directive: 2004/108/EC Pressure Equipment Directive: 97/23/EC (module A) [3]
[3] *This directive is only valid for devices with maximum permissible overpressure > 200 bar*	

Wiring diagrams

2-wire-system (current)



3-wire-system (current / voltage)

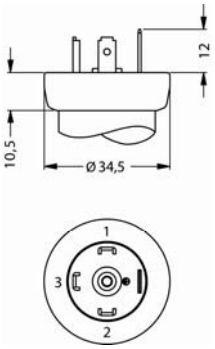


Pin configuration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	field housing	cable colours (DIN 47100)
Supply +	1	3	1	IN +	wh (white)
Supply –	2	4	2	IN -	bn (brown)
Signal + (for 3-wire)	3	1	3	OUT+	gn (green)
Shield	ground pin	5	4	⏚	gn/ye (green / yellow)

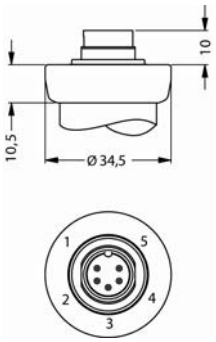
Electrical connections (dimensions in mm)

standard

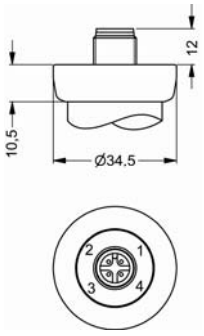


ISO 4400
(IP 65)

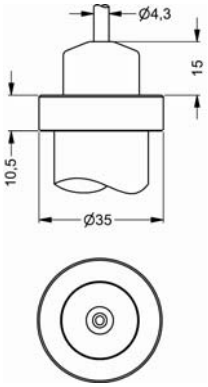
option



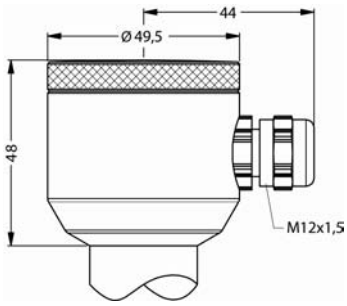
Binder Series 723 5-pin
(IP 67)



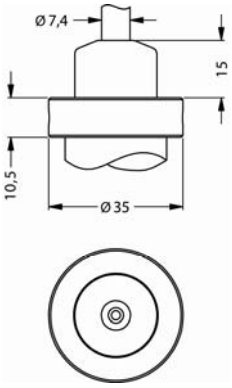
M12x1 4-pin
(IP 67)



cable outlet with PVC cable
(IP 67) [4]



compact field housing
(IP 67)



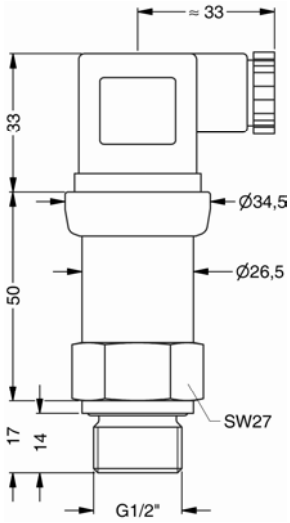
cable outlet,
cable with ventilation tube
(IP 68) [5]

⇨ universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request

[4] *standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C)*
[5] *different cable types and lengths available, permissible temperature depends on kind of cable*

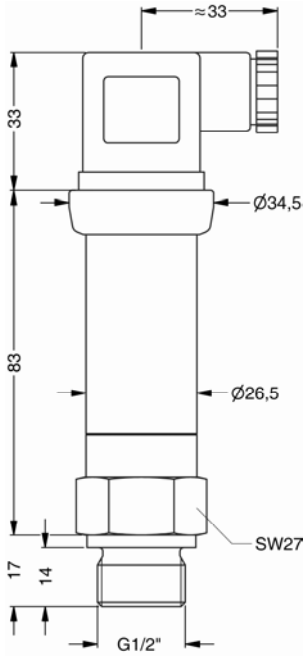
Mechanical connection (dimensions in mm)

standard



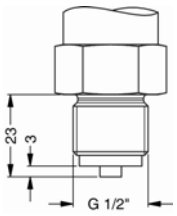
G1/2" DIN 3852
with ISO 4400

standard for SIL- and SIL-IS-version

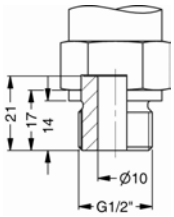


G1/2" DIN 3852
with ISO 4400

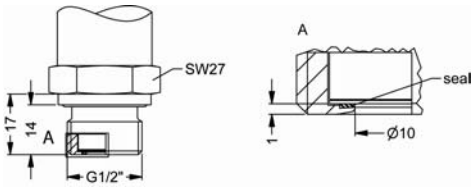
option



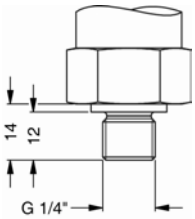
G1/2" EN 837



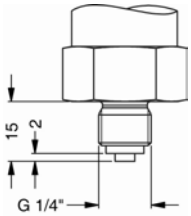
G1/2" open port



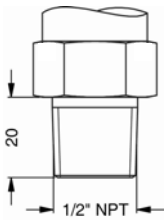
G1/2" semi-flush DIN 3852; M20x1.5 [6]



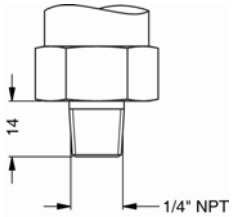
G1/4" DIN 3852



G1/4" EN 837



1/2" NPT



1/4" NPT

⇨ **metric threads and other versions on request**

[6] *possible for nominal pressure ranges $P_N \leq 25$ bar*

DRUCK & TEMPERATUR LEITENBERGER GMBH

Spezifikationsblatt / *specification sheet*

DMK 331

DMK 331 ☐☐☐-☐☐☐☐-☐-☐-☐☐☐-☐☐☐-☐-☐-☐-☐☐☐

Messgröße		
relativ	2 5 0	
absolut	2 5 1	
Eingang [bar]		
0,40	4 0 0 0	
0,60	6 0 0 0	
1,0	1 0 0 1	
1,6	1 6 0 1	
2,5	2 5 0 1	
4,0	4 0 0 1	
6,0	6 0 0 1	
10	1 0 0 2	
16	1 6 0 2	
25	2 5 0 2	
40	4 0 0 2	
60	6 0 0 2	
100	1 0 0 3	
160	1 6 0 3	
250	2 5 0 3	
400	4 0 0 3	
600	6 0 0 3	
-1 … 0	X 1 0 2	
Sondermessbereiche	9 9 9 9	auf Anfrage
Ausgang		
4 … 20 mA / 2-Leiter	1	
0 … 20 mA / 3-Leiter	2	
0 … 10 V / 3-Leiter	3	
Ex-Schutz 4 … 20 mA / 2-Leiter	E	
SIL2 4 … 20 mA / 2-Leiter	1S	
SIL2 mit Ex-Schutz 4 … 20 mA / 2-Leiter	ES	
andere	9	auf Anfrage
Genauigkeit		
0,5 %	5	
andere	9	auf Anfrage
Elektrischer Anschluss		
Stecker und Kabeldose ISO 4400	1 0 0	
Stecker Binder Serie 723 (5-polig)	2 0 0	
Kabelausgang mit PVC-Kabel [1]	T A 0	
Kabelausgang mit Kabel	T R 0	
Stecker M12x1 (4-polig) / Metall	M 1 0	
Kompakt-Feldgehäuse Edelstahl 1.4404	8 5 0	
andere	9 9 9	auf Anfrage
Mechanischer Anschluss [2]		
G1/2" DIN 3852	1 0 0	
G1/2" EN 837	2 0 0	
G1/4" DIN 3852	3 0 0	
G1/4" EN 837	4 0 0	
G1/2" DIN 3852 mit [3] quasi-frontbündiger Messzelle	F 0 0	
G1/2" DIN 3852 offener Anschluss	H 0 0	
1/2" NPT	N 0 0	
1/4" NPT	N 4 0	
andere	9 9 9	auf Anfrage
Dichtung		
FKM	1	
EPDM	3	
NBR	5	
andere	9	auf Anfrage
Druckanschluss		
Edelstahl 1.4404 (316L)	1	
PVDF [4]	B	
andere	9	auf Anfrage
Trennmembrane		
Keramik Al_2O_3 96%	2	
andere	9	auf Anfrage
Sonderausführungen		
Standard	0 0 0	
Sauerstoff-Ausführung [5]	0 0 7	
andere	9 9 9	auf Anfrage

[1] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch (Temperatureinsatzbereich: -5 … 70°C)
[2] metrische Gewinde und andere auf Anfrage
[3] nur möglich für Nenndruckbereiche $P_N \leq 25$ bar
[4] PVDF-Ausführung nur mit G1/2" DIN 3852 offener Anschluss (bis 60 bar)
[5] Sauerstoff-Ausführung möglich bis 25 bar und in Verbindung mit FKM-Dichtung

DRUCK & TEMPERATUR
LEITENBERGER GMBH

DMK 457

Pressure Transmitter For Ship-building And Offshore

Ceramic Sensor

accuracy according to IEC 60770: 0.5 % FSO

Shipbuilding and Offshore

DMK 457

Nominal pressure:

from 0 ... 400 mbar
up to0 ... 600 bar

Output signals:

2-wire: 4 ... 20 mA
others on request

Special characteristics:

- ► shipping approvals
  GL (Germanischer Lloyd) and
  DNV (Det Norske Veritas)
- ► pressure port CuNiFe
  (sea water resistant)
- ► oxygen application

Optional versions:

- ► IS-version
  Ex ia = intrinsically safe for
  gases and dusts

The pressure transmitter **DMK 457** with ceramic sensor has been designed for hard conditions especially in shipbuilding and offshore applications as alternative to our pressure transmitter DMP 457 with piezoresistive stainless steel sensor.

In order to meet the special requirements for shipbuilding and offshore applications extensive tests had to be passed to get the Germanischer Lloyd (GL) and Det Norske Veritas (DNV) approvals.

With mechanical versions G1/2" open port and G1/2" flush DIN 3852 the **DMK 457** is especially suited for viscous, pasty or contaminated media due of the ceramic sensor.

Preferred areas of use are:

Drives
Compressors
Boiler
Pneumatic Control Systems
Oxygen Applications

Fuel and Oil

Water and Sea Water

Input pressure range																			
Nominal pressure gauge	[bar]	-1 … 0	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600
Nominal pressure abs.	[bar]	-	-	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600
Level gauge / abs.	[mH_2O]	-	-	6	10	16	25	40	60	100	160	250	400	600	-	-	-	-	-
Overpressure	[bar]	4	1	2	2	4	4	10	10	20	40	40	100	100	200	400	400	600	800
Burst pressure ≥	[bar]	7	2	4	4	5	5	12	12	25	50	50	120	120	250	500	500	650	880
Vacuum resistance		$P_N \geq 1$ bar: unlimited vacuum resistance $P_N < 1$ bar: on request																	

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V_S = 8 ... 32 V_{DC}
Option IS-protection	2-wire: 4 ... 20 mA / V_S = 10 ... 28 V_{DC}
Performance	
Accuracy[1]	IEC 60770: ≤± 0.5 % FSO
Permissible load	$R_{max} = [(V_S - V_{S\,min}) / 0.02\ A]\Omega$
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Response time	< 10 msec

[1] *accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)*

Thermal effects (Offset and Span) / Permissible temperatures	
Thermal error	≤± 0.2 % FSO / 10 K in compensated range -25 ... 85 °C
Permissible temperatures	medium: -40 ... 125 °C electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to - EN 61326 - Germanischer Lloyd (GL) - Det Norske Veritas (DNV)
Mechanical stability	
Vibration	4 g (according to GL: curve 2 / according to DNV: Class B / basis: IEC 60068-2-6)
Materials	
Pressure port	Standard: stainless steel 1.4404 (316L) option [2]: CuNi10Fe1Mn (sea water resistant) - for $P_N \leq 400$ bar with mech. connection G1/2" DIN 3852, G1/2" EN 837, G1/2" open port, G1/4" DIN 3852, G1/4" EN 837 in combination with housing in CuNi10Fe1Mn
Housing	standard: stainless steel 1.4404 (316L) option [2]: CuNi10Fe1Mn (sea water resistant) - in combination with pressure port in CuNi10Fe1Mn option field housing: stainless steel 1.4404 (316L); with cable gland

Cable sheath	for cable outlet	for submersible version	permissible temperatures
	PVC - cable	PVC - probe cable	-5 … 70 °C
	PUR - cable	PUR - probe cable	-25 … 70 °C
		FEP - probe cable	-25 … 70 °C
		TPE - probe cable	-25 … 125 °C

Seals (media wetted)	standard: FKM option: NBR, FFKM (only for $P_N \leq 100$ bar) others on request
Diaphragm	ceramic Al_2O_3 96 %
Media wetted parts	pressure port, seals, diaphragm

[2] *IS-version on request*

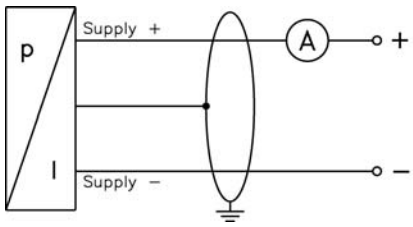
IS-protection (only for 4 … 20 mA / 2-wire)	
Approval DX19-DMK 457	IBExU10ATEX1068X Zone 0: II 1 G Ex ia IIB T4 Ga Zone 20 : II 1 D Ex iaD 20 T85 °C
Safety technical maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i = 105 nF, L_i = 5 µH
Permissible media temperature	in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -20 ... 70 °C
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1µH/m

Miscellaneous	
Option oxygen application	for $P_N \leq 25$ bar: O-ring in special material with oxygen approval (FKM)
Current consumption	max. 25 mA
Weight	approx. 140 g (with ISO 4400)
Installation position	any
Operational life	> 100 x 10^6 pressure cycles
CE-conformity	EMC Directive: 2004/108/EC Pressure Equipment Directive: 97/23/EC (module A) [3]
ATEX-directive	94/9/EC

[3] *This directive is only valid for devices with maximum permissible overpressure > 200 bar*

Wiring diagram

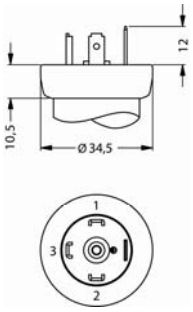
2-wire-system (current)



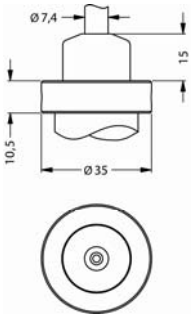
Pin configuration

Electrical connection	ISO 4400	Field housing	Cable colours (DIN 47100)
Supply +	1	IN +	white
Supply –	2	IN -	brown
Shield	ground pin	⏚	yellow / green

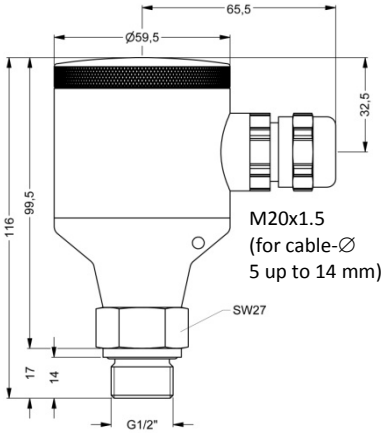
Electrical connections [4] (dimensions in mm)



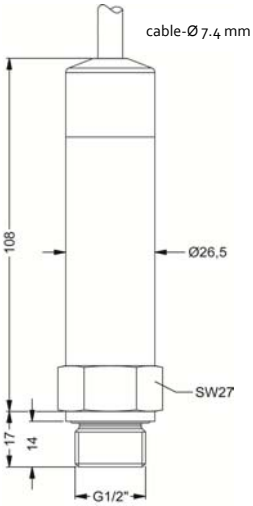
ISO 4400
(IP 65)



cable outlet
cable with air tube [5,6] (IP 68)



universal field housing (IP 67)

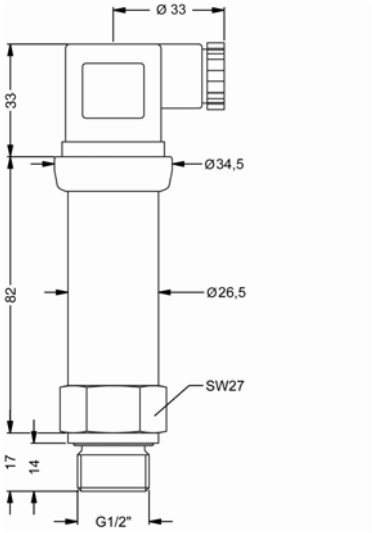


submersible version (IP 68) [6]

[4] *Generally shielded cable has to be used! Cable versions are delivered with shielded cable. For ISO 4400 the use of shielded cable is compulsory.*
[5] *tested at 4 bar or 40 mH_2O for 24 hours*
[6] *different cable types and lengths available, permissible temperature depends on kind of cable, see cable connection*

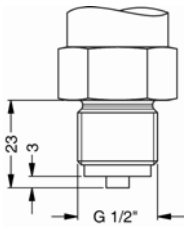
Mechanical connection (dimensions in mm)

Standard

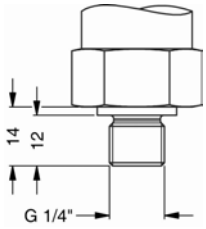


G1/2" DIN 3852

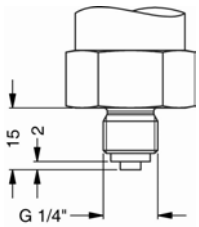
Option



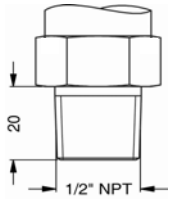
G1/2" EN 837



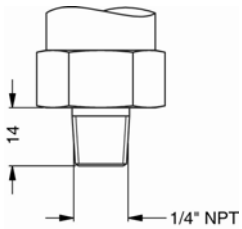
G 1/4" DIN 3852



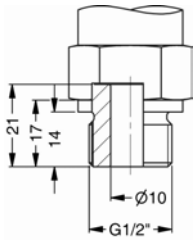
G1/4" EN 837



1/2" NPT



1/4" NPT



G1/2" open port DIN 3852
(up to 40 bar)

DRUCK & TEMPERATUR LEITENBERGER GMBH

Spezifikationsblatt / *specification sheet*

DMK 457

DMK 457 ☐☐☐-☐☐☐☐-☐-☐-☐☐☐-☐☐☐-☐-☐-☐-☐☐☐

Messgröße		
in bar, relativ	5 9 0	
in bar, absolut	5 9 1	
in mH_2O, relativ	5 9 2	
in mH_2O, absolut	5 9 3	
Eingang [mH_2O] [bar]		
4 / 0,40	4 0 0 0	
6 / 0,60	6 0 0 0	
10 / 1,0	1 0 0 1	
16 / 1,6	1 6 0 1	
25 / 2,5	2 5 0 1	
40 / 4,0	4 0 0 1	
60 / 6,0	6 0 0 1	
100 / 10	1 0 0 2	
160 / 16	1 6 0 2	
250 / 25	2 5 0 2	
400 / 40	4 0 0 2	
600 / 60	6 0 0 2	
100	1 0 0 3	
160	1 6 0 3	
250	2 5 0 3	
400	4 0 0 3	
600	6 0 0 3	
-1 ... 0	X 1 0 2	
Sondermessbereiche	9 9 9 9	auf Anfrage
Ausgang		
4 ... 20 mA / 2-Leiter	1	
Ex-Schutz 4 ... 20 mA / 2-Leiter	E	
andere	9	auf Anfrage
Genauigkeit		
0,5 %	5	
andere	9	auf Anfrage
Elektrischer Anschluss		
Stecker und Kabeldose ISO 4400 (für Kabel-∅ 4...6 mm)	G 1 0	
Stecker und Kabeldose ISO 4400 GL [1, 2] (für Kabel-∅ 10...14 mm)	G 0 0	
Stecker und Kabeldose ISO 4400 GL [1, 2] (für Kabel-∅ 4,5...11 mm)	G 0 1	
Kabelausgang [1, 3]	T R 0	
Feldgehäuse Edelstahl	8 8 0	
Tauchfähige Ausführung (1.4404)	T T 0	
Tauchfähige Ausführung (CuNiFe)	T S 0	
andere	9 9 9	auf Anfrage
Mechanischer Anschluss		
G1/2" DIN 3852	1 0 0	
G1/2" EN 837	2 0 0	
G1/4" DIN 3852	3 0 0	
G1/4" EN 837	4 0 0	
G1/2" DIN 3852 offener Anschluss	H 0 0	
1/2" NPT	N 0 0	
1/4" NPT	N 4 0	
andere	9 9 9	auf Anfrage
Dichtung		
FKM	1	
FFKM [4]	7	
Option NBR	5	
andere	9	auf Anfrage
Druckanschluss		
Edelstahl 1.4404 (316L)	1	
Kupfer-Nickel-Legierung (CuNi10Fe1Mn) [5]	K	
andere	9	auf Anfrage
Trennmembrane		
Keramik Al_2O_3 96%	2	
andere	9	auf Anfrage
Sonderausführungen		
Standard	0 0 0	
Sauerstoff-Ausführung [6]	0 0 7	
andere	9 9 9	auf Anfrage

[1] Es ist generell geschirmtes Kabel zu verwenden! Alle Kabelausführungen werden mit geschirmtem Kabel geliefert.
[2] Kabeldose ist GL-approbiert
[3] Kabel in verschiedenen Ausführungen und Längen lieferbar, Temperatureinsatzbereich abhängig vom Kabel
[4] nur für $P_N \leq 100$ bar möglich
[5] optional für Druckbereiche bis 400 bar und mech. Anschlüssen G1/2“ DIN 3852, G1/2“ EN 837, G1/2" offener Anschluss, G1/4" DIN 3852, G1/4" EN 837, in Verbindung mit Gehäuse aus CuNi10Fe1Mn
[6] Sauerstoff-Ausführung mit FKM Dichtung möglich bis 25 bar

DRUCK & TEMPERATUR
LEITENBERGER GMBH

DMK 351P

Pressure Transmitter For The Process Industry

Ceramic Diaphragm

accuracy according to IEC 60770:
Standard: 0.35 % FSO
Option: 0.25 % FSO

Pressure Transmitter

DMK 351P

Nominal pressure:

from 0 … 40 mbar
up to 0 … 20 bar

Output signal:

2-wire: 4 ... 20 mA
3-wire: 0 ... 10 V
others on request

Special characteristics:

- ► hygienical version
- ► different process connections (G1 1/2", diary pipe, clamp, etc.)
- ► high overpressure capability

Optional versions:

- ► IS-version
  Ex ia = intrinsically safe for gases and dusts
- ► diaphragm 99.9 % Al_2O_3
- ► customer specific versions
  e.g. special pressure ranges

CE Ex

The pressure transmitter **DMK 351P** has been designed for measuring small system pressure in the food industry and chemical industry.

The **DMK 351P** is based on a own-developed capacitive ceramic sensor element. It features high overpressure resistance and high resistance against most of aggressive media.

A variety of different process and electrical connections and an intrinsically safe version complete the range of possibilities.

Preferred areas of use are:

Food Industry

Chemical and petrochemical industry

Preferred used for:

Paint and Varnish

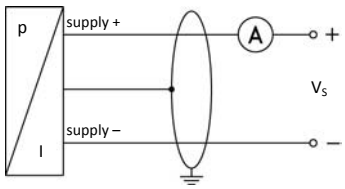
Viscous and Pasty Media

Pressure ranges																
Nominal pressure gauge	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Nominal pressure absolut	[bar]	on request					0.4	0.6	1	1.6	2.5	4	6	10	16	20
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	45
Permissible vacuum	[bar]	-0.2		-0.3		-0.5				-1						

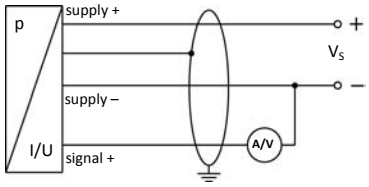
Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V_S = 9 ... 32 V_{DC}
Option IS-protection	2-wire: 4 ... 20 mA / V_S = 14 ... 28 V_{DC}
Option 3-wire	3-wire: 0 ... 10 V / V_S = 12.5 ... 32 V_{DC}
Performance	
Accuracy	standard: ≤± 0.35 % FSO option: ≤± 0.25 % FSO
Long term stability	≤± 0.1 % FSO / year
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S\,min}) / 0.02]$ Ω voltage 3-wire: R_{min} = 10 kΩ
Turn-on time	700 msec
Mean measuring rate	5 / sec
Response time	mean response time: ≤ 200 msec max. response time: 380 msec
[1] *accuracy according to IEC 60770 - limit point adjustment (non-linearity, hysterisis, repeatability*	
Thermal errors / -Permissible temperatures	
Tolerance band	≤± 0.1 % FSO / 10 K in compensated range - 20 ... 80°C
Permissible temperatures	medium: -40 ... 125 °C electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Mechanical stability	
Vibration	10 g RMS (20 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	100 g / 1 msec according to DIN EN 60068-2-27
Materials	
Pressure port	stainless steel 1.4404
Housing	standard: stainless steel 1.4404 compact field housing: stainless steel 1.4435
Seal (media wetted)	FKM -40 ... 125 °C EPDM -40 ... 125 °C others on request
Diaphragm	standard: ceramic Al_2O_3 96 % option: ceramic Al_2O_3 99.9 %
Media wetted parts	pressure port, seals, diaphragm
IS-protection (only for 4 ... 20 mA / 2-wire)	
Approval DX 14-DMK 351 P	male (connector)-version: zone 0: II 1 G EEx ia IIC T4 zone 20: II 1 D EEx IP6X T=85°C cable-version: zone 0: II 1 G EEx ia IIB T4 zone 20: II 1 D EEX IP6X T=85°C
Safety technical maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i = 27 nF, L_i = 5 µH
Max. permissible temperature for environment	zone 0: -20 ... 60 °C for p_{atm} 0.8 bar up to 1.1 bar zone 1: -25 ... 70 °C
Connecting cables (by factory)	capacity: signal line / shield also signal line / signal line: 160 pF/m inductance: signal line / shield also signal line / signal line: 1 µH/m
Miscellaneous	
Current consumption	max. 21 mA
Weight	min. 200 g
Installation position	any
Operational life	> 100 x 10^6 loading cycles
CE-conformity	EMC-directive: 2004/108/EC

Wiring diagram

2-wire-system (current)



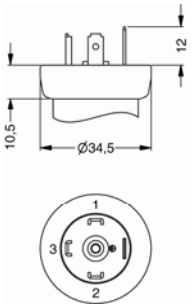
3-wire-system (current / voltage)



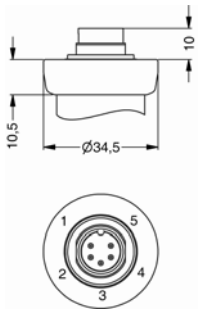
Pin configuration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 (4-pin)	field housing	cable colour (DIN 47100)
Supply +	1	3	1	IN +	wh (white)
Supply –	2	4	2	IN –	bn (brown)
Signal + (only 3-wire)	3	1	3	OUT +	gn (green)
Shield	ground pin	5	4	⏚	gn/ye (yellow / green)

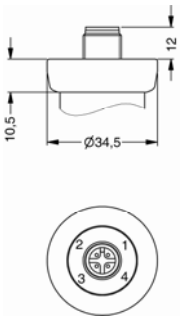
Electrical connections (dimensions in mm)



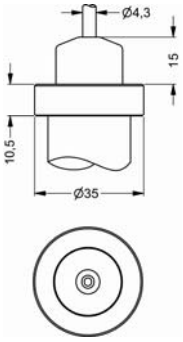
ISO 4400 (IP 65)



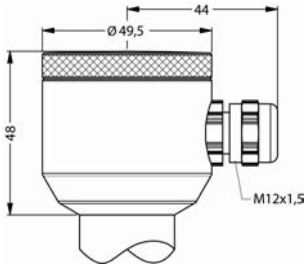
Binder series 723 (IP 67)



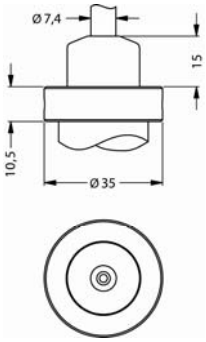
M12x1 4-pin (IP 67)



cable outlet with PVC-cable (IP 67) [2]



compact field housing (IP 67)

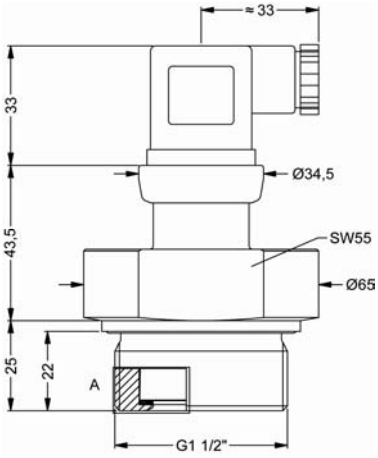


cable outlet, cable with ventilation tube (IP 68) [3]

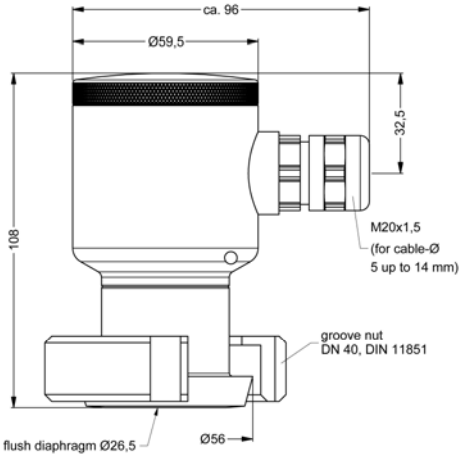
⇨ **universal stainless steel field housing 1.4404 with cable gland M20x1.5 (ordering code 880) and other versions on request**

[2] *standard: 2 m PVC-cable without ventilation tube (permissible temperature: -5 … 70 °C)*
[3] *different cable types and lengths available, permissible temperature depends on kind of cable*

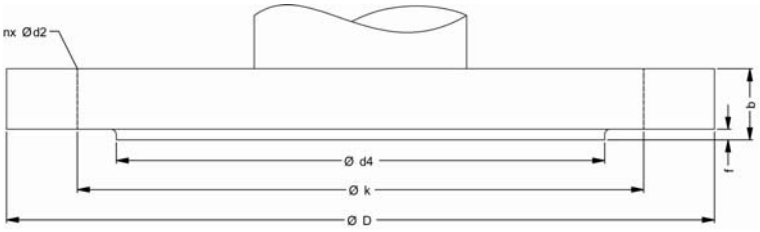
Dimensions (in mm)



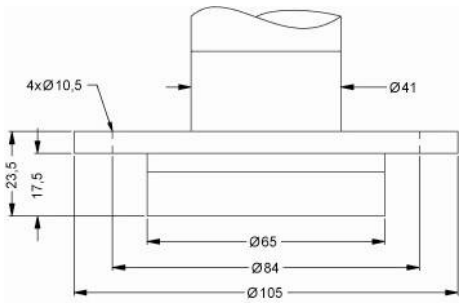
G1 1/2" EN 837
with field housing



field housing
with dairy pipe (DIN 11851)

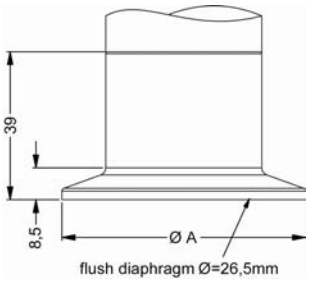


flange [3] (DIN 2501)



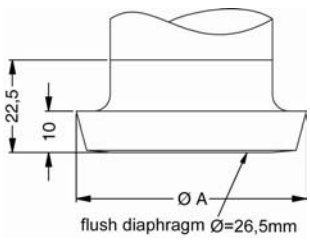
flange DRD [4]

dimensions in mm				
size	DN25/PN40	PN40/PN40	DN50/PN40	DN80/PN16
D	115	150	165	200
k	85	110	125	160
d4	68	88	102	138
b	18	18	20	20
f	2	3	3	3
n	4	4	4	8
d2	14	18	18	18



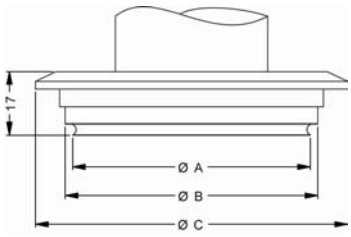
Clamp (ISO 2852)

dimensions in mm			
size	1"	1 1/2"	2"
A	50,5	50,5	64



dairy pipe (DIN 11851)

dimensions in mm			
size	DN25	DN40	DN50
A	44	56	68,5



Varivent

dimensions in mm		
size	P41	P63
A	64	91
B	68	96,5
C	84	113

[3] *DN80/PN16 possible for nominal pressure ranges $P_N \leq 16$ bar*
[4] *mounting flange is included in the delivery (already pre-assembled)*

DMK 351P

DMK 351P ☐☐☐-☐☐☐☐-☐-☐-☐☐☐-☐☐☐-☐-☐-☐-☐☐☐

Messgröße			
relativ		2 9 5	
absolut [1]		2 9 6	
Eingang [mH$_2$O]	[bar]		
0,4	0,04	0 4 0 0	
0,6	0,06	0 6 0 0	
1,0	0,10	1 0 0 0	
1,6	0,16	1 6 0 0	
2,5	0,25	2 5 0 0	
4,0	0,40	4 0 0 0	
6,0	0,60	6 0 0 0	
10	1,0	1 0 0 1	
16	1,6	1 6 0 1	
25	2,5	2 5 0 1	
40	4,0	4 0 0 1	
60	6,0	6 0 0 1	
100	10	1 0 0 2	
160	16	1 6 0 2	
200	20	2 0 0 2	
Sondermessbereiche		9 9 9 9	auf Anfrage
Ausgang			
4 ... 20 mA / 2-Leiter		1	
0 ... 10 V / 3-Leiter		3	
Ex-Schutz 4 ... 20 mA / 2-Leiter		E	
andere		9	auf Anfrage
Genauigkeit			
Standard	0,35 %	3	
Option	0,25 %	2	
andere		9	auf Anfrage
Elektrischer Anschluss			
Stecker und Kabeldose ISO 4400		1 0 0	
Kabelausgang mit PVC-Kabel [2]		T A 0	
Binder Serie 723		2 0 0	
Kompakt-Feldgehäuse		8 5 0	
Kabelausgang		T R 0	
Stecker M12x1 (4-polig) / Metall		M 1 0	
andere		9 9 9	auf Anfrage
Mechanischer Anschluss			
G 1 1/2" frontbündig (DIN 3852)		M 0 0	
Clamp 1 1/2" (ISO 2852)		C 6 2	
Clamp 2" (ISO 2852)		C 6 3	
Milchrohr DN 40 (DIN 11851) [3]		M 7 5	
Milchrohr DN 50 (DIN 11851) [3]		M 7 6	
Varivent® DN 40/50		P 4 1	auf Anfrage
Flansch DN 25 / PN 40 (DIN 2501)		F 2 0	auf Anfrage
Flansch DN 50 / PN 40 (DIN 2501)		F 2 3	auf Anfrage
Flansch DN 80 / PN 16 (DIN 2501) [4]		F 1 4	auf Anfrage
andere		9 9 9	auf Anfrage
Dichtung			
FKM		1	
EPDM		3	
andere		9	auf Anfrage
Druckanschluss			
Edelstahl 1.4404 (316L)		1	
andere		9	auf Anfrage
Trennmembrane			
Keramik Al_2O_3 96 %		2	
Keramik Al_2O_3 99,9 %		C	
andere		9	auf Anfrage
Sonderausführungen			
Standard		0 0 0	
andere		9 9 9	auf Anfrage

[1] Absolutdruck von 0,04 bar bis 0,25 bar auf Anfrage
[2] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch
[3] Nutüberwurfmutter für Milchrohr ist im Lieferumfang enthalten (bereits vormontiert)
[4] DN80/PN16 möglich für Nenndruckbereich bis 16 bar

DRUCK & TEMPERATUR
LEITENBERGER GMBH

17.609 G

OEM Pressure Transmitter

Application:

- refrigeration

Characteristics:

- stainless steel sensor, welded
- accuracy 0.5 % FSO according to IEC 60770
- nominal pressure ranges from
  0 … 6 bar up to 0 … 60 bar
  -1 … 6 bar up to -1 … 60 bar

Technical Data

CE

Pressure ranges							
Nominal pressure gauge	[bar]	6	10	16	25	40	60
Overpressure	[bar]	14	35	35	70	140	140
Burst pressure ≥	[bar]	28	70	70	140	280	280
Vacuum resistance		unlimited					

Vacuum ranges							
Nominal pressure gauge	[bar]	-1 ... 6	-1 ... 10	-1 ... 16	-1 ... 25	-1 ... 40	-1 ... 60
Overpressure	[bar]	14	35	35	70	140	140
Burst pressure	[bar]	28	70	70	140	280	280

Output signal / Supply			
Standard	2-wire:	4 ... 20 mA	/ V_S = 8 ... 32 V_{DC}
Options 3-wire	3-wire:	0 ... 10 V	/ V_S = 14 ... 30 V_{DC}
	3-wire ratiometric:	V_{Sig} = 0.5 ... 4.5 V	/ V_S = 5 ± 0.5 V_{DC}

Performance		
Accuracy [1]	≤± 0.5 % FSO	
Permissible load	2-wire: R_{max} = [(V_S – V_S min) / 0.02] Ω	3-wire: R_{min} = 10 kΩ
Influence effects	supply: 0.05 % FSO / 10 V	load: 0.05 % FSO / kΩ
Response time	2-wire: ≤ 10 msec	3-wire: ≤ 3 msec
Measuring rate	1 kHz	

[1] *accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)*

Thermal effects (Offset and Span) / Permissible temperatures			
Thermal error	≤± 0.3 % FSO / 10 K	in compensated range 0 ... 70 °C	
Permissible temperatures	medium: -40 ... 125 °C	electronics / environment: -40 ... 85 °C	storage: -40 ... 85 °C

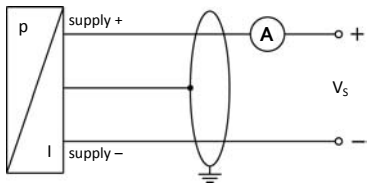
Electrical protection		
Short-circuit protection	permanent	3-wire ratiometric: none
Reverse polarity protection	no damage, but also no function	
Electromagnetic protection	emission and immunity according to EN 61326	

Mechanical stability		
Vibration	20 g, 25 Hz … 2 kHz	according to DIN EN 60068-2-6
Shock	500 g / 1 msec	according to DIN EN 60068-2-27

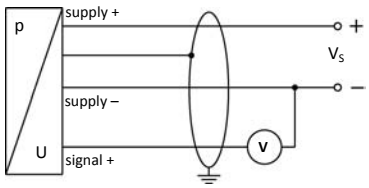
Materials	
Pressure port	stainless steel 1.4571
Housing	stainless steel 1.4301
Seal of sensor	none (welded)
Diaphragm	stainless steel 1.4542
Media wetted parts	pressure port, diaphragm
Miscellaneous	
Mechanical connection	7/16"-20 UNF
Weight	approx. 120 g
Current consumption	2-wire: max. 25 mA 3-wire ratiometric: typ. 3 mA 3-wire voltage: typ. 5 mA (short circuit current: max. 20 mA)
Long term stability	≤± 0.3 % FSO / year at reference conditions
Operational life	> 100 x 10^6 pressure cycles
CE-conformity	EMC Directive: 2004/108/EC

Wiring diagrams

2-wire-system (current)



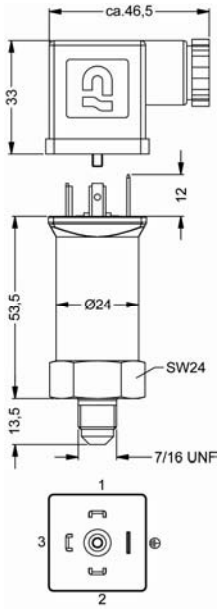
3-wire-system (voltage)



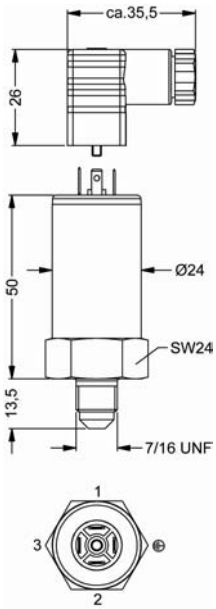
Pin configuration

Electrical connection	ISO 4400	Micro (contact distance 9.4 mm)	M12x1 (4-pin), plastic	cable colours (DIN 47100)
Supply +	1	1	1	wh (white)
Supply –	2	2	2	bn (brown)
Signal + (for 3-wire)	3	3	3	gn (green)
Shield	ground pin	ground pin	4	gn/ye (green / yellow)

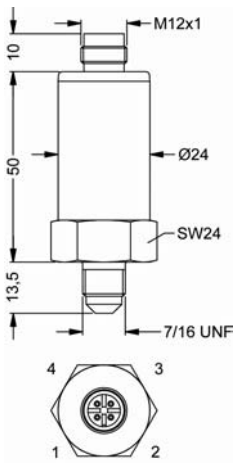
Dimensions (in mm)



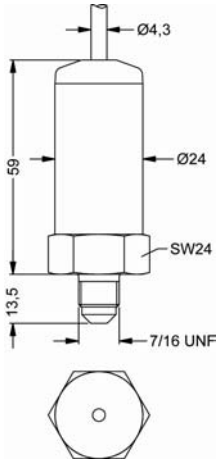
ISO 4400
(IP 65)



Micro, contact
distance 9.4 mm (IP 65)



M12x1, 4-pin
(IP 67)



cable outlet with
PVC-cable (IP 67) [2,3]

[2] *standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)*
[3] *different cable types and lengths available, permissible temperature depends on kind of cable*

17.609 G

17.609 G -□□□□-□-□-□-□□□-□□□-□-□□□

Eingang [bar]																		
6	6	0	0	1														
10	1	0	0	2														
16	1	6	0	2														
25	2	5	0	2														
40	4	0	0	2														
60	6	0	0	2														
-1 ... 6	V	6	0	2														
-1 ... 10	V	1	0	3														
-1 ... 16	V	1	6	3														
-1 ... 25	V	2	5	3														
-1 ... 40	V	4	0	3														
-1 ... 60	V	6	0	3														
Sondermessbereiche	9	9	9	9														auf Anfrage
Messgröße																		
relativ					R													
Ausgang																		
4 ... 20 mA / 2-Leiter						1												
0 ... 10 V / 3-Leiter						3												
0,5 ... 4,5 V / 3-Leiter ratiometrisch						R												
Genauigkeit																		
0,5 % FSO							5											
andere							9											auf Anfrage
Elektrischer Anschluss																		
Stecker und Kabeldose ISO 4400								1	0	0								
Stecker und Kabeldose Micro								C	1	0								
Stecker M12x1 (4-polig), Kunststoff								M	0	0								
Kabelausgang mit PVC-Kabel								T	A	0								
andere								9	9	9								auf Anfrage
Mech. Anschluss / Dichtung																		
7/16"-20 UNF											U	0	0	2				
andere											9	9	9	9				auf Anfrage
Sonderausführungen																		
Standard															0	0	0	
andere															9	9	9	auf Anfrage

[1] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch (Temperatureinsatzbereich: -5 … 70 °C)

26.600 G

OEM Pressure Transmitter Standard

Applications:

- mechanical and plant engineering
- general industrial applications

Characteristics:

- ceramic sensor
- accuracy 0.5 % FSO according to IEC 60770
- nominal pressure ranges from 0 … 1 bar up to 0 … 400 bar
- option: oil and grease free version

CE

Technical Data

Input pressure range																
Nominal pressure gauge	[bar]	-1…0 [1]	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400
Nominal pressure abs.	[bar]	-	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400
Overpressure	[bar]	3	3	5	5	12	12	20	50	50	120	120	200	400	400	650
Burst pressure ≥	[bar]	4	4	7	7	15	15	25	70	70	150	150	250	500	500	700
Vacuum resistance		unlimited														
[1] *for this pressure range accuracy is ≤1 % FSO IEC 60770*																

Output signal / Supply			
Standard	2-wire:	4 ... 20 mA	/ V_S = 8 ... 32 V_{DC}
Options	3-wire:	0 ... 10 V	/ V_S = 14 ... 30 V_{DC}
	3-wire ratiometric:	V_{Sig} = 0.5 … 4.5 V	/ V_S = 5 ± 0.5 V_{DC}
Performance			
Accuracy [2]	≤± 0.5 % FSO		
Permissible load	2-wire: $R_{max} = [(V_S - V_{S\,min}) / 0.02]$ Ω		3-wire: R_{min} = 10 kΩ
Influence effects	supply: 0.05 % FSO / 10 V		load: 0.05 % FSO / kΩ
Response time	2-wire: ≤ 10 msec		3-wire: ≤ 3 msec
Measuring rate	1 kHz		
[2] *accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)*			
Thermal effects (Offset and Span) / Permissible temperatures			
Thermal error	≤± 0.3 % FSO / 10 K	in compensated range: -25 ... 85 °C	
Permissible temperatures	medium: -25 ... 125 °C	electronics / environment: -25 ... 85 °C	storage: -40 ... 85 °C
Electrical protection			
Short-circuit protection	permanent	3-wire ratiometric: none	
Reverse polarity protection	no damage, but also no function		
Electromagnetic protection	emission and immunity according to EN 61326		
Mechanical stability			
Vibration	10 g, 25 Hz … 2 kHz	according to DIN EN 60068-2-6	
Shock	500 g / 1 msec	according to DIN EN 60068-2-27	

26.600 G

OEM Pressure Transmitter

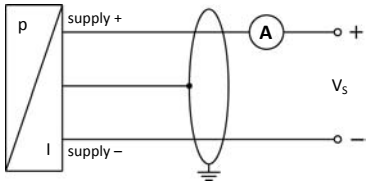
Technical Data

Materials		
Pressure port / housing	stainless steel 1.4301	
Seals (media wetted)	FKM	others on request
Diaphragm	ceramics Al_2O_3 96 %	
Media wetted parts	pressure port, seals, diaphragm	
Miscellaneous		
Weight	approx. 120 g	
Current consumption	2-wire: max. 25 mA 3-wire voltage: typ. 5 mA (short circuit current: max. 20 mA)	3-wire ratiometric: typ. 1.5 mA
Long term stability	≤± 0.3 % FSO / year at reference conditions	
Operational life	> 100 x 10^6 cycles	
CE-conformity	EMC Directive: 2004/108/EC	Pressure Equipment Directive: 97/23/EC (module A) [3]

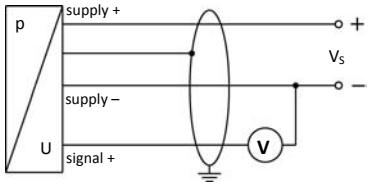
[3] *This directive is only valid for devices with maximum permissible overpressure > 200 bar*

Wiring diagrams

2-wire-system (current)



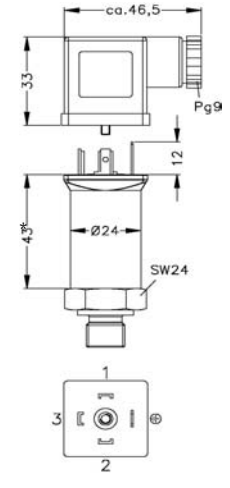
3-wire-system (voltage)



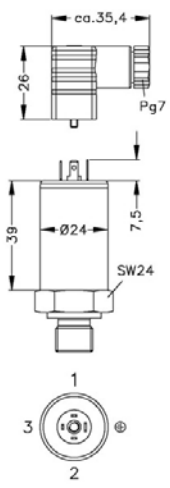
Pin configuration

Electrical connection	ISO 4400	Micro (contact distance 9.4 mm)	M12x1 (4-pin), plastic	cable colours (DIN 47100)
Supply +	1	1	1	wh (white)
Supply –	2	2	2	bn (brown)
Signal + (for 3-wire)	3	3	3	gn (green)
Shield	ground pin	ground pin	4	gn/ye (green / yellow)

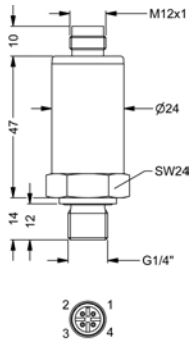
Electrical connections (dimensions in mm)



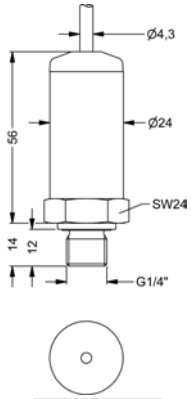
ISO 4400
(IP 65)



Micro, contact
distance 9.4 mm (IP 65)



M12x1, 4-pin
(IP 67)

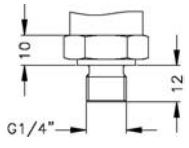


cable outlet with
PVC-cable (IP 67) [4,5]

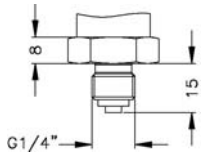
* pressure range P_N = 400 bar: total length increases by 12 mm.

[4] *standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)*
[5] *different cable types and lengths available, permissible temperature depends on kind of cable*

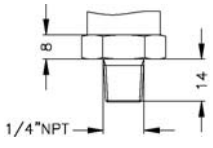
Mechanical connection (dimensions in mm)



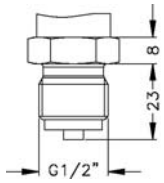
G1/4" DIN 3852



G1/4" EN 837



1/4" NPT



G1/2" EN 837

DRUCK & TEMPERATUR
LEITENBERGER GMBH

Spezifikationsblatt / *specification sheet*

26.600 G

26.600 G -□□□□-□-□-□-□□□-□□□-□-□□□

Eingang	**[bar]**																			
1,0		1	0	0	1															
1,6		1	6	0	1															
2,5		2	5	0	1															
4,0		4	0	0	1															
6,0		6	0	0	1															
10		1	0	0	2															
16		1	6	0	2															
25		2	5	0	2															
40		4	0	0	2															
60		6	0	0	2															
100		1	0	0	3															
160		1	6	0	3															
250		2	5	0	3															
400		4	0	0	3															
-1 ... 0 [1]		X	1	0	2															
Sondermessbereiche		9	9	9	9															auf Anfrage
Messgröße																				
relativ						R														
absolut						A														
Ausgang																				
4 ... 20 mA / 2-Leiter							1													
0 ... 10 V / 3-Leiter							3													
0,5 ... 4,5 V / 3-Leiter ratiometrisch							R													
andere							9													auf Anfrage
Genauigkeit																				
0,5 % FSO								5												
andere								9												auf Anfrage
Elektrischer Anschluss																				
Stecker und Kabeldose ISO 4400									1	0	0									
Stecker und Kabeldose Micro									C	1	0									
Stecker M12x1 (4-polig), Kunststoff									M	0	0									
Kabelausgang mit PVC-Kabel [2]									T	A	0									
andere									9	9	9									auf Anfrage
Mechanischer Anschluss																				
G1/4" DIN 3852												3	0	0						
G1/4" EN 837												4	0	0						
1/4" NPT												N	4	0						
G1/2" EN 837												2	0	0						
andere												9	9	9						auf Anfrage
Dichtung																				
FKM															1					
andere															9					auf Anfrage
Sonderausführungen																				
Standard																0	0	0		
öl- und fettfrei																0	0	8		
andere																9	9	9		auf Anfrage

[1] für Nenndruck rel. -1 ... 0 bar beträgt die Genauigkeit 1 % FSO

[2] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch (Temperatureinsatzbereich: -5 … 70 °C)

DRUCK & TEMPERATUR
LEITENBERGER GMBH

DMP 304

Industrial Pressure Transmitter for Ultra High Pressure

accuracy according to IEC 60770:
standard: 0.5 % FSO
option: 0.25 % FSO

Nominal pressure

from 0 ... 2 000 bar up to 0 ... 6 000 bar

Output signals

2-wire: 4 ... 20 mA
3-wire: 0 … 10 V (on request)

Special characteristics

- adjustability of offset and span via front sided potentiometers
- pressure port 9/16" UNF
- 80 % calibration signal with MIL / Bendix plug

Optional versions

- IS-version:
  Ex ia = intrinsically safe for gases
- accuracy according to IEC 60770:
  0.25 % FSO
- pressure port M20x1.5 and M16x1.5

The ultra-high-pressure transmitter type **DMP 304** has been especially designed for applications with highest demand on precision and reliability. **DMP 304** series is based on a compensated strain gauge, bonded onto a stainless steel diaphragm.

Due to the rugged stainless steel housing usage under extreme conditions and in IS-required areas is no problem.

Preferred areas of use are

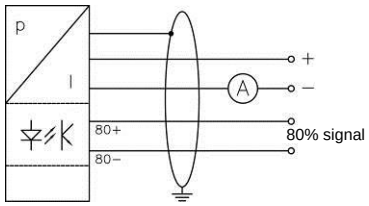
- hydraulic circuits
- water jet cutting
- high pressure applications in chemical and petrochemical industry

Input pressure range					
Nominal pressure gauge	[bar]	2 000	4 000	5 000	6 000
Overpressure	[bar]	3 000	5 000	6 000	7 000
Burst pressure	[bar]	4 000	8 000	10 000	10 000

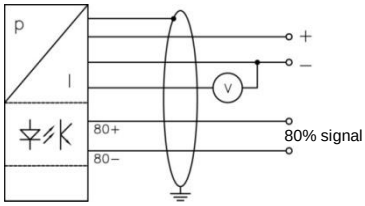
Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V_S = 10 ... 30 V_{DC}
IS-protection	2-wire: 4 ... 20 mA / V_S = 10 ... 28 V_{DC}
Option 3-wire (on request)	3-wire: 0 ... 10 V / V_S = 14 ... 36 V_{DC}
Performance	
Accuracy[1]	standard: ≤ ± 0.50 % FSO option: ≤ ± 0.25 % FSO (on request)
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S\ min}) / 0.02\ A]\ \Omega$ voltage 3-wire: R_{min} = 10 kΩ
Influence effects	supply 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Long term stability	≤ ± 0.2 % FSO / year at reference conditions
Response time	< 2.5 msec
Adjustability	Via a front sided potentiometer is an adjustment of the offset possible within the range of ± 5 % of the nominal pressure range, without an influence of characteristic curve and accuracy.
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)	
Calibration (only with MIL / Bendix plug)	
Calibration signal accuracy	≤ ± 0.25 % FSO
Calibration	80 % FSO calibration (e.g. for 4 ... 20 mA / 2-wire: signal = 0.8*16 mA + 4 mA = 16.8 mA)
Thermal effects (Offset and Span)	
Thermal error	≤ ± 0.2 % FSO / 10 K in compensated range -20 ... 85 °C
Permissible temperatures	
Permissible temperatures	medium: -40 ... 85 °C electronics / environment: -25 ... 85 °C storage: -40 ... 85 °C
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Mechanical stability	
Vibration	10 g RMS (20 ... 2000 Hz)
Shock	100 g / 11 msec
Materials	
Pressure port / diaphragm	stainless steel 1.4548 (17-4 PH)
Housing	standard: stainless steel 1.4301 (304)
Seals (media wetted)	none (welded version)
Media wetted parts	pressure port, diaphragm
IS-protection (only for 4 ... 20 mA / 2-wire)	
Approval DX17-DMP 304	zone 0: II 1G Ex ia IIC T4
Safety technical maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar zone 1 and higher: -25 ... 70 °C
Connecting cables (by factory)	cable capacity: signal line/shield as well as signal line/signal line: 160 pF/m cable inductance: signal line/shield as well as signal line/signal line: 1 µH/m
Miscellaneous	
Insulation strength / resistance	standard: insulation strength 100 MΩ @ 35 V IS-version: insulation resistance 100 MΩ @ 35 V_{DC} 100 MΩ @ 500 V_{AC} (relative to housing)
Current consumption	2-wire signal output current: max. 28 mA 3-wire signal output voltage: max. 15 mA
Weight	approx. 260 g
Installation position	any
CE-conformity	EMC Directive: 2004/108/EC Pressure Equipment Directive: 97/23/EC (module A)

Wiring diagrams

2-wire-system (current)



3-wire-system (voltage)



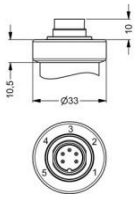
Pin configuration

Electrical connections	Binder 723 (5-pin)	M12x1 (4-pin)	ISO 4400	cable colours (DIN 47100)
Supply +	3	1	1	wh (white)
Supply –	4	2	2	bn (brown)
Signal + (only for 3-wire)	1	3	3	gn (green)
Shield	5	4	pin	gn/ye (green / yellow)

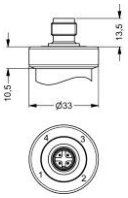
Pin configuration MIL / Bendix plug (optional)

Version	Pin A	Pin B	Pin C	Pin D	Pin E	Pin F
2-wire current signal 4 ... 20 mA	supply +/ signal +	supply -/ signal -	-	-	calibration +	calibration -
3-wire	signal +	supply - / signal - / calibration -	supply +	-	-	calibration +

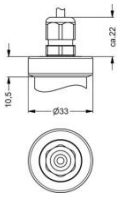
Electrical connections (dimensions in mm)



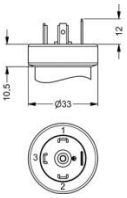
Binder series 723 (IP 67)



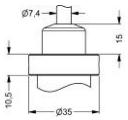
M12x1 4-pin (IP 67)



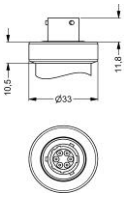
cable outlet
with PVC-cable (IP 67)[2]



ISO 4400 (IP 65)



cable outlet (IP 67)[3]

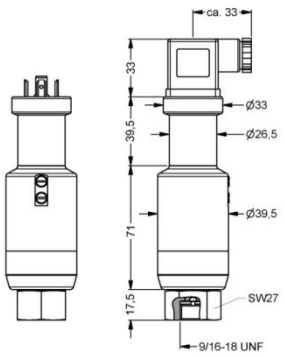


MIL / Bendix plug
(Typ PT 02 A 10-6 P)

[2] *standard: 2 m PVC-cable without air tube (permissible temperature: -5 ... 70 °C)*
[3] *different cable types and lengths available, permissible temperature depends on kind of cable*

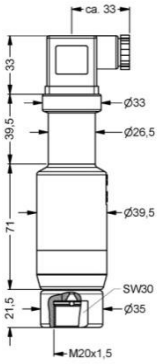
Mechanical connections (dimensions in mm)

Standard

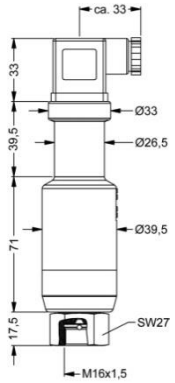


9/16“ UNF internal thread

Option



M20x1,5 internal thread



M16x1,5 internal thread

Spezifikationsblatt / specification sheet

DMP 304

DMP 304 ☐☐☐-☐☐☐☐-☐-☐-☐☐☐-☐☐☐-☐☐☐

Deutsch	English	Code		
Messgröße	**Pressure**			
relativ	gauge	2 2 0		
Eingang [bar]	**Input [bar]**			
2 000	2 000	2 0 0 4		
4 000	4 000	4 0 0 4		
5 000	5 000	5 0 0 4		
6 000	6 000	6 0 0 4		
Sondermessbereiche	customer	9 9 9 9	auf Anfrage	consult
Ausgang	**Output**			
4 … 20 mA / 2-Leiter	4 … 20 mA / 2-wire	1		
Ex-Schutz 4 … 20 mA / 2-Leiter	Intrinsic safety 4 … 20 mA / 2-wire	E		
0 … 10 V / 3-Leiter	0 … 10 V / 3-wire	3	auf Anfrage	consult
andere	customer	9	auf Anfrage	consult
Genauigkeit	**Accuracy**			
Standard 0,5 %	standard 0.5 %	5		
Option 0,25 %	option 0.25 %	2	auf Anfrage	consult
andere	customer	9	auf Anfrage	consult
Elektrischer Anschluss	**Electrical connection**			
Stecker und Kabeldose ISO 4400	Male and female plug ISO 4400	1 0 0		
Stecker Binder Serie 723 (5-polig)	Male plug Binder series 723 (5-pin)	2 0 0		
Kabelausgang mit PVC-Kabel	Cable outlet with PVC-cable [1]	T A 0		
Kabelausgang	Cable outlet [2]	T R 0		
Stecker M12x1 (4-polig), Metall	Male plug M12x1 (4-pin), metal	M 1 0		
MIL-/Bendix (Typ PT 02 A 10-6 P)	MIL-/Bendix (Typ PT 02 A 10-6 P)	B G 0	auf Anfrage	consult
andere	customer	9 9 9	auf Anfrage	consult
Mechanischer Anschluss	**Mechanical connection**			
9/16" UNF Innengewinde	9/16" UNF internal thread	V 0 0		
M16x1,5 Innengewinde	M16x1.5 internal thread	P 0 0		
M20x1,5 Innengewinde	M20x1.5 internal thread	D 2 8		
andere	customer	9 9 9	auf Anfrage	consult
Sonderausführungen	**Special version**			
verstellbar	adjustable	0 4 1		
andere	customer	9 9 9	auf Anfrage	consult
Preise EXW Thierstein, ausschl. Verpackung	**Prices EXW Thierstein, excluding package**			

[1] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch (Temperatu standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 … 70 °C), optionally cable with ventilation tube

[2] Kabel in verschiedenen Ausführungen und Längen lieferbar (Ter different cable types and lengths deliverable (permissible temperature depends on kind of cable)

DRUCK & TEMPERATUR
LEITENBERGER GMBH

DMP 331

Industrial Pressure Transmitter for Low Pressure

Stainless Steel Sensor

accuracy according to IEC 60770:
standard: 0.35 % FSO
option: 0.25 / 0.1 % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 60 bar

Output signals

2-wire: 4 ... 20 mA
3-wire: 0 … 20 mA / 0 … 10 V
others on request

Special characteristic

- perfect thermal behaviour
- excellent long term stability
- pressure port
  G 1/2" flush from 100 mbar

Optional versions

- IS-version
  Ex ia = intrinsically safe for gases and dusts
- SIL 2-according to IEC 61508 / IEC 61511
- pressure sensor welded
- customer specific versions

The pressure transmitter **DMP 331** can be used in all industrial areas when the medium is compatible with stainless steel 1.4404 (316 L) or 1.4435 (316 L). Additional are different elastomer seals as well as a helium tested welded version available.

The modulare concept of the device allows to combine different stainless steel sensors and electronic modules with a variety of electrical and mechanical versions.Thus a diversity of variations is created, meeting almost all requirements in industrial applications.

Preferred areas of use are

- Plant and Machine Engineering
- Environmental Engineering (water - sewage - recycling)
- Energy Industry

Input pressure range									
Nominal pressure gauge	[bar]	-1…0	0.10	0.16	0.25	0.40	0.60	1	1.6
Nominal pressure abs.	[bar]	-	-	-	-	0.40	0.60	1	1.6
Overpressure	[bar]	5	0.5	1	1	2	5	5	10
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15

Nominal pressure gauge / abs.	[bar]	2.5	4	6	10	16	25	40	60
Overpressure	[bar]	10	20	40	40	80	80	105	105
Burst pressure ≥	[bar]	15	25	50	50	120	120	210	210
Vacuum resistance		P_N ≥ 1 bar: unlimited vacuum resistance P_N < 1 bar: on request							

Output signal / Supply			
Standard	2-wire: 4 ... 20 mA / V_S = 8 ... 32 V_{DC}	SIL-version: V_S = 14 … 28 V_{DC}	
Option IS-protection	2-wire: 4 ... 20 mA / V_S = 10 ... 28 V_{DC}	SIL-version: V_S = 14 … 28 V_{DC}	
Options 3-wire	3-wire: 0 ... 20 mA / V_S = 14 ... 30 V_{DC} 0 ... 10 V / V_S = 14 ... 30 V_{DC}		
Performance			
Accuracy [1]	standard: nominal pressure < 0.4 bar: ≤ ± 0.5 % FSO nominal pressure ≥ 0.4 bar: ≤ ± 0.35 % FSO option 1: nominal pressure ≥ 0.4 bar: ≤ ± 0.25 % FSO option 2: for all nominal pressure: ≤ ± 0.1 % FSO		
Permissible load	current 2-wire: R_{max} = [(V_S – V_S min) / 0.02 A] Ω current 3-wire: R_{max} = 500 Ω voltage 3-wire: R_{min} = 10 kΩ		
Influence effects	supply: 0.05 % FSO / 10 V	load: 0.05 % FSO / kΩ	
Long term stability	≤ ± 0.1 % FSO / year at reference conditions		
Response time	2-wire: ≤ 10 msec	3-wire: ≤ 3 msec	
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)			

Thermal effects (Offset and Span)			
Nominal pressure P_N [bar]	-1 … 0	< 0.40	≥ 0.40
Tolerance band [% FSO]	≤ ± 0.75	≤ ± 1	≤ ± 0.75
in compensated range [°C]	-20 ... 85	0 ... 70	-20 … 85

Permissible temperatures		
Permissible temperatures	medium: -40 ... 125 °C electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C	
Electrical protection		
Short-circuit protection	permanent	
Reverse polarity protection	no damage, but also no function	
Electromagnetic compatibility	emission and immunity according to EN 61326	
Mechanical stability		
Vibration	10 g RMS (25 ... 2000 Hz)	according to DIN EN 60068-2-6
Shock	500 g / 1 msec	according to DIN EN 60068-2-27
Materials		
Pressure port	stainless steel 1.4404 (316 L)	
Housing	stainless steel 1.4404 (316 L)	
Option compact field housing	stainless steel 1.4305 (303), cable gland brass, nickel plated	others on request
Seals (media wetted)	standard: FKM options: EPDM welded version [2]	others on request
Diaphragm	stainless steel 1.4435 (316 L)	
Media wetted parts	pressure port, seals, diaphragm	
[2] welded version only with pressure ports according to EN 837		
Explosion protection (only for 4 … 20 mA / 2-wire)		
Approvals DX19-DMP 331	**IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X** zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T 85°C Da	
Safety technical maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i ≈ 0 nF, L_i ≈ 0 µH, the supply connections have an inner capacity of max. 27 nF to the housing	
Permissible temperatures for environment	in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -20 ... 70 °C	
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1µH/m	

Miscellaneous

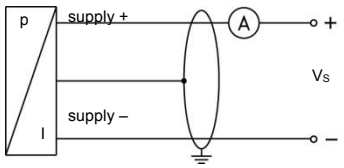
Option SIL[3] 2	according to IEC 61508 / IEC 61511
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 200 g
Installation position	any[4]
Operational life	> 100 x 10^6 pressure cycles
CE-conformity	EMC Directive: 2004/108/EC
ATEX Directive	94/9/EG

[3] only for 4 … 20 mA / 2-wire, not in combination with the accuracy 0.1%

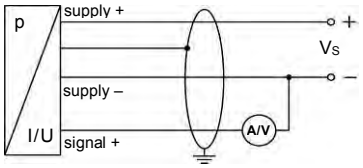
[4] Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point for pressure ranges $P_N \leq 1$ bar.

Wiring diagrams

2-wire-system (current)



3-wire-system (current / voltage)

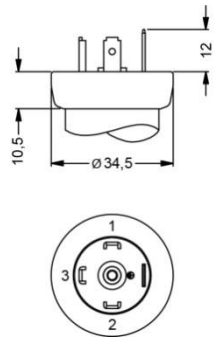


Pin configuration

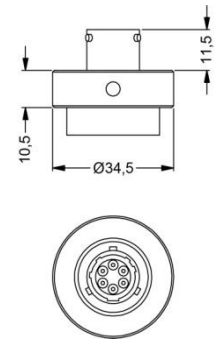
Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1/metal (4-pin)	Bayonet MIL-C-26482 (10-6) 2-wire	Bayonet MIL-C-26482 (10-6) 3-wire	field housing	cable colours (DIN 47100)
Supply +	1	3	1	A	A	IN +	wh (white)
Supply –	2	4	2	B	D	IN –	bn (brown)
Signal + (for 3-wire)	3	1	3	-	B	OUT +	gn (green)
Shield	ground pin	5	4	pressure port		⏚	ye/gn (yellow/green)

Electrical connections (dimensions in mm)

standard

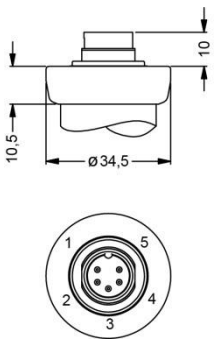


ISO 4400
(IP 65)

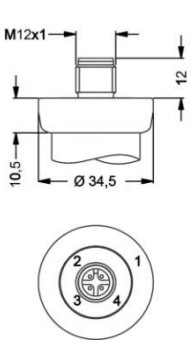


Bayonet MIL-C-26482 (10-6)
(IP 67)

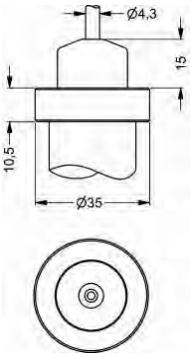
option



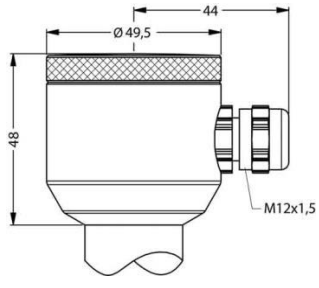
Binder Series 723 5-pin
(IP 67)



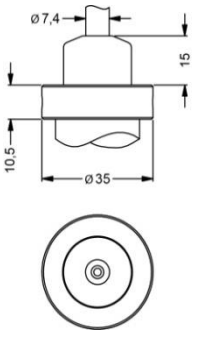
M12x1 4-pin
(IP 67)



cable outlet with PVC cable
(IP 67) [5]



compact field housing
(IP 67)



cable outlet, cable with ventilation tube
(IP 68) [6]

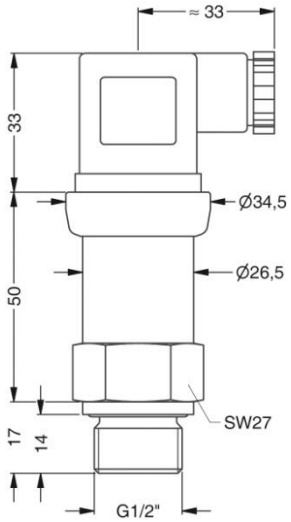
⇨ **universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request**

[5] standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C)

[6] different cable types and lengths available, permissible temperature depends on kind of cable

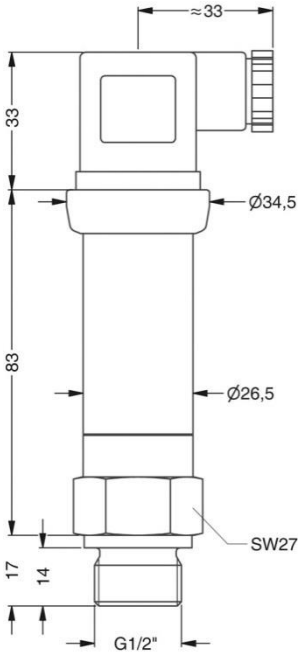
Mechanical connections (dimensions in mm)

standard



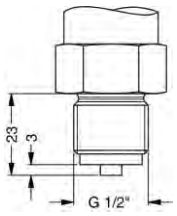
G1/2" DIN 3852
with ISO 4400

SIL- and SIL-IS-version

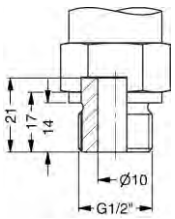


G1/2" DIN 3852
with ISO 4400

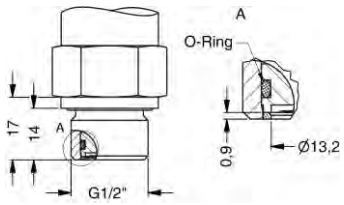
option



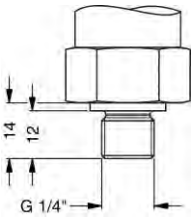
G1/2" EN 837



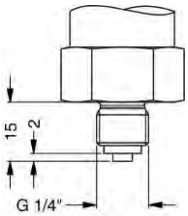
G1/2" open port



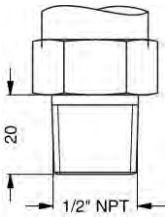
G1/2" DIN 3852
with flush sensor



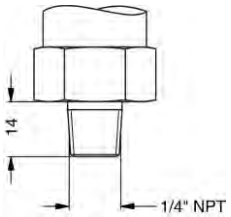
G1/4" DIN 3852



G1/4" EN 837



1/2" NPT



1/4" NPT

⇨ **metric threads and other versions on request**

DMP 331

DMP 331 □□□ - □□□□ - □ - □ - □□□ - □□□ - □ - □□□

Deutsch		English		Code	
Messgröße		**Pressure**			
relativ		gauge		1 1 0	
absolut		absolute [1]		1 1 1	
Eingang	[bar]	**Input**	[bar]		
	0,10		0.10 [1]	1 0 0 0	
	0,16		0.16 [1]	1 6 0 0	
	0,25		0.25 [1]	2 5 0 0	
	0,40		0.40	4 0 0 0	
	0,60		0.60	6 0 0 0	
	1,0		1.0	1 0 0 1	
	1,6		1.6	1 6 0 1	
	2,5		2.5	2 5 0 1	
	4,0		4.0	4 0 0 1	
	6,0		6.0	6 0 0 1	
	10		10	1 0 0 2	
	16		16	1 6 0 2	
	25		25	2 5 0 2	
	40		40	4 0 0 2	
	60		60	6 0 0 2	
	-1 … 0		-1 … 0	X 1 0 2	
	Sondermessbereiche		customer	9 9 9 9	auf Anfrage consult
Ausgang		**Output**			
4 … 20 mA / 2-Leiter		4 … 20 mA / 2-wire		1	
0 … 20 mA / 3-Leiter		0 … 20 mA / 3-wire		2	
0 … 10 V / 3-Leiter		0 … 10 V / 3-wire		3	
Ex-Schutz 4 … 20 mA / 2-Leiter		Intrinsic safety 4 … 20 mA / 2-wire		E	
SIL2 4 … 20 mA / 2-Leiter		SIL2 4 … 20 mA / 2-wire		1S	
SIL2 mit Ex-Schutz 4 … 20 mA / 2-Leiter		SIL2 with intrinsic safety 4 … 20 mA / 2-wire		ES	
andere		customer		9	auf Anfrage consult
Genauigkeit		**Accuracy**			
Standard für P_N ≥ 0,4 bar	0,35 %	standard for P_N ≥ 0.4 bar	0.35 %	3	
Standard für P_N < 0,4 bar	0,5 %	standard for P_N < 0.4 bar	0.5 %	5	
Option 1 für P_N ≥ 0,4 bar	0,25 %	option 1 for P_N ≥ 0.4 bar	0.25 %	2	
Option 2	0,1 %	option 2	0.1 % [2]	1	
andere		customer		9	auf Anfrage consult
Elektrischer Anschluss		**Electrical connection**			
Stecker und Kabeldose ISO 4400		Male and female plug ISO 4400		1 0 0	
Stecker Binder Serie 723 (5-polig)		Male plug Binder series 723 (5-pin)		2 0 0	
Kabelausgang mit PVC-Kabel		Cable outlet with PVC cable [3]		T A 0	
Kabelausgang		Cable outlet [4]		T R 0	
Stecker M12x1 (4-polig) / Metall		Male plug M12x1 (4-pin) / metal		M 1 0	
Bajonett MIL-C-26482 (10-6); 2-Leiter		Bayonet MIL-C-26482 (10-6); 2 wire		B G 0	
Bajonett MIL-C-26482 (10-6); 3-Leiter		Bayonet MIL-C-26482 (10-6); 3 wire		B G 1	
Kompakt-Feldgehäuse Edelstahl 1.4305		Compact field housing stainless steel 1.4305		8 5 0	
andere		customer		9 9 9	auf Anfrage consult
Mechanischer Anschluss		**Mechanical connection**			
G1/2" DIN 3852		G1/2" DIN 3852		1 0 0	
G1/2" EN 837		G1/2" EN 837		2 0 0	
G1/4" DIN 3852		G1/4" DIN 3852		3 0 0	
G1/4" EN 837		G1/4" EN 837		4 0 0	
G1/2" DIN 3852 mit quasi-frontbündiger Messzelle		G1/2" DIN 3852 with flush sensor		F 0 0	
G1/2" DIN 3852 offener Anschluss		G1/2" DIN 3852 open pressure port		H 0 0	
1/2" NPT		1/2" NPT		N 0 0	
1/4" NPT		1/4" NPT		N 4 0	
andere		customer		9 9 9	auf Anfrage consult
Dichtung		**Seals**			
FKM		FKM		1	
EPDM		EPDM		3	
ohne (Schweißversion)		without (welded version) [5]		2	
andere		customer		9	auf Anfrage consult
Sonderausführungen		**Special version**			
Standard		standard		0 0 0	
andere		customer		9 9 9	auf Anfrage consult

[1] Absolutdruck möglich ab 0,4 bar
absolute pressure possible from 0.4 bar

[2] nicht in Verbindung mit SIL
not in combination with SIL

[3] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch (Temperatureinsatzbereich: -5 .. 70°C), andere auf Anfrage
standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 … 70°C), others on request

[4] Kabel mit Luftschlauch (Code TR0 = PVC-Kabel), Kabel in verschiedenen Ausführungen und Längen lieferbar; Kabel nicht im Preis enthalten
cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable

[5] Schweißversion nur bei Anschlüssen nach EN 837
welded version only with pressure ports according to EN 837

DRUCK & TEMPERATUR
LEITENBERGER GMBH

DMP 335

Industrial
Pressure Transmitter

Welded, Dry
Stainless Steel Sensor

Accuracy according to IEC 60770:
0.5% FSO

Nominal pressure:

from 0 ... 6 bar up to 0 ... 600 bar

Output signals:

2-wire: 4 ... 20 mA
3-wire: 0 … 10 V
others on request

Special characteristics:

- suitable for oxygen applications
- insensitive to pressure peaks
- high overpressure capability

Optional versions:

- IS-version
  Ex ia = intrinsically safe for gases and dusts
- customer specific versions

The industrial pressure transmitter DMP 335 is based on a stainless steel welded pressure sensor without fluid.

This characteristic has a special advantage with applications where silicon oil or elastomeric seals cannot be used.

Typical applications:

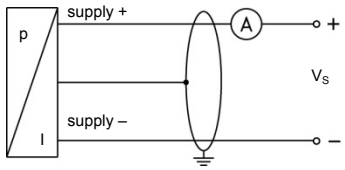
- Medical Technology
- Plant and Machine Engineering
- Mobile Hydraulics
- Refrigeration
- Oxygen application

Input pressure range												
Nominal pressure gauge	[bar]	6	10	16	25	40	60	100	160	250	400	600
Overpressure	[bar]	14	35	35	70	140	140	350	350	700	1200	1200
Burst pressure ≥	[bar]	35	85	85	175	350	350	850	850	1750	2100	2100
Vacuum resistance		unlimited										

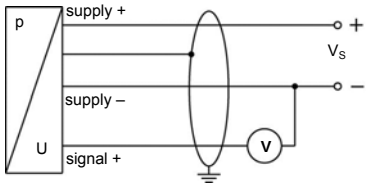
Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V_S = 8 ... 32 V_{DC}
Option IS-version	2-wire: 4 ... 20 mA / V_S = 10 ... 28 V_{DC}
Option 3-wire	3-wire: 0 ... 10 V / V_S = 14 ... 30 V_{DC}
Performance	
Accuracy [1]	≤ ± 0.5 % FSO
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S\,min}) / 0.02\ A]\ \Omega$ voltage 3-wire: $R_{min} = 10\ k\Omega$
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Long term stability	≤ ± 0.2 % FSO / year at reference conditions
Response time	2-wire: ≤ 10 msec 3-wire: ≤ 3 msec
[1] *accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)*	
Thermal effects (Offset and Span)	
Thermal error	± 0.3 % FSO / 10 K
in compensated range	0 ... 70 °C
Permissible temperatures	
Permissible temperatures	medium: -40 ... 125 °C electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Mechanical stability	
Vibration	20 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	500 g / 1 msec according to DIN EN 60068-2-27
Materials	
Pressure port	stainless steel 1.4571 (316 Ti)
Housing	stainless steel 1.4404 (316 L)
Option compact field housing	stainless steel 1.4305 (303), cable gland brass, nickel plated others on request
Seals (media wetted)	none (welded)
Diaphragm	stainless steel 1.4542 (17-4PH)
Media wetted parts	pressure port, diaphragm
Explosion protection (only for 4 ... 20 mA / 2-wire)	
Approvals DX19-DMP 335	**IBExU 10 ATEX 1068 X / IECEx IBE 12.0027X** zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T 85°C Da
Safety technical maximum values	U_i = 28 V_{DC}, I_i = 93 mA, P_i = 660 mW, $C_i \approx 0$ nF, $L_i \approx 0$ µH, the supply connections have an inner capacity of max. 27 nF to the housing
Permissible temperatures for environment	in zone 0: -20 ... 60 °C bei p_{atm} 0.8 bar up to 1.1 bar in zone 1: -20 ... 70 °C
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1 µH/m
Miscellaneous	
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 140 g
Installation position	any
Operational life	> 100 x 10^6 pressure cycles
CE-conformity	EMC Directive: 2004/108/EC Pressure Equipment Directive: 97/23/EC (module A) [2]
ATEX Directive	94/9/EG
[2] *This directive is only valid for devices with maximum permissible overpressure > 200 bar*	

Wiring diagrams

2-wire-system (current)



3-wire-system (voltage)

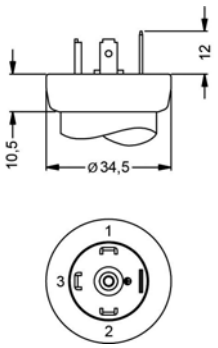


Pin configuration

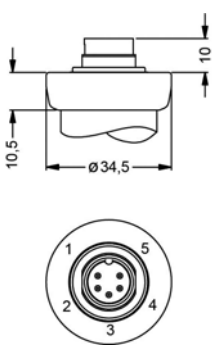
Electrical connections	ISO 4400	Binder 723 (5-pin)	M12x1 (4-pin)	field housing	cable colours (DIN 47100)
Supply +	1	3	1	IN +	wh (white)
Supply –	2	4	2	IN –	bn (brown)
Signal + (only for 3-wire)	3	1	3	OUT +	gn (green)
Shield	ground pin	5	4	⏚	ye/gn (yellow / green)

Electrical connections (dimensions in mm)

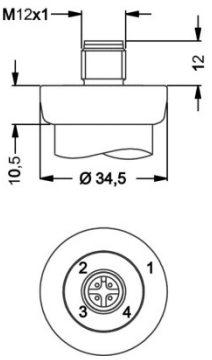
standard **option**



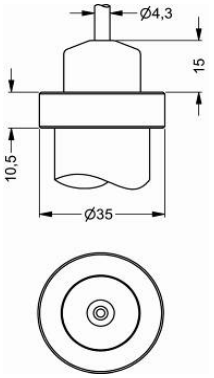
ISO 4400
(IP 65)



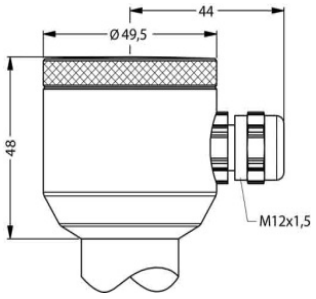
Binder series 723 5-pin
(IP 67)



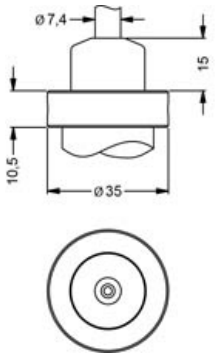
M12x1 4-pin
(IP 67)



cable outlet with PVC cable
(IP67) [3]



compact field housing
(IP 67)



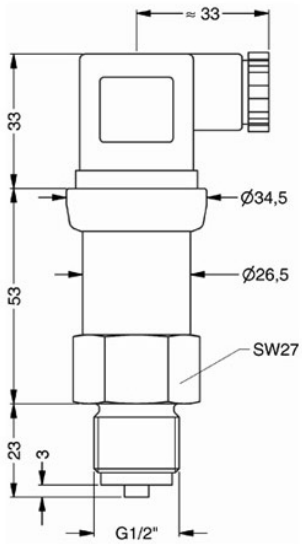
cable outlet,
cable with ventilation tube
(IP 68) [4]

⇨ **universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request**

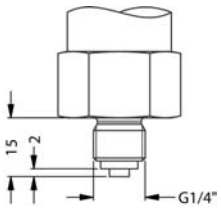
[3] *standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)*
[4] *different cable types and lengths available, permissible temperature depends on kind of cable*

Mechanical connections (dimensions in mm)

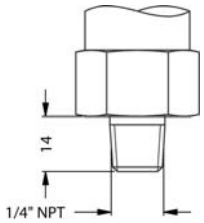
standard **option**



G1/2" EN 837



G1/4" EN 837



1/4" NPT

⇨ **metric threads and other versions on request**

Accessories

Plug-on Display PA 430

Functional range

- ► free scalable display
- ► switch mode, hysteresis, parameterizable deceleration of the contacts
- ► display 330 ° rotatable
- ► connector 300 ° rotatable
- ► no external power supply necessary

Product characteristics

- ► plug-on display for pressure transmitter with output signal: 4 … 20 mA / 2-wire or 0 … 10 V / 3-wire
- ► 4-digit LED display

Optional versions

- ► IS-version
- ► 1 or 2 programmable contacts

DRUCK & TEMPERATUR
LEITENBERGER GMBH

Spezifikationsblatt / *specification sheet*

DMP 335

DMP 335 □□□-□□□□-□-□-□□□-□□□-□-□□□

Messgröße																			
relativ	2	1	0																
Eingang	**[bar]**																		
6				6	0	0	1												
10				1	0	0	2												
16				1	6	0	2												
25				2	5	0	2												
40				4	0	0	2												
60				6	0	0	2												
100				1	0	0	3												
160				1	6	0	3												
250				2	5	0	3												
400				4	0	0	3												
600				6	0	0	3												
Sondermessbereiche				9	9	9	9												auf Anfrage
Ausgang																			
4 ... 20 mA / 2-Leiter								1											
0 ... 10 V / 3-Leiter								3											
Ex-Schutz 4 ... 20 mA / 2-Leiter								E											
andere								9											auf Anfrage
Genauigkeit																			
0,5 %									5										
andere									9										auf Anfrage
Elektrischer Anschluss																			
Stecker und Kabeldose ISO 4400										1	0	0							
Stecker Binder Serie 723 (5-polig)										2	0	0							
Kabelausgang mit PVC-Kabel [1]										T	A	0							
Kabelausgang mit Kabel [2]										T	R	0							
Stecker M12x1 (4-polig) / Metall										M	1	0							
Kompakt-Feldgehäuse Edelstahl 1.4305										8	5	0							
andere										9	9	9							auf Anfrage
Mechanischer Anschluss																			
G1/2" EN 837													2	0	0				
G1/4" EN 837													4	0	0				
1/4" NPT													N	4	0				
andere													9	9	9				auf Anfrage
Dichtung																			
ohne (Schweißversion)																2			
andere																9			auf Anfrage
Sonderausführungen																			
Standard																	0	0	0
andere																	9	9	9 auf Anfrage

[1] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch (Temperatureinsatzbereich: -5 … 70 °C)

[2] Kabel mit Luftschlauch (Code TR0 = PVC-Kabel), Kabel in verschiedenen Ausführungen und Längen lieferbar, Temperatureinsatzbereich abhängig vom Kabel; Kabel nicht im Preis enthalten

DRUCK & TEMPERATUR
LEITENBERGER GMBH

DMK 351

Pressure Transmitter

Ceramic Sensor

accuracy according to IEC 60770:
standard: 0.35 % FSO
option: 0.25 % FSO

Pressure Transmitter

DMK 351

Nominal pressure:

from 0 ... 40 mbar
up to0 ... 20 bar

Output signal:

2-wire: 4 ... 20 mA
3-wire: 0 … 10 V
others on request

Product characteristics:

- high media resistance

Optional versions:

- IS-version
  Ex ia = intrinsically safe for gases and dusts
- diaphragm 99.9 % Al_2O_3
- customer specific versions

CE Ex

The pressure transmitter DMK 351 has been specially designed for applications in plant and machine engineering as well as laboratory techniques and is suitable for measuring small system pressure and filling heights.

By using our own-developed capacitive sensor, optionally available as Al_2O_3 99.9 %, the DMK 351 offers a high overpressure resistance and a high temperature and media resistance.

An intrinsically safe version completes the range of possibilities.

Preferred areas of use are:

Plant and Machine Engineering

Laboratory Techniques

Preferred used for:

Fuel and Oil

Water

DMK 351

Pressure Transmitter

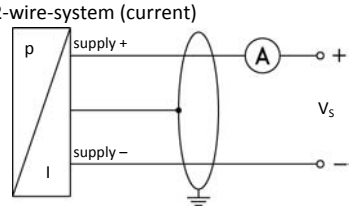
Technical Data

Pressure ranges																
Nominal pressure	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Level	[mH_2O]	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	200
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	45
Low pressure	[bar]	-0.2		-0.3		-0.5				-1						

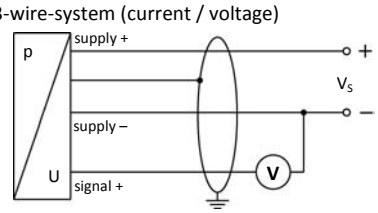
Output signal / Supply		
Standard	2-wire: 4 ... 20 mA / V_S = 9 ... 32 V_{DC}	
Option IS-protection	2-wire : 4 ... 20 mA / V_S = 14 ... 28 V_{DC} Option 3-wire: 0 ... 10 V / V_S = 12.5 ... 32 V_{DC}	
Performance		
Accuracy [1]	standard: $\leq \pm$ 0.35 % FSO option for $P_N \geq$ 0.6 bar: $\leq \pm$ 0.25 % FSO	
Permissible load	current 2-wire $R_{max}=[(V_S - V_{Smin}) / 0.02]$ Ω	voltage 3-wire: R_{min} = 10 kΩ
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ	
Long term stability	$\leq \pm$ 0.1 % FSO / year	
Turn-on time	700 msec	
Mean measuring rate	5/sec	
Response time	mean response time: < 200 msec	max. response time: 380 msec
[1] *accuracy according to IEC 60770 - limit point adjustment (non-linearity, hysterisis, repeatability)*		
Thermal errors (Offset and Span)		
Tolerance band	≤± 0.1 % FSO / 10 K	in compensated range -20 … 80 °C
Permissible temperatures		
Permissible temperatures	medium: -40 ... 125 °C electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C	
Electrical protection		
Short-circuit protection	permanent	
Reverse polarity protection	no damage, but also no function	
Electromagnetic compatibility	emission and immunity according to EN 61326	
Mechanical stability		
Vibration	10 g RMS (20 ... 2000 Hz)	according to DIN EN 60068-2-6
Shock	100 g / 1 msec	according to DIN EN 60068-2-27
Materials		
Pressure port	stainless steel 1.4404 (316L)	
Housing	stainless steel 1.4404 (316L)	
Option compact field housing	stainless steel 1.4305 (303) with cable gland brass, nickel plated	others on request
Seal (media wetted)	FKM: -40 … 125 °C EPDM: -40 … 125 °C	
Diaphragm	standard: ceramics Al_2O_3 96 % option: ceramics Al_2O_3 99.9 %	
Media wetted parts	pressure port, seals, diaphragm	
IS-protection (only for 4 … 20 mA / 2-wire)		
Approval DX 14-DMK 351	Male (connector)-version: zone 0: II 1 G EEx ia IIC T4 zone 20: II 1 D EEx IP6X T=85°C cable-version: zone 0: II 1 G EEx ia IIB T4 zone 20: II 1 D EEx IP6X T=85°C	
Safety technical maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C_i = 27 nF, L_i = 5 µH	
Max. permissible temperature for environment	in zone 0: -20 ... 60 °C for p_{atm} 0.8 bar up to 1.1 bar in zone 1 and higher: -25 ... 70 °C	
Connecting cables (by factory)	capacity: signal line / shield also signal line / signal line: 160 pF/m inductance: signal line / shield also signal line / signal line: 160 pF/m	
Miscellaneous		
Installation position	any	
Current consumption	signal output current: max. 21 mA	signal output voltage: max. 5 mA
Weight	min. 200 g	
Operational life	> 100 x 10^6 loading cycles	
CE-conformity	EMC-directive: 2004/108/EC	
ATEX Directive	94/9/EC	

Wiring diagram

2-wire-system (current)



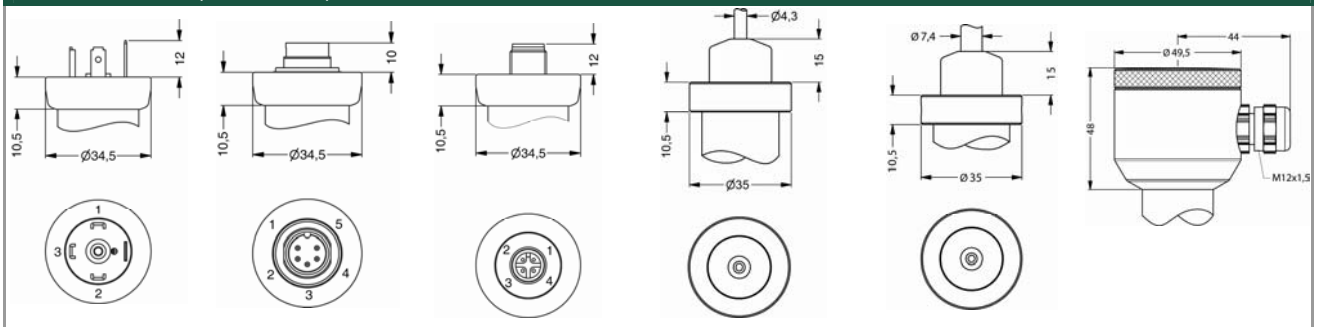
3-wire-system (current / voltage)



Pin configuration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 (4-pin)	field housing	cable colours (DIN 47100
Supply +	1	3	1	IN +	wh (white)
Supply –	2	4	2	IN –	bn (brown)
Signal +	3	1	3	OUT +	gn (green)
Shield	ground contact	5	4	⏚	gn/ye (green / yellow)

Electrical connections (dimensions in mm)



ISO 4400 (IP 65)

Binder series 723 (IP 67)

M12x1 4-pin (IP 67)

cable outlet with PVC-cable (IP 67) [2]

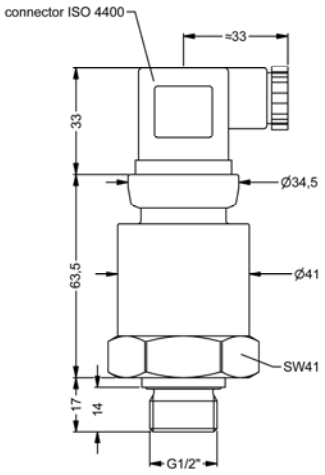
cable outlet, cable with ventilation tube (IP 68) [3]

compact field housing (IP 67)

[2] *standard: 2 m PVC-cable without ventilation tube (permissible temperature: -5 … 70°C), optional cable with ventilation tube*
[3] *different cable types and lengths available, permissible temperature depends on kind of cable*

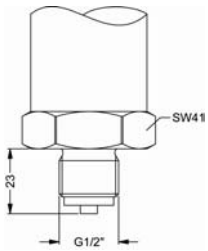
Dimensions (in mm)

standard

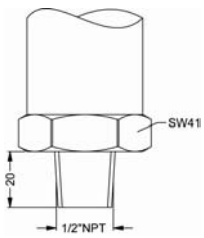


G1/2" DIN 3852

option



G1/2" EN 837



1/2" NPT

DMK 351

DMK 351 □□□-□□□□-□-□-□□□-□□□-□-□-□-□□□

Messgröße

in bar, relativ	2 9 0	
in bar, absolut	2 9 1	
in bar, sealed gauge		auf Anfrage
in mH_2O, relativ	2 9 2	
in mH_2O, absolut	2 9 3	auf Anfrage
in mH_2O, sealed gauge		auf Anfrage

Eingang

[mH_2O]	[bar]		
0,4	0,04	0 4 0 0	
0,6	0,06	0 6 0 0	
1,0	0,10	1 0 0 0	
1,6	0,16	1 6 0 0	
2,5	0,25	2 5 0 0	
4,0	0,40	4 0 0 0	
6,0	0,60	6 0 0 0	
10	1,0	1 0 0 1	
16	1,6	1 6 0 1	
25	2,5	2 5 0 1	
40	4,0	4 0 0 1	
60	6,0	6 0 0 1	
100	10	1 0 0 2	
160	16	1 6 0 2	
200	20	2 0 0 2	
Sondermessbereiche		9 9 9 9	auf Anfrage

Ausgang

4 … 20 mA / 2-Leiter	1	
0 … 10 V / 3-Leiter	3	
Ex-Schutz 4 … 20 mA / 2-Leiter	E	
andere	9	auf Anfrage

Genauigkeit

Standard	0,35 %	3	
Option für $P_N \geq 0,6$ bar:	0,25 %	2	
andere		9	auf Anfrage

Elektrischer Anschluss

Stecker und Kabeldose ISO 4400	1 0 0	
Stecker Binder Serie 723 (5-polig)	2 0 0	
Kabelausgang mit PVC-Kabel [1]	T A 0	
Kabelausgang mit Kabel	T R 0	
Stecker M12x1 (4-polig) / Metall	M 1 0	
Kompakt-Feldgehäuse Edelstahl 1.4305	8 5 0	
andere	9 9 9	auf Anfrage

Mechanischer Anschluss

G1/2" DIN 3852	1 0 0	
G1/2" EN 837	2 0 0	
1/2" NPT	N 0 0	
andere	9 9 9	auf Anfrage

Dichtung

FKM	1	
EPDM	3	
andere	9	auf Anfrage

Druckanschluss

Edelstahl 1.4404	1	
andere	9	auf Anfrage

Trennmembrane

Keramik Al_2O_3 96%	2	
Keramik Al_2O_3 99,9 %	C	
andere	9	auf Anfrage

Sonderausführungen

Standard	0 0 0	
andere	9 9 9	auf Anfrage

[1] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch (Temperatureinsatzbereich: -5 … 70 °C), optional Kabel mit Belüftungsschlauch

DRUCK & TEMPERATUR
LEITENBERGER GMBH

DMP 331P

Industrial
Pressure Transmitter

Pressure Ports And
Process Connections With Flush Welded
Stainless Steel Diaphragm

accuracy according to IEC 60770:
standard: 0.35 % FSO
option: 0.25 % FSO

Industrial
Pressure Transmitter

DMP 331P

Nominal pressure:

from 0 ... 100 mbar up to 0 ... 40 bar

Output signals:

2-wire: 4 ... 20 mA / 3-wire: 0 ... 10 V
others on request

Special characteristics:

- hygienic process connections, EHEDG-conformity
- reduced oil volume, minimises temperature influence at zero point
- CIP / SIP cleaning up to 150 °C
- vacuum resistant
- excellent long term stability

Optional versions:

- IS-version
  Ex ia = intrinsically safe for gases and dusts
- SIL 2
  according to IEC 61508 / IEC 61511
- special materials
  as Hastelloy® and Tantal
- cooling element for media temperatures up to 300 °C
- customer specific versions

CE Ex SIL

The pressure transmitter **DMP 331P** was designed for use in the food and pharmaceutical industry. The compact design with hygienic process connections makes it possible to achieve an outstanding performance in terms of accuracy, temperature behavior and long term stability. The modular construction concept allows a combination of various process connections with different filling fluids and a cooling element. Several electrical connections complete the profile of **DMP 331P**. This transmitter fulfills nearly all requirements in hygienic industrial processes.

Preferred areas of use are:

Food Industry

Pharmacy

Material and test certificates:

- material mill test report
  according to DIN EN 10204-3.1. (optional)
- specific test report
  according to DIN EN 10204-2.2. (optional)

Input pressure range [1]								
Nominal pressure gauge / abs.	[bar]	-1…0	0.10	0.16	0.25	0.40	0.60	1	1.6
Overpressure	[bar]	5	0.5	1	1	2	5	5	10
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15

Nominal pressure gauge / abs.	[bar]	2.5	4	6	10	16	25	40
Overpressure	[bar]	10	20	40	40	80	80	105
Burst pressure ≥	[bar]	15	25	50	50	120	120	210
Vacuum resistance		P_N ≥ 1 bar: unlimited vacuum resistance P_N ≤ 1 bar: on request						

[1] *consider the pressure resistance of fitting and clamps*

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V_S = 8 ... 32 V_{DC}
Option IS-protection	2-wire: 4 ... 20 mA / V_S = 10 ... 28 V_{DC}
Options 3-wire	3-wire: 0 ... 20 mA / V_S = 14 ... 30 V_{DC} 0 ... 10 V / V_S = 14 ... 30 V_{DC}
Performance	
Accuracy [2]	standard: nominal pressure < 0.4 bar : ≤± 0.5 % FSO nominal pressure ≥ 0.4 bar: ≤± 0.35 % FSO option: nominal pressure ≥ 0.4 bar: ≤± 0.25 % FSO
Permissible load	current 2-wire: $R_{max} = [(V_S - V_{S\,min}) / 0.02]\ \Omega$ current 3-wire: R_{max} = 500 Ω voltage 3-wire: R_{min} = 10 kΩ
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Long term stability	≤± 0.1 % FSO / year at reference conditions
Response time	2-wire: < 10 msec 3-wire: ≤ 3 msec

[2] *accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)*

Thermal effects (Offset and Span) [3] **/ Permissible temperatures**				
Nominal pressure P_N	[bar]	-1 … 0	< 0.40	≥ 0.40
Tolerance band	[% FSO]	≤± 0.75	≤± 1,5	≤± 0.75
in compensated range	[°C]	-20 ... 85	0 ... 50	-20 ... 85
Permissible temperatures [4]		medium: -40 ... 125 °C for filling fluid silicon oil -10 ... 125 °C for filling fluid food compatible oil electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C		
Permissible temperature medium for cooling element 300°C		filling fluid silicon oil	overpressure: -40 … 300 °C	vacuum: -40 ... 150 °C [5]
		filling fluid food compatible oil	overpressure: -10 ... 250 °C	vacuum: -10 ... 150 °C [5]

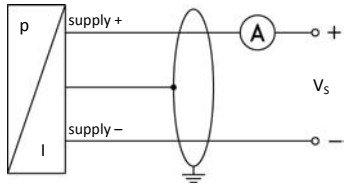
[3] *an optional cooling element can influence thermal effects for offset and span depending on installation position and filling conditions.*
[4] *max. temperature of the medium for nominal pressure gauge > 0 bar: 150 °C for 60 minutes with a max. environmental temperature of 50 °C*
[5] *also for P_{abs} ≤ 1 bar*

Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Mechanical stability	
Vibration according to DIN EN 60068-2-6	G 1/2": 20 g RMS (25 ... 2000 Hz)others except G 1/2": 10 g RMS (25 … 2000 Hz)
Shock according to DIN EN 60068-2-27	G 1/2": 500 g / 1 msec others except G 1/2“: 100 g / 1 msec
Filling fluids	
Standard	silicon oil
Options	food compatible oil with FDA approval (Mobil DTE FM 32; Category Code: H1; NSF Registration No.: 130662) others on request
Materials	
Pressure port	stainless steel 1.4404 (316 L) others on request
Housing	stainless steel 1.4404 (316 L)
Option compact field housing	stainless steel 1.4305 (303), cable gland brass, nickel plated others on request
Seals (media wetted)	standard: FKM (recommended for medium temperatures ≤ 200 °C) option: FFKM (recommended for medium temperatures > 200 °C) others on request clamp and dairy pipe: without
Diaphragm	stainless steel 1.4435 (316 L) / Tantalum and Hastelloy® C-276 (2.4819) on request
Media wetted parts	pressure port, seals, diaphragm

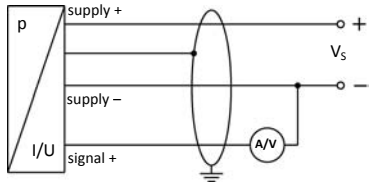
Explosion protection (only for 4 … 20 mA / 2-wire)	
Approval DX 19-DMP 331P	IBExU 10 ATEX 1068 X zone 0: II 1G Ex ia IIC T4 Ga (zone 20: II 1D Ex ta IIIC T 85°C, IP6x, **in preparation)**
Safety technical maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, $C_i \approx 0$ nF, $L_i \approx 0$ µH
Max. temperatures for environment	in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar up to 1.1 bar in zone 1 or higher: -20 ... 70 °C
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1 µH/m
Miscellaneous	
Option SIL 2	according to IEC 61508 / IEC 61511
Current consumption	signal output current: max. 25 mA signal output voltage: max. 5 mA
Weight	min. 200 g (depending on process connection)
Installation position	any (standard calibration in a vertical position with the pressure port connection down; differing installation position for $P_N \leq 2$ bar have to be specified in the order)
Operational life	> 100 x 10^6 pressure cycles
CE-conformity	EMC Directive: 2004/108/EC

Wiring diagrams

2-wire-system (current)



3-wire-system (current / voltage)

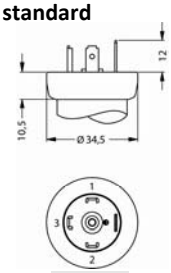


Pin configuration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	field housing	cable colours (DIN 47100)
Supply +	1	3	1	IN +	wh (white)
Supply –	2	4	2	IN -	bn (brown)
Signal + (only 3-wire)	3	1	3	OUT+	gn (green)
Shield	ground pin	5	4	⏚	gn/ye (green / yellow)

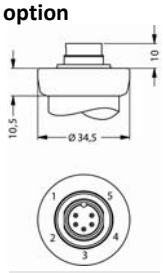
Electrical connections (dimensions in mm)

standard

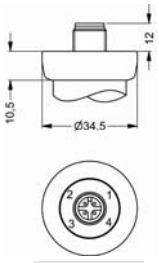


ISO 4400
(IP 65)

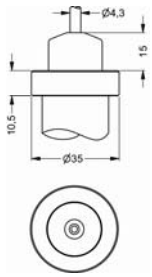
option



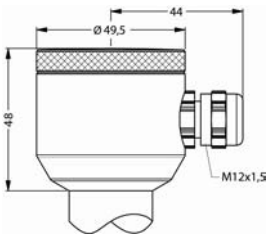
Binder Series 723
IP 67)



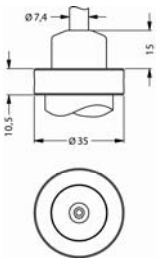
M12x1 4-pin
(IP 67)



cable outlet with PVC cable
(IP 67) [6]



compact field housing
(IP 67)



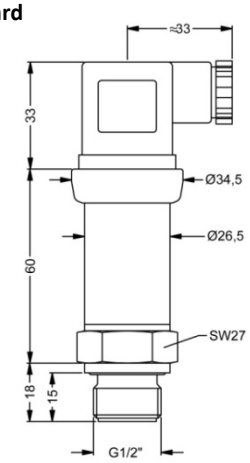
cable outlet, cable with ventilation tube
(IP 68) [7]

⇨ **universal field housing stainless steel 1.4404 (316 L) with cable gland M20x1.5 (ordering code 880) and other versions on request**

[6] *standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 … 70°C)*
[7] *different cable types and lengths available, permissible temperature depends on kind of cable*

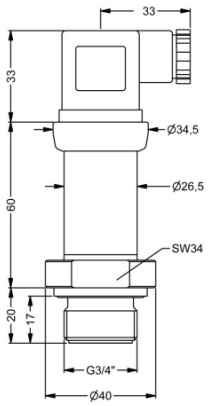
Mechanical connection (dimension in mm)

Standard

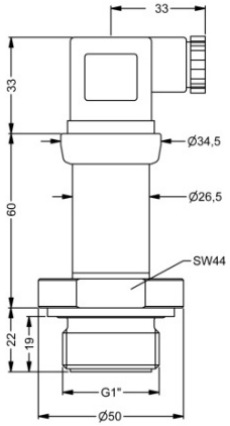


G1/2" flush
with ISO 4400 [8]

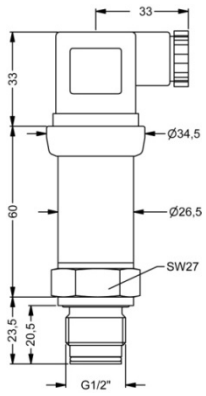
Option



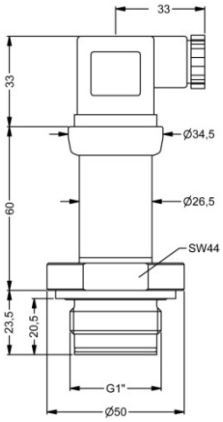
G3/4" flush
with ISO 4400



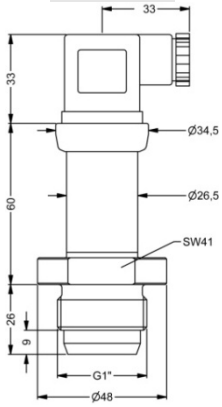
G1" flush
with ISO 4400



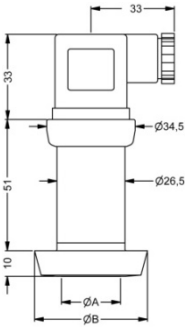
G1/2" flush
with radial o-ring



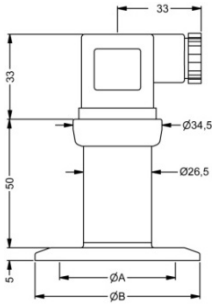
G1" flush
with radial o-ring



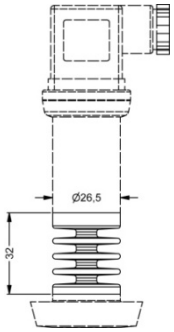
G1" cone
with ISO 4400



dairy pipe (DIN 11851)
with ISO 4400



clamp (ISO 2852)
with ISO 4400



cooling element 300 °C

dimension in mm			
size	DN 25	DN 40	DN 50
A	23	32	45
B	44	56	68.5

dimension in mm			
size	DN 25	DN 38	DN 51
A	23	32	45
B	50.5	50.5	64

⇨ **SIL- and SIL-Ex version: total length increases by 26.5 mm!**

⇨ **metric threads and other versions on request**

[8] *possible only for $P_N \geq 1$ bar*

DMP 331P

DMP 331P ☐☐☐-☐☐☐☐-☐-☐-☐☐☐-☐☐☐-☐-☐-☐-☐☐☐

Messgröße

Messgröße	Code	
relativ	5 0 0	
absolut	5 0 1	

Eingang

Eingang [bar]	Code	
0,10	1 0 0 0	
0,16	1 6 0 0	
0,25	2 5 0 0	
0,40	4 0 0 0	
0,60	6 0 0 0	
1,0	1 0 0 1	
1,6	1 6 0 1	
2,5	2 5 0 1	
4,0	4 0 0 1	
6,0	6 0 0 1	
10	1 0 0 2	
16	1 6 0 2	
25	2 5 0 2	
40	4 0 0 2	
-1 … 0	X 1 0 2	
Sondermessbereiche	9 9 9 9	auf Anfrage

Ausgang

Ausgang	Code	
4 … 20 mA / 2-Leiter	1	
0 … 20 mA / 3-Leiter	2	
0 … 10 V / 3-Leiter	3	
Ex-Schutz 4 … 20 mA / 2-Leiter	E	
SIL2 4 … 20 mA / 2-Leiter	1S	
SIL2 mit Ex-Schutz 4 … 20 mA / 2-Leiter	ES	
andere	9	auf Anfrage

Genauigkeit

Genauigkeit		Code	
Standard für $P_N \geq 0{,}4$ bar	0,35 %	3	
Standard für $P_N < 0{,}4$ bar	0,5 %	5	
Option für $P_N \geq 0{,}4$ bar	0,25 %	2	
andere		9	auf Anfrage

Elektrischer Anschluss

Elektrischer Anschluss	Code	
Stecker und Kabeldose ISO 4400	1 0 0	
Stecker Binder Serie 723 (5-polig)	2 0 0	
Kabelausgang mit PVC-Kabel [1]	T A 0	
Kabelausgang [2]	T R 0	
Stecker M12x1 (4-polig) / Metall	M 1 0	
Kompakt-Feldgehäuse [3] Edelstahl 1.4305	8 5 0	
andere	9 9 9	auf Anfrage

Mechanischer Anschluss

Mechanischer Anschluss	Code	
G1/2" mit frontbündig geschweißter Membrane (DIN 3852) [4]	Z 0 0	
G3/4" mit frontbündig geschweißter Membrane (DIN 3852)	Z 3 0	
G1" mit frontbündig geschweißter Membrane (DIN 3852)	Z 3 1	
G1" DIN 3852 mit rad. O-Ring und frontbündiger Membrane	Z 5 7	
G1/2" DIN 3852 mit rad. O-Ring und frontbündiger Membrane	Z 6 1	
G 1" Konus	K 3 1	
Clamp DN 25 (ISO 2852)	C 6 1	
Clamp DN 38 (ISO 2852)	C 6 2	
Clamp DN 51 (ISO 2852)	C 6 3	
Milchrohr DN 25 (DIN 11851) [3]	M 7 3	
Milchrohr DN 40 (DIN 11851) [3]	M 7 5	
Milchrohr DN 50 (DIN 11851) [3]	M 7 6	
andere	9 9 9	auf Anfrage

Trennmembrane

Trennmembrane	Code	
Edelstahl 1.4435 (316L)	1	
Tantal	T	auf Anfrage
Hastelloy ® C-276 (2.4819)	H	
andere	9	auf Anfrage

Dichtung

Dichtung		Code	
für Clamp oder Milchrohr:	keine	0	
für Zollgewinde - Standard:	FKM	1	
für Zollgewinde - Option:	FFKM	7	
andere		9	auf Anfrage

Füllflüssigkeit

Füllflüssigkeit	Code	
Silikonöl	1	
Lebensmitteltaugliches Öl	2	
andere	9	auf Anfrage

Sonderausführungen

Sonderausführungen	Code	
Standard	0 0 0	
mit Temperaturentkoppler bis 300°C	2 0 0	
andere	9 9 9	auf Anfrage

[1] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch (Temperatureinsatzbereich: -5 … 70°C), andere auf Anfrage

[2] Kabel mit Luftschlauch (Code TR0 = PVC-Kabel), Kabel in verschiedenen Ausführungen und Längen lieferbar, Temperatureinsatzbereich abhängig vom Kabel; Kabel nicht im Preis enthalten

[3] Die Nutüberwurfmutter muss bei elektrischen Anschluss Feldgehäuse in Kombination mit mechanischen Anschluss Milchrohr bei der Herstellung auf dem Druckmessumformer montiert werden. Die Nutüberwurfmutter muss als separate Position bestellt werden.

[4] möglich nur für $P_N \geq 1$ bar

DRUCK & TEMPERATUR
LEITENBERGER GMBH

18.600 G

OEM Pressure Transmitter Pneumatics

Applications:

- compressed air network
- general mechanical engineering

Characteristics:

- silicon sensor
  without media isolation
- accuracy 0.5 % FSO
  according to IEC 60770
- nominal pressure ranges from
  0 … 100 mbar up to 0 … 6 bar

CE

Technical Data

Input pressure range										
Nominal pressure gauge	[bar]	-1 … 0	0.1	0.25	0.4	0.6	1	1.6	2.5	4	6
Overpressure	[bar]	3	0.5	1	1	3	3	6	10	10	20

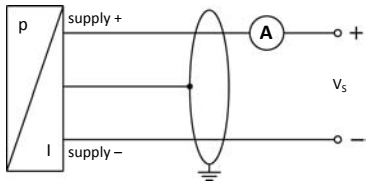
Output signal / Supply				
Standard	2-wire:	4 … 20 mA	/	V_S = 8 … 32 V_{DC}
Option	3-wire:	0 … 10 V	/	V_S = 14 … 30 V_{DC}
	3-wire ratiometric:	0.5 … 4.5 V	/	V_S = 5 ± 0.5 V_{DC}
Performance				
Accuracy [1]	≤± 0.5 % FSO			
Permissible load	2-wire:	$R_{max} = [(V_S - V_{Smin}) / 0.02]$ Ω		
	3-wire:	R_{min} = 10 kΩ		
Influence effects	supply:	0.05 % FSO / 10 V	load:	0.05 % FSO / kΩ
Response time	2-wire:	≤ 10 msec	3-wire:	≤ 3 msec
Measuring rate	1 kHz			
[1] *accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)*				

Thermal effects (Offset and Span)				
Nominal pressure P_N	[bar]	-1 … 0	≤ 0.4	> 0.4
Tolerance band	[% FSO]	≤± 1	≤± 1	≤± 0.75
in compensated range	[°C]	0 … 70		-20 … 85
Permissible temperatures				
Permissible temperatures	medium: -25 … 125 °C	electronics / environment: -25 … 85 °C		storage: -40 … 85 °C
Electrical protection				
Short-circuit protection	permanent			
Reverse polarity protection	no damage, but also no function			
Electromagnetic compatibility	emission and immunity according to EN 61326			
Mechanical stability				
Vibration	10 g, 25 Hz … 2 kHz	according to DIN EN 60068-2-6		
Shock	100 g / 11 msec	according to DIN EN 60068-2-27		

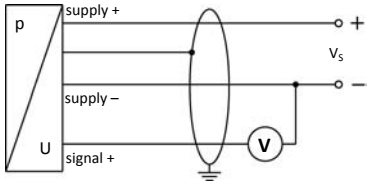
Materials	
Pressure port / housing	stainless steel 1.4301 (304)
Seals	FKM
Sensor	stainless steel 1.4404 (316L), silicon, glass, epoxy or RTV
Media wetted parts	pressure port, seals, sensor
Miscellaneous	
Permissible media	pressurized air, non-aggressive gases
Current consumption	2-wire: max. 25 mA; 3-wire voltage: typ. 5 mA (short circuit current: max. 20 mA)
CE-conformity	EMC Directive: 2004/108/EC

Wiring diagrams

2-wire-system (current)



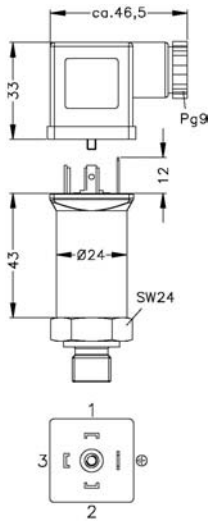
3-wire-system (voltage)



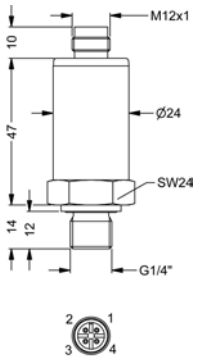
Pin configuration

Electrical connections	ISO 4400	M12x1 (4-pin)	cable colours (DIN 47100)
Supply +	1	1	wh (white)
Supply –	2	2	bn (brown)
Signal + (for 3-wire)	3	3	gn (green)
Shield	ground pin	4	gn/ye (yellow / green)

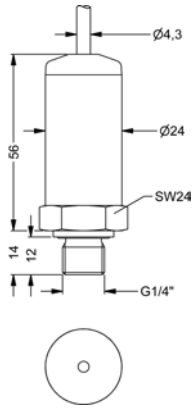
Electrical connections (dimensions in mm)



ISO 4400
(IP 65)



M12x1, 4-pin
(IP 67)

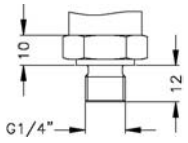


cble outlet with
PVC-cable (IP 67) [2, 3]

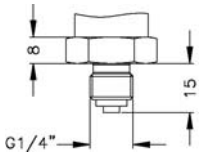
[2] *standard: 2 m PVC cable without ventilation tube (permissible temperatur: -5 ... 70 °C)*
[3] *different cable types and lengths available, permissible temperatur depends on kind of cable*

Mechanical connection (dimensions in mm)

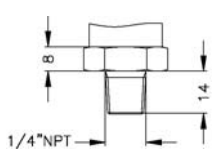
standard **option** [4]



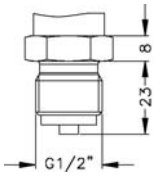
G1/4" DIN 3852



G1/4" EN 837



G1/4" NPT



G1/2" EN 837

[4] *other mechanical connections on request*

DRUCK & TEMPERATUR
LEITENBERGER GMBH

Spezifikationsblatt / *specification sheet*

18.600 G

18.600 G -□□□□-□-□-□-□□□-□□□-□-□□□

Eingang	**[bar]**																	
	0,10	1	0	0	0													
	0,25	2	5	0	0													
	0,40	4	0	0	0													
	0,6	6	0	0	0													
	1,0	1	0	0	1													
	1,6	1	6	0	1													
	2,5	2	5	0	1													
	4,0	4	0	0	1													
	6,0	6	0	0	1													
	-1 ... 0	X	1	0	2													
	Sondermessbereiche	9	9	9	9													auf Anfrage
Messgröße																		
	relativ					R												
Ausgang																		
	4 ... 20 mA / 2-Leiter						1											
	0 ... 10 V / 3-Leiter						3											
	0,5 ... 4,5 V / 3-Leiter ratiometrisch						R											
	andere						9											auf Anfrage
Genauigkeit																		
	0,5 % FSO							5										
	andere							9										auf Anfrage
Elektrischer Anschluss																		
	Stecker und Kabeldose ISO 4400								1	0	0							
	Stecker M12x1 (4-polig), Kunststoff								M	0	0							
	Kabelausgang mit PVC-Kabel [1]								T	A	0							
	andere								9	9	9							auf Anfrage
Mechanischer Anschluss																		
	G1/4" DIN 3852											3	0	0				
	G1/4" EN 837											4	0	0				
	1/4" NPT											N	4	0				
	andere											9	9	9				auf Anfrage
Dichtung																		
	FKM														1			
	andere														9			auf Anfrage
Sonderausführungen																		
	Standard															0	0	0
	andere															9	9	9 auf Anfrage

[1] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch (Temperatureinsatzbereich: -5 … 70 °C)

DRUCK & TEMPERATUR
LEITENBERGER GMBH

30.600 G

OEM Pressure Transmitter
Low Cost

Applications:

- mechanical and plant engineering
- general industrial applications

Characteristics:

- ceramic sensor
- accuracy 1 % FSO according to IEC 60770
- nominal pressure ranges from
  0 … 1.6 bar up to 0 … 250 bar

Technical Data

Input pressure range													
Nominal pressure gauge	[bar]	1.6	2.5	4	6	10	16	25	40	60	100	160	250
Overpressure	[bar]	5	5	12	12	20	50	50	120	120	200	400	400
Burst pressure ≥	[bar]	7	7	15	15	25	70	70	150	150	250	500	500
Vacuum resistance		unlimited											

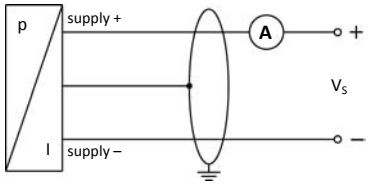
Output signal / Supply				
Standard	2-wire:	4 ... 20 mA	/ V_S =	8 ... 32 V_{DC}
Options	3-wire:	0 ... 10 V	/ V_S =	14 ... 30 V_{DC}
	3-wire ratiometric:	V_{Sig} = 0.5 … 4.5 V	/ V_S =	5 ± 0.5 V_{DC}
Performance				
Accuracy [1]	≤± 1 % FSO			
Permissible load	2-wire: $R_{max} = [(V_S - V_{S\,min}) / 0.02]$ Ω 3-wire: R_{min} = 10 kΩ			
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ			
Response time	2-wire: ≤ 10 msec 3-wire: ≤ 3 msec			
Measuring rate	1 kHz			
[1] *accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)*				
Thermal effects (Offset and Span) / Permissible temperatures				
Thermal error	≤± 0.5 % FSO / 10 K (typ.)	in compensated range	-25 ... 85 °C	
Permissible temperatures	medium: -25 ... 125 °C	electronics / environment: -25 ... 85 °C	storage: -40 ... 85 °C	
Electrical protection				
Short-circuit protection	permanent	3-wire ratiometric: none		
Reverse polarity protection	no damage, but also no function			
Electromagnetic protection	emission and immunity according to EN 61326			
Mechanical stability				
Vibration	10 g, 25 Hz … 2 kHz	according to DIN EN 60068-2-6		
Shock	500 g / 1 msec	according to DIN EN 60068-2-27		

Materials		
Pressure port / housing	stainless steel 1.4301	
Seals (media wetted)	FKM	others on request
Diaphragm	ceramics Al_2O_3 96 %	
Media wetted parts	pressure port, seals, diaphragm	
Miscellaneous		
Weight	approx. 120 g	
Current consumption	2-wire: max. 25 mA 3-wire voltage: typ. 5 mA (short circuit current: max. 20 mA)	3-wire ratiometric: typ. 1.5 mA
Long term stability	≤± 0.3 % FSO / year at reference conditions	
Operational life	> 100 x 10^6 cycles	
CE-conformity	EMC Directive: 2004/108/EC	Pressure Equipment Directive: 97/23/EC (module A) [2]

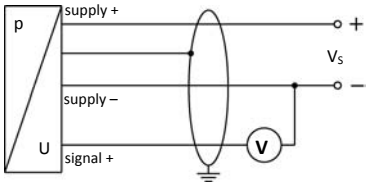
[2] *This directive is only valid for devices with maximum permissible overpressure > 200 bar*

Wiring diagrams

2-wire-system (current)



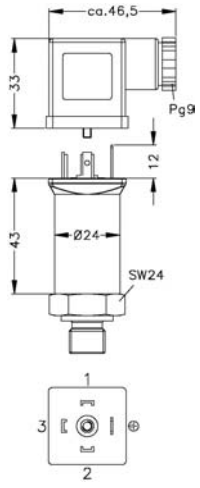
3-wire-system (voltage)



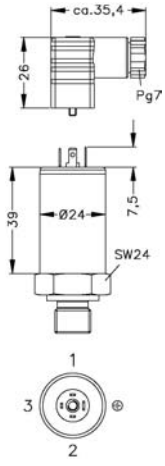
Pin configuration

Electrical connection	ISO 4400	Micro (contact distance 9.4 mm)	M12x1 (4-pin), plastic	cable colours (DIN 47100)
Supply +	1	1	1	wh (white)
Supply –	2	2	2	bn (brown)
Signal + (for 3-wire)	3	3	3	gn (green)
Shield	ground pin	ground pin	4	gn/ye (green / yellow)

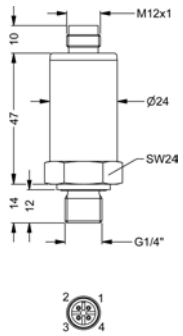
Electrical connections (dimensions in mm)



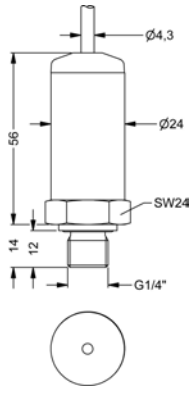
ISO 4400
(IP 65)



Micro, contact-
distance 9.4 mm (IP 65)



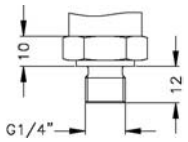
M12x1, 4-pin
(IP 67)



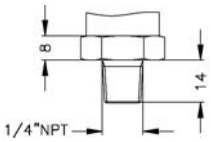
cable outlet
with PVC-cable (IP 67) [3,4]

[3] *standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C)*
[4] *different cable types and lengths available, permissible temperature depends on kind of cable*

Mechanical connection (dimensions in mm)



G1/4" DIN 3852



1/4" NPT

30.600 G

30.600 G - □□□□ - □ - □ - □ - □□□ - □□□ - 2 - □ - □□□

	Code	
Eingang [bar]		
1,6	1601	
2,5	2501	
4,0	4001	
6,0	6001	
10	1002	
16	1602	
25	2502	
40	4002	
60	6002	
100	1003	
160	1603	
250	2503	
Sondermessbereiche	9999	auf Anfrage
Messgröße		
relativ	R	
Ausgang		
4 … 20 mA / 2-Leiter	1	
0 … 10 V / 3-Leiter	3	
0,5 ... 4,5 V / 3-Leiter ratiometrisch	R	
andere	9	auf Anfrage
Genauigkeit		
1,0 % FSO	8	
andere	9	auf Anfrage
Elektrischer Anschluss		
Stecker und Kabeldose ISO 4400	100	
Stecker und Kabeldose Micro	C10	
Stecker M12x1 (4-polig), Kunststoff	M00	
Kabelausgang mit PVC-Kabel [1]	TA0	
andere	999	auf Anfrage
Mechanischer Anschluss		
G1/4" DIN 3852	300	
1/4" NPT	N40	
andere	999	auf Anfrage
Dichtung		
FKM	1	
andere	9	auf Anfrage
Sonderausführungen		
Standard	000	
andere	999	auf Anfrage

[1] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch (Temperatureinsatzbereich: -5 … 70 °C)

LPT 200

Differential Pressure Transmitter for Process Industry with HART®-Communication

accuracy according to IEC 60770:
0.075 % FSO

Differential pressure

from 1 mbar up to 20 bar

Static pressure

max. 400 bar

Output signal

2-wire: 4 ... 20 mA

Special characteristics

- static over pressure 400 bar
- rangeability max. 100:1
- aluminium die cast case
- HART®-communication
- output signal: linear or square root extraction

Optional versions

- Ex-version group I
  - Ex ia = intrinsically safe version for firedamp mines
- Ex-version group II
  - Ex ia = intrinsically safe version
  - Ex d = flameproof enclosure
- LC display
- stainless steel housing

The differential pressure transmitter **LPT 200** has been especially designed for the process industry and can be used for level measurement of closed, pressurized tanks, pump or filter controlling, etc.

LPT 200 can be equipped with various chemical seals and different membrane materials to reach an optimal adaptation to the application.

Preferred areas of use are

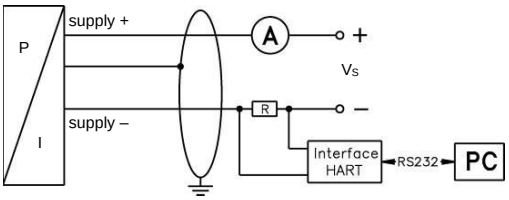
- Oil and gas industry
- Chemical and petrochemical industry
- Energy industry
- Food and beverage
- Paper industry

Differential pressure ranges					
Sensor type	A	B	C	D	E
Differential pressure range dp	10 mbar	60 mbar	400 mbar	2.5 bar	20 bar
Setting limits (offset and span in this range freely adjustable)	-10 ... 10 mbar	-60 ... 60 mbar	-400 ... 400 mbar	-2.5 ... 2.5 bar	-20 ... 20 bar
Lowest permissible span	1 mbar	2 mbar	4 mbar	25 mbar	200 mbar
Permissible static pressure optional	70 bar -	160 bar -	160 bar 400 bar	160 bar 400 bar	160 bar 400 bar
Rangeability TD (with respect to the differential pressure range dp)	10:1	30:1	100:1	100:1	100:1

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA with HART® communication / V_S = 16.5 ... 42 V_{DC}
Option IS-version	2-wire: 4 ... 20 mA with HART® communication / V_S = 16.5 ... 28 V_{DC}
Error signal Namur NE43	high / low (adjustable)
Performance	
Accuracy	turn-down ≤ 10:1: ≤ ± 0.075 % FSO turn-down > 10:1: ≤ ± [0.0075 x turn-down] % FSO with turn-down = nominal pressure range / adjusted range *(FSO = Full Scale Output)*
Influence supply	≤ 0.001 % FSO / 10 V
Influence static pressure	type A: ± [0.015 mbar + 0.1 % of the adjusted range] / 40 bar type B: ± [0.06 mbar + 0.075 % of the adjusted range] / 160 bar type C: ± [0.2 mbar + 0.05 % of the adjusted range] / 160 bar type D: ± [1.25 mbar + 0.05 % of the adjusted range] / 160 bar type E: ± [10 mbar + 0.05 % of the adjusted range] / 160 bar
Influence installation position	max. 400 Pa (can be compensated by zero-point correction)
Long term stability	type A: ≤ ± (0.5 % x differential pressure range dp) / year at reference conditions type B: ≤ ± (0.2 % x differential pressure range dp) / year at reference conditions type C - E: ≤ ± (0.1 % x differential pressure range dp) / year at reference conditions
Permissible load	R_{max} = [(V_S – 16.5 V) / 0.023 A] Ω HART®-communication: R = 230 Ω ... 600 Ω
Response time	type A: approx. 1.6 sec type B: approx. 0.4 sec type C: approx. 0.2 sec type D: approx. 0.2 sec type E: approx. 0.1 sec
Damping	electronic: 0.1 ... 60 sec plus response time
Thermal effects (offset and span)	
Temperature range -20 ... +65°C	type A: ± [0.45 x turn-down + 0.25] % of the adjusted range] type B: ± [0.30 x turn-down + 0.20] % of the adjusted range] type C - E: ± [0.20 x turn-down + 0.10] % of the adjusted range]
Temperature range -40 … -20°C and +65 ... +100°C	type A: ± [0.45 x turn-down + 0.25] % of the adjusted range] type B: ± [0.30 x turn-down + 0.20] % of the adjusted range] type C - E: ± [0.20 x turn-down + 0.10] % of the adjusted range]
Permissible temperatures	
Environment / storage	without display: -40 ... 85 °C
	with display: -20 ... 65 °C (85°C without function)
Media wetted parts	silicone oil: -40 … 100 °C (information: +125 °C short time, max. 30 min.)
	fluorolube oil: -40 … 100 °C (information: +125 °C short time, max. 30 min.)
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Mechanical stability	
One-sided overload	according to the maximum static pressure of differential pressure sensor
Vibration	5 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	100 g / 1 msec according to DIN EN 60068-2-27
Filling fluids	
Standard	silicone oil (-40…125 °C)
Option (on request)	fluorolube oil (-40…125 °C) others on request

Materials	
Pressure port / flange	stainless steel 1.4401 (316) — others on request
Housing	standard: aluminium die cast with epoxy painting (blue) option: stainless steel 1.4301 (304) — others on request
Cable gland	aluminium die cast housing: PA grey (for cable-Ø 5 … 9 mm) stainless steel housing: stainless steel 1.4404 (316L) (for cable-Ø 7 … 12 mm) option IS-version: specified under ″Explosion protection″
Vent and dump valves, blanking plugs, type plate	stainless steel 1.4401 (316) — others on request
Bolts and nuts	steel, zinc flake coated
Seals	standard: FKM (-30 … 250 °C) options: EPDM (-40 … 125 °C) NBR (-40 … 125 °C) PTFE (-180 … 250 °C) — others on request
Diaphragm	standard: stainless steel 1.4435 (316L) option: Hastelloy® C-276 (2.4819) — others on request
Media wetted parts	pressure port, seal, diaphragm
Explosion protection – aluminium die cast housing	
Approval AX18-DPT200 intrinsically safe version	IBExU 14 ATEX 1273 X / IECEx IBE 16.0005X group II: II 1/2G Ex ia IIC T4 Ga/Gb / II 2D Ex ia IIIC T 85 °C Db safety technical maximum values: P_i = 660 mW, Ui = 28 V, I_i = 93 mA, C_i = 29.7 nF, L_i negligible permissible temperatures for environment: -40 ... 60 °C cable gland in PA grey; for cable-Ø 5 … 9 mm
Approval AX18B-DPT200 flameproof enclosure	IBExU 15 ATEX 1110 X / IECEx IBE 16.0006X group II: II 2G Ex db IIC T6 Gb permissible temperatures for environment: -40 ... 65 °C cable gland in brass; for cable-Ø 10 …14 mm
Explosion protection – stainless steel housing	
Approval AX18-DPT200 intrinsically safe version	IBExU 14 ATEX 1273 X / IECEx IBE 16.0005X group I (mines): I M1 Ex ia I Ma group II: II 1G Ex ia IIC T4 Ga / II 2D Ex ia IIIC T85°C Db safety technical maximum values: P_i = 660 mW, Ui = 28 V, I_i = 93 mA, C_i = 29.7 nF, L_i negligible permissible temperatures for environment: -40 ... 60 °C cable gland in stainless steel 1.4404 (316L); for cable-Ø 7 … 12 mm
Miscellaneous	
Display (optionally)	type: LCD, lines: 2, digits: 8, bargraph: 0…100%, rotatability: 90°-steps and / or by turn of display module
Configuration	- offset / span local via 2 buttons - local configuration with an optional display - complete configuration via HART®
Ingress protection	IP 67
Installation position	any
Weight	approx. 3 kg (depending on version)
Current consumption	approx. 23 mA
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU

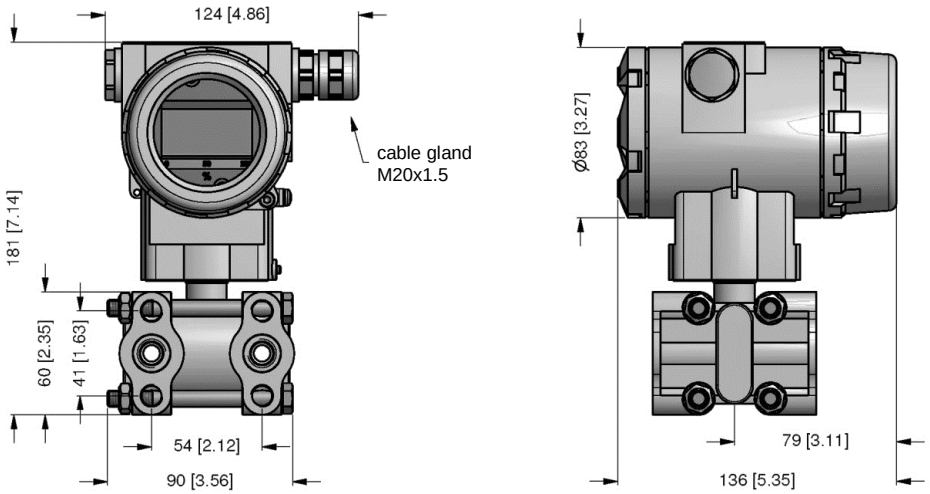
Wiring diagram



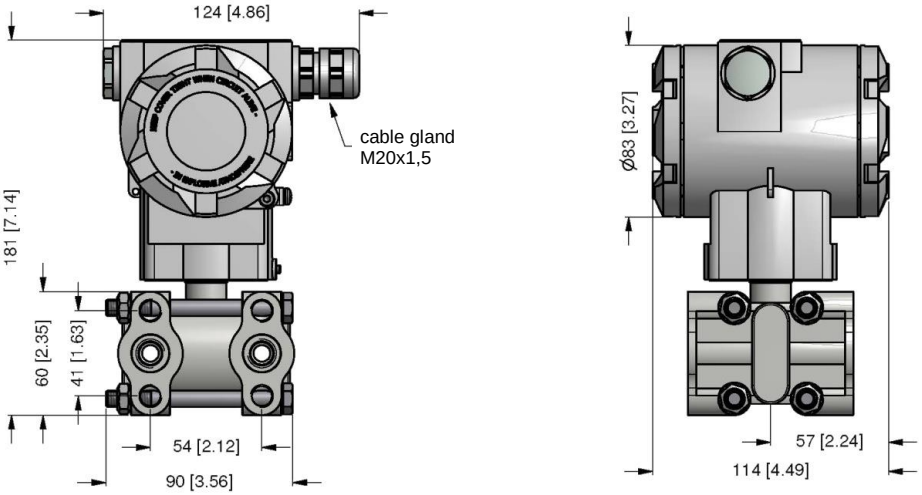
Pin configuration	
Electrical connection	terminal clamps (for cable-Ø max. 2.5 mm²)
Supply + (V_s +) Supply / Test – (V_s –) Test +	+ - TEST +
Ground	⏚

Dimensions (mm / in)

LPT 200 with display

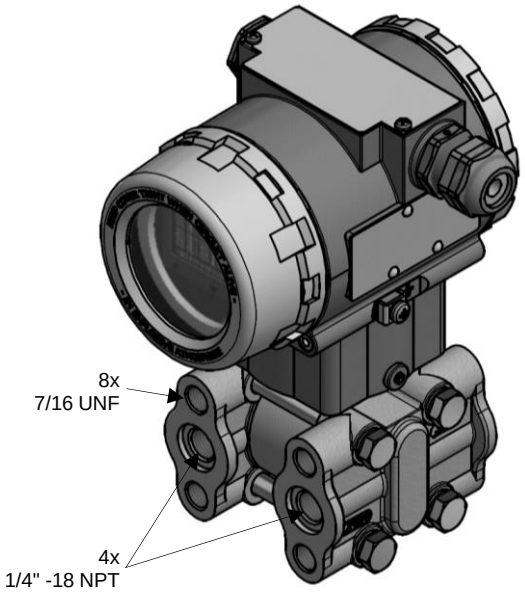


LPT 200 without display

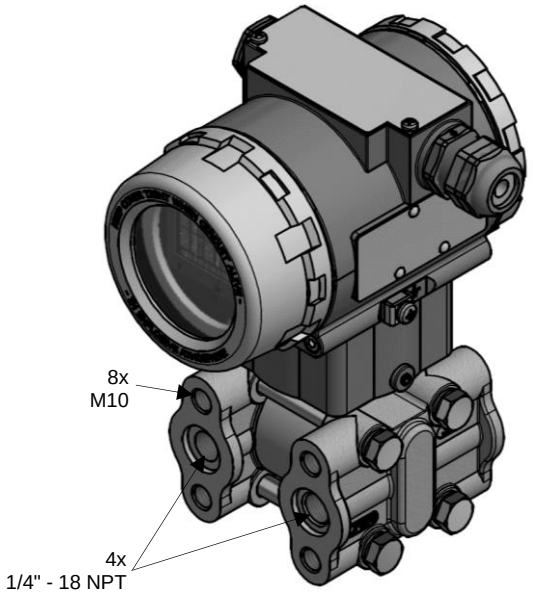


Process connections

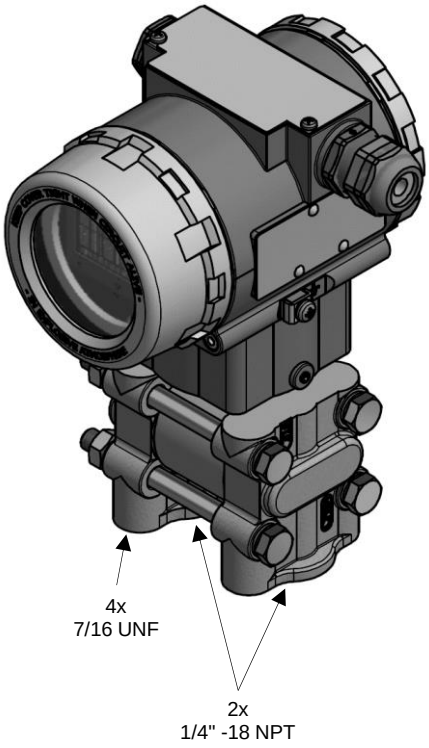
code N20 / N25
1/4" - 18 NPT / fixing 7/16 UNF



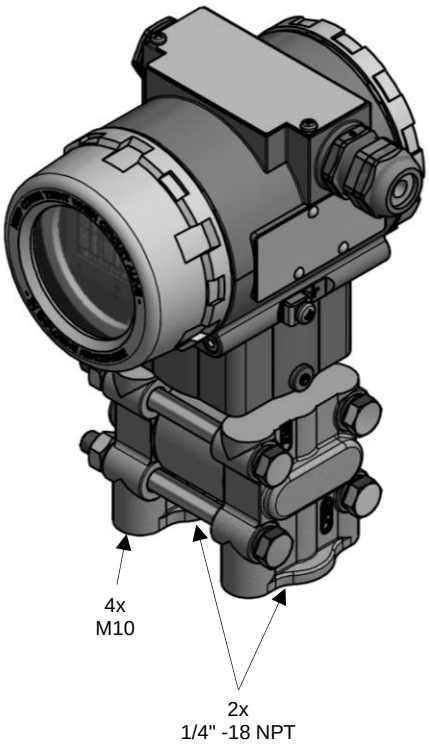
code N30
1/4" - 18 NPT / fixing M10



code N21
1/4" - 18 NPT vertical / fixing 7/16 UNF



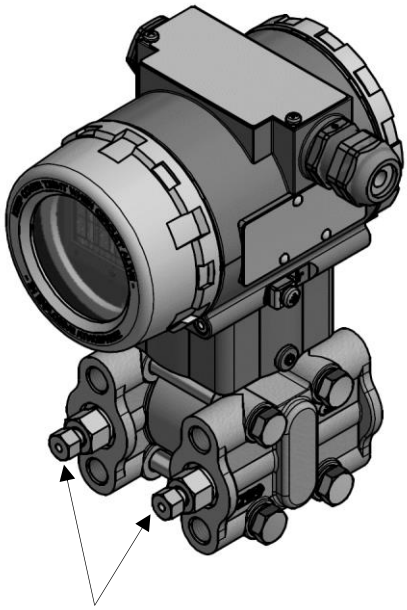
code N31
1/4" - 18 NPT vertical / fixing M10



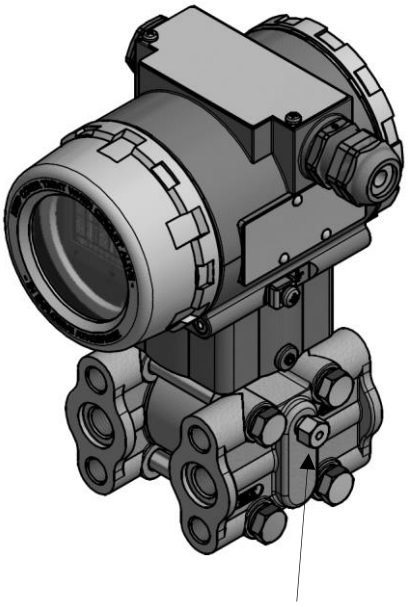
⇨ **In scope of delivery two locking screws 1/4" - 18 NPT are included as standard.**

Valves (optionally)

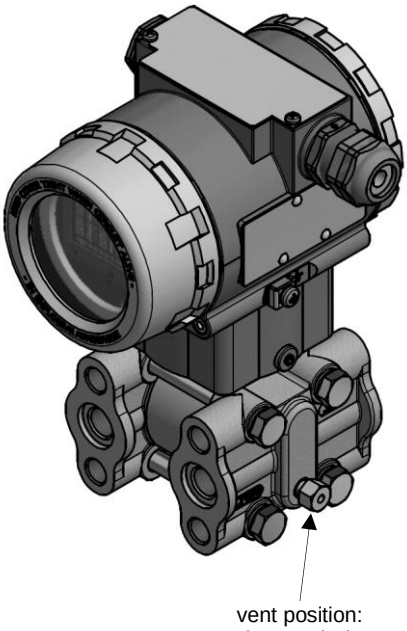
code 1



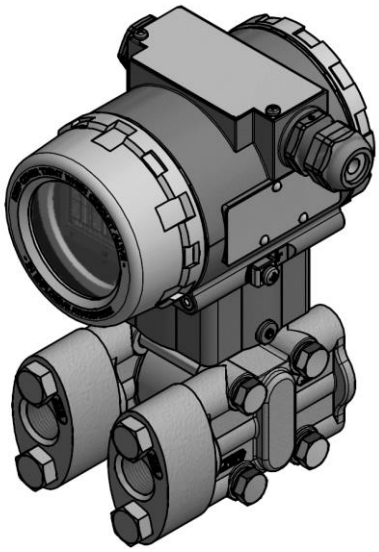
code 2

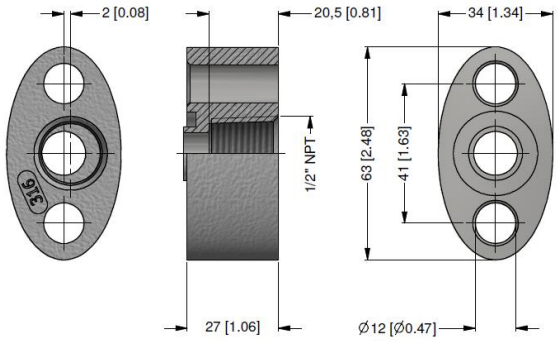


code 3



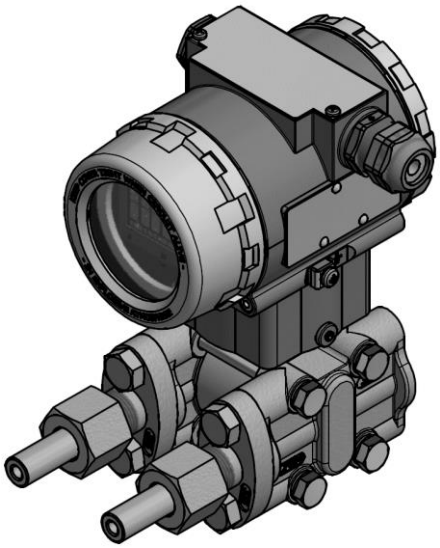
Oval flange adapter 1/2" NPT female

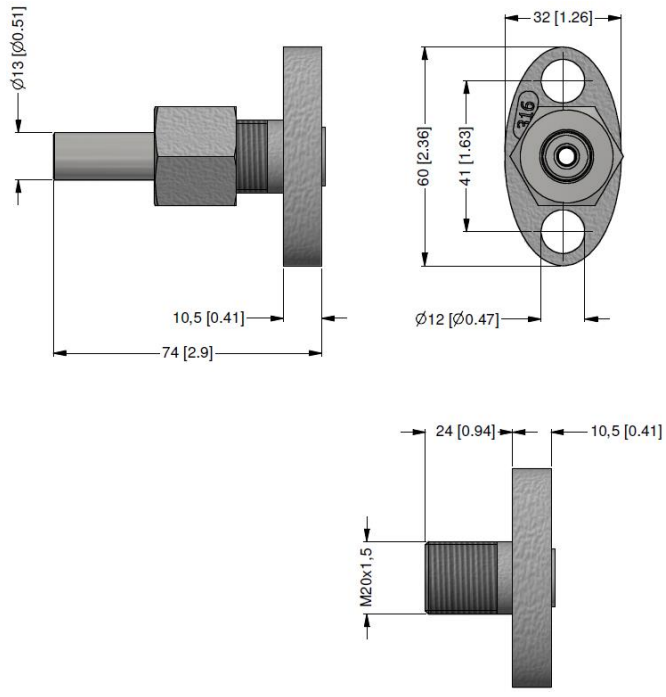




Technical data	
Material of adapter	stainless steel 1.4401 (316)
Weight	approx. 300 g
Scope of delivery	two adapter, four locking screws 7/16 UNF x 1 3/4" A2
Ordering type	
Oval flange adapter with 1/2" NPT female for LPT 200	

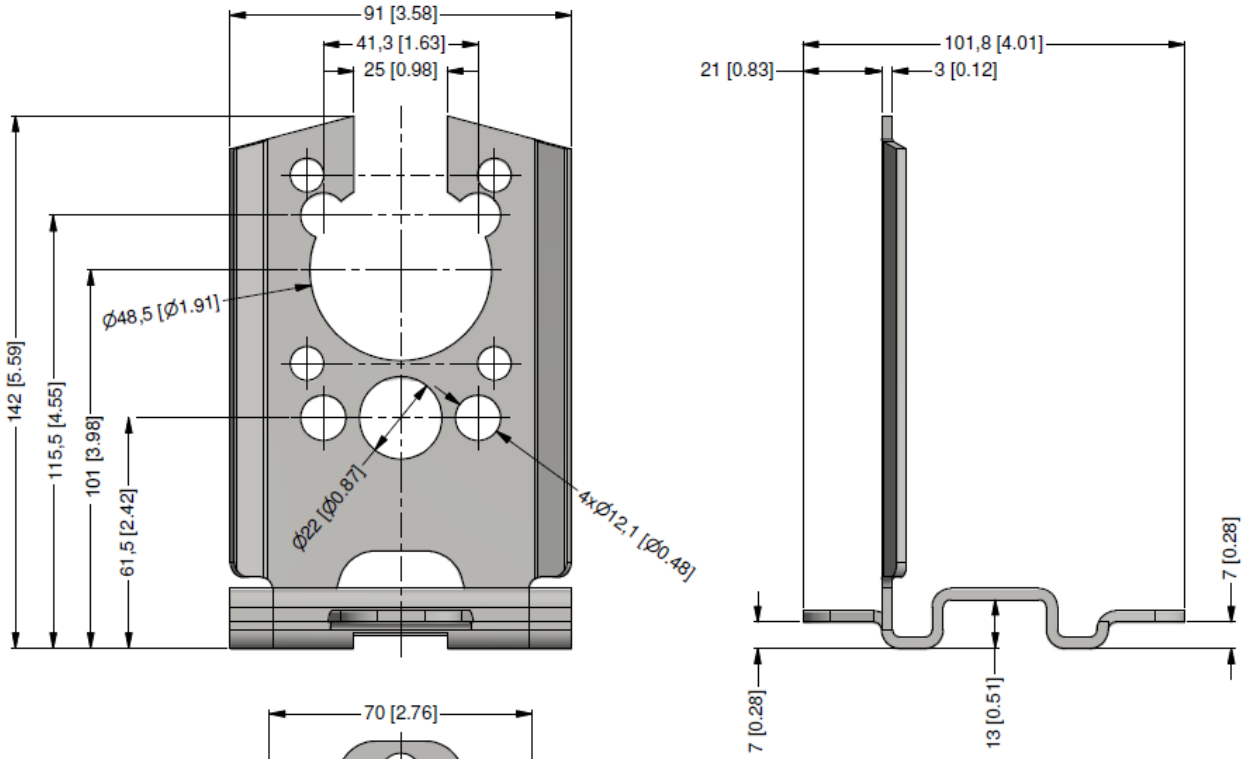
Oval flange adapter M20x1.5 male with tube Ø 13 mm (optionally with volume reduced flange - code N25)



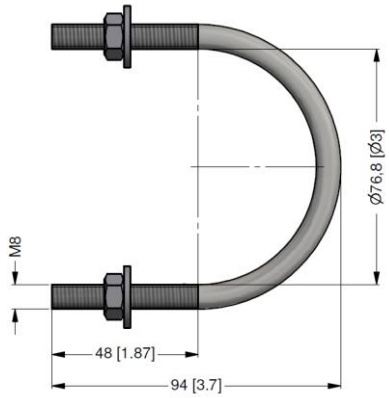


Technical data	
Material of adapter / tube	stainless steel 1.4401 (316)
Weight	approx. 250 g
Scope of delivery	two adapter, four locking screws 7/16 UNF x 1" A2
Ordering type	
Oval flange adapter M20x1.5 male with tube for LPT 200	

Mounting bracket



including U-bracket for pipe mounting:

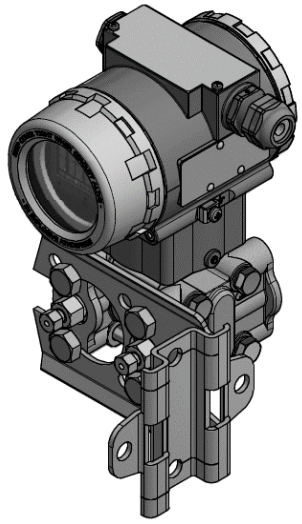


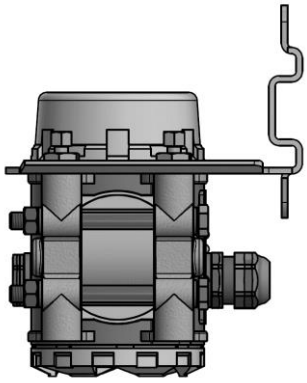
Technical data	
Material of mounting bracket	stainless steel 1.4301 (304)
Weight	approx. 500 g
Scope of delivery	mounting bracket, four locking screws 7/16 UNF x 1 3/4" A2, U-bracket for pipe mounting with two nuts

Ordering type
Mounting bracket for LPT 200

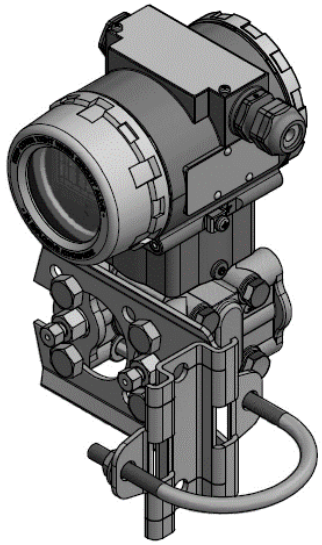
Mounting variants for mounting bracket

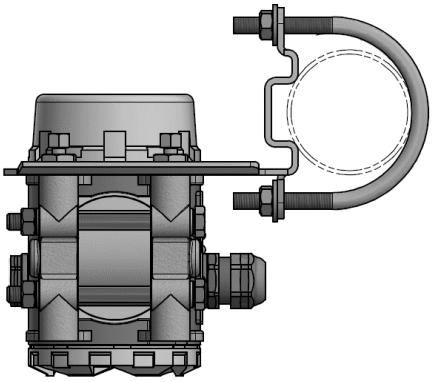
wall mounting





pipe mounting





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Ordering code **LPT 200**

LPT 200 ☐☐☐-☐-☐-☐-☐☐-☐-☐☐-☐☐☐-☐☐☐-☐-☐☐☐-☐-☐☐-☐☐-☐-☐☐☐

Pressure		
differential pressure	3 4 3	
Input [bar]		
type A: 0 ... 1 mbar up to 0 … 10 mbar	A	
type B: 0 … 2 mbar up to 0 … 60 mbar	B	
type C: 0 … 4 mbar up to 0 … 400 mbar	C	
type D: 0 … 25 mbar up to 0 … 2.5 bar	D	
type E: 0 … 200 mbar up to 0 … 20 bar	E	
customer	9	consult
Maximun static pressure		
70 bar (only type A)	7	
160 bar (type B - E)	1	
400 bar (type C - E)	4	
Output		
4 … 20 mA / 2-wire with HART®-communication	H	
group II Ex ia 4 … 20 mA / 2-wire with HART®-communication	I	
group II Ex d 4 … 20 mA / 2-wire with HART®-communication [1]	G	
group I Ex ia 4 … 20 mA / 2-wire with HART®-communication (mines) [2]	FH	
customer	9	consult
Accuracy		
0.075 %	1 7	
Housing		
aluminium	L	
stainless steel 1.4301 (304)	2	
Display		
without display	A N	
with backlight display	A L	
Electrical connection		
terminals / cable gland M20x1.5	A K 0	
customer	9 9 9	consult
Process connection H-side / L-side (identical)		
1/4" - 18 NPT / fixing 7/16 UNF	N 2 0 / N 2 0	
1/4" - 18 NPT / fixing M10	N 3 0 / N 3 0	
1/4" - 18 NPT, vertical / fixing 7/16 UNF	N 2 1 / N 2 1	
1/4" - 18 NPT, vertical / fixing M10	N 3 1 / N 3 1	
1/4" - 18 NPT / fixing 7/16 UNF with volume reduced flange	N 2 5 / N 2 5	
customer	9 9 9 / 9 9 9	consult
Valve H-side / L-side (identical)		
without	0 / 0	
with vent (straight)	1 / 1	
with vent (top) [3]	2 / 2	
with vent (bottom) [3]	3 / 3	
Material flange, valves		
stainless steel 1.4401 (316)	1 2	
Diaphragm / filling fluid		
stainless steel 1.4435 (316L) / silicone oil	1 1	
Hastelloy® C-276 (2.4819) / silicone oil	H 1	
customer	9 9	consult
Seals		
FKM	1	
EPDM	3	
NBR	5	
PTFE	4	
customer	9	consult
Special version		
standard	0 0 0	
customer	9 9 9	consult

Accessories	
oval flange adapter 1/2" NPT female	Z1004181
optionally with N25: oval flange adapter M20x1.5 male with tube	Z1004182
mounting bracket in stainless steel 1.4301 (304)	Z1004179

[1] only in combination with aluminium housing
[2] only in combination with stainless steel housing
[3] only in combination with process connection code N20 or N30

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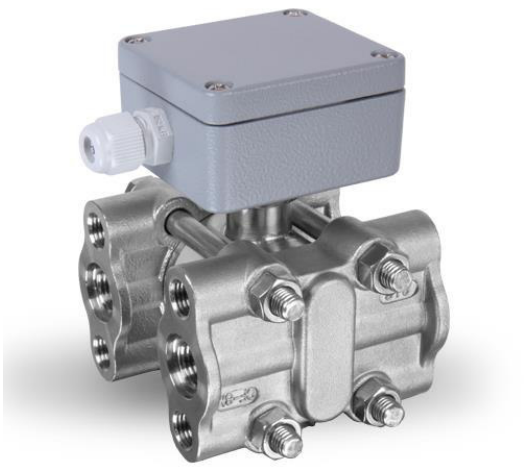
DRUCK & TEMPERATUR
LEITENBERGER GMBH



LPT 100

Differential Pressure Transmitter for Process Industry

accuracy according to IEC 60770:
0.1 % FSO

Differential pressure

from 10 mbar up to 20 bar

Static pressure

max. 400 bar

Output signal

2-wire: 4 ... 20 mA

RS485 with Modbus RTU protocol

Special characteristics

- compact design
- fast response time
- aluminium die cast case
- zero adjustment via button

Optional versions

- several process connections

The differential pressure transmitter LPT 100 has been especially designed for fast test processes in leakage and flow measurement, where a fast response time and high sampling rate are necessary.

The compact design of the LPT 100 facilitates the usage in standardised applications. For instance, the installation in 19" racks.

The LPT 100 with optionally RS485 interface uses the communication protocol Modbus RTU which has found the way in industrial communication as an open protocol. The Modbus protocol is based on a master Slave architecture with which up to 247 Slaves can be questioned by a master – the data will transfer in binary form.

Preferred areas of use are

Test engineering / leak testing

Machine and plant engineering

Environmental technology

Energy production

CE RoHS REACH Modbus®

Differential pressure ranges						
Pressure range P_N diff.	10 mbar	60 mbar	100 mbar	400 mbar	2.5 bar	20 bar
Pressure range P_N symmetric (diff.)	± 10 mbar	± 60 mbar	± 100 mbar	± 400 mbar	on request	on request
Permissible static pressure	70 bar	400 bar	400 bar	400 bar	400 bar	400 bar

Output signal / Supply					
Standard	2 wire : 4 ... 20 mA / V_S = 12 ... 32 V_{DC}				
Option	digital: RS 485 with Modbus RTU protocol / V_S = 9 … 32 V_{DC} (delay time: 500 msec)				
Performance					
Accuracy [1]	P_N ≥ 60 mbar: ≤ ± 0.1 % FSO P_N < 60 mbar: ≤ ± 0.2 % FSO				
Permissible load	R_{max} = [(V_S – $V_{S\,min}$) / 0.02 A] Ω				
Influence supply	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ				
Influence static pressure P_N [Pa/100 bar]	10 mbar 18	60 mbar 30	400 mbar 40	2.5 bar 250	20 bar 2000
Influence installation position	max. 400 Pa (can be compensated by zero-point correction) **for ranges < 60 mbar please state installation position on the order**				
Long term stability	P_N ≥ 60 mbar: ≤ ± 0.05 %FSO/ year at reference conditions P_N < 60 mbar: ≤ ± 0.15 %FSO/ year at reference conditions				
Sampling rate	250 Hz				
Turn-on time	approx. 260 msec				
Response time (10 … 90 %)	10 msec				
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)					
Thermal effects (Offset and Span)					
Thermal error (offset and span)	≤ ± 0.1 % FSO / 10 K				
Compensated range	-20 ... 80 °C				
Permissible temperatures	medium: -25 … 85°C electronics / environment: -25 … 85°C storage: -25 … 85°C				
Electrical protection					
Short-circuit protection	permanent				
Reverse polarity protection	no damage, but also no function				
Electromagnetic compatibility	emission and immunity according to EN 61326				
Mechanical stability					
One-sided overload	according to the maximum static pressure of differential pressure sensor				
Vibration	5 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6				
Shock	100 g / 1 msec according to DIN EN 60068-2-27				
Materials					
Pressure port / flange standard option	 stainless steel 304 / 1.4301 stainless steel 316 / 1.4401 others: on request				
Diaphragm	stainless steel 316L / 1.4404 others: on request				
Vent and dump valves Blanking plugs standard option	 stainless steel 304 / 1.4301 stainless steel 316 / 1.4401				
Bolts and nuts standard option	 stainless steel 304 / 1.4301 stainless steel 316 / 1.4401 others: on request				
Housing	aluminium die cast with epoxy painting (grey) others: on request				
Cable gland	polyamide				
Seals (media wetted) standard option	 FKM EPDM, NBR others: on request				
Filling fluids	silicone oil others: on request				
Media wetted parts	pressure port, seal of pressure port, diaphragm				

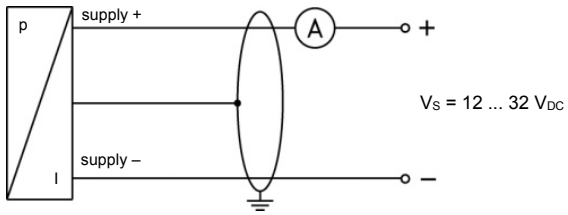
Miscellaneous	
Mounting bracket (optionally)	material C-steel or stainless steel 304 / 1.4401 weight 0.45 kg (incl. bolts and nuts)
Ingress protection	IP 66 / IP 67
Installation position	any [2]
Weight	approx. 1800 g
Current consumption	approx. 23 mA
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) [3]

[2] Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point. Press the button for zero adjustment (see operating manual).
[3] This directive is only valid for devices with maximum permissible overpressure > 200 bar.

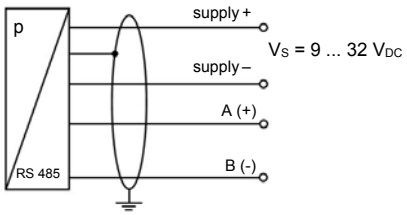
Connections	
Electrical connection	terminal clamps in clamping chamber (for cable-Ø max.2.5 mm²)
Process connections Standard option	 internal thread 1/4" - 18 NPT / fixing 7/16 UNF internal thread 1/4" - 18 NPT / fixing M10 others: on request

Wiring diagram

2-wire-system (current)

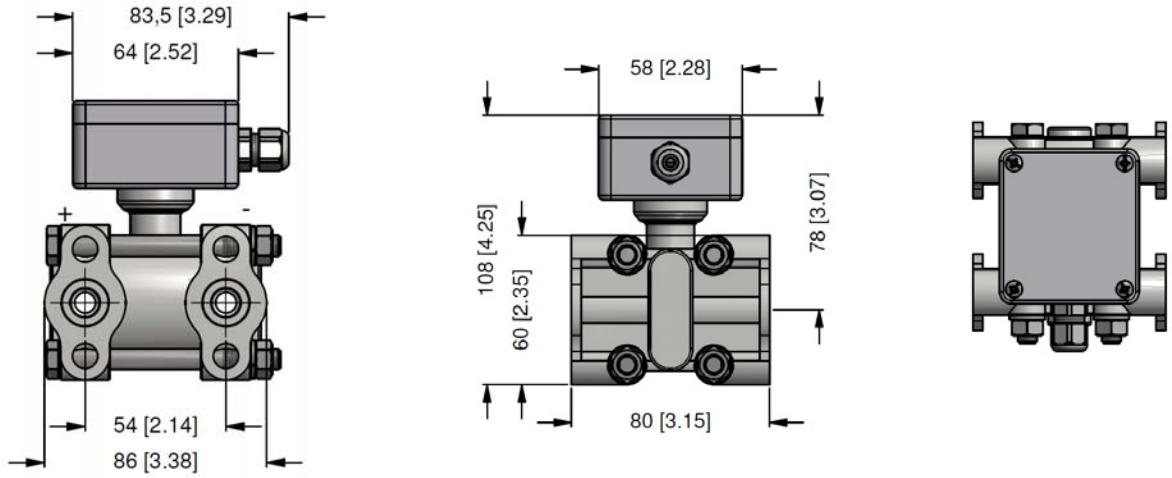


RS485 / Modbus RTU



Pin configuration		
Electrical connection	terminal clamps	M12x1 / metal (4-pin)
Supply + Supply – for RS485 / Modbus RTU: A (+) B (–)	+ Ub - Ub A B	1 3 2 4
Ground	⏚	plug housing

Dimensions (mm / in)



Ordering code LPT 100

LPT 100 □□□-□□□□-□-□-□-□□□-□□□-□-□□-□□-□-□□□

Pressure		
differential pressure	345	
Input		
10 mbar	0100	
60 mbar	0600	
100 mbar	1000	
400 mbar	4000	
2.5 bar	2501	
20 bar	2002	
customer	9999	consult
Output		
4 … 20 mA / 2-wire	1	
RS485 Modbus RTU	L5	
customer	9	consult
Accuracy		
P_N ≥ 60 mbar: 0,1 % FSO	1	
P_N < 60 mbar: 0,2 % FSO	B	
customer	9	consult
Housing		
Aluminium	L	
customer	9	consult
Electrical connection		
terminals / cable gland M12x1.5	AK2	
Male plug M12x1 (4-pin) / metal	M17	
customer	999	consult
Process connection		
1/4" - 18 NPT F / fixing 7/16 UNF	N20	
1/4" - 18 NPT (F / vertical) / fixing 7/16 UNF	N21	
1/4" - 18 NPT F / fixing M10	N30	
1/4" - 18 NPT (F / vertical) / fixing M10	N31	
customer	999	consult
Valve		
without	0	
with vent	1	
with vent (top)	2	
with vent (bottom)	3	
Material flange, valves, screws, …		
stainless steel 1.4301 (304 SS)	02	
stainless steel 1.4401 (316 SS)	12	
customer	99	consult
Diaphragm / filling fluid		
stainless steel 1.4435 (316L) / silicone oil	11	
customer	99	consult
Seals		
FKM	1	
EPDM	3	
NBR	5	
PTFE	4	
customer	9	consult
Special version		
standard	000	
customer	999	consult

DRUCK & TEMPERATUR
LEITENBERGER GMBH

DMD 331

Differential Pressure Transmitter for Liquids and Gases

Stainless Steel Sensor

accuracy according to IEC 60770:
0.5 % FSO

Differential pressure

from 0 ... 20 mbar up to 0 ... 16 bar

Output signals

2-wire: 4 ... 20 mA
3-wire: 0 ... 10 V

Special characteristics

- differential pressure wet / wet
- permissible static pressure -onesided- up to 30 times of differential pressure range
- compact design
- mechanical robust and reliable at dynamic pressures as well as shock and vibration

Optional versions

- IS-version
  Ex ia = intrinsically safe
  for gases and dust
- different electrical and mechanical connections
- customer specific versions

The **DMD 331** is a differential pressure transmitter for industrial applications and is based on a piezoresistive stainless steel sensor, which can be pressurized on both sides with fluids or gases compatible with SST 1.4404 (316L) and 1.4435 (316L).

The compact design allows an integration of the **DMD 331** in machines and applications with limited space. The **DMD 331** calculates the difference between the pressure on the positive and the negative side and converts it into a proportional electrical signal.

Preferred areas of use are

- Plant and machine engineering
- Energy industry

Preferred used for

- Water

Input pressure range						
Nominal pressure [bar]	0.2	0.4	1	2.5	6	16
Differential pressure range [bar] TD 1 : 1 up to TD 1 : 10	0 ... 0.2 up to 0 ... 0.02	0 ... 0.4 up to 0 ... 0.04	0 ... 1 up to 0 ... 0.1	0 ... 2.5 up to 0 ... 0.25	0 ... 6 up to 0 ... 0.6	0 ... 16 up to 0 ... 1.6
Permissible static pressure, one-sided [bar]	0.5	1	3	6	20	60

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / V_S = 12 ... 36 V_{DC}
Option IS-version	2-wire: 4 ... 20 mA / V_S = 14 ... 28 V_{DC}
Option 3-wire	3-wire: 0 ... 10 V / V_S = 14 ... 36 V_{DC}
Performance	
Accuracy [1]	**for ranges of max. input pressure p_N > 1 bar (codes C, D, E)** ≤ ± 0.5 % FSO (differential pressure range with TD from 1:1 up to 1:5) ≤ ± 1 % FSO (differential pressure range with TD > 1:5 up to 1:10) **for ranges of max. input pressure p_N ≤ 1 bar (codes A, B, F)** ≤ ± 0.5 % FSO (differential pressure range with TD from 100 to 50 % from nominal pressure) ≤ ± 1 % FSO (differential pressure range with TD > 50 to 10 % from nominal pressure)
Permissible load	current 2-wire: $R_{max} = [(V_S - V_S \text{ min}) / 0.02 \text{ A}]\ \Omega$ voltage 3-wire: R_{min} = 10 kΩ
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / kΩ
Long term stability	≤ ± 0.2 % FSO / year at reference conditions
Response time	< 5 msec

[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

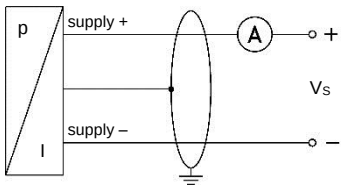
Thermal effects [2] (offset and span) / Permissible temperatures			
Nominal pressure p_N [bar]	0.2	0.4	≥ 1.0
Tolerance band [% FSO]	≤ ± 2.5	≤ ± 2	≤ ± 1.5
TC, average [% FSO / 10 K]	± 0.4	± 0.3	± 0.2
in compensated range [°C]	0 ... 50		0 … 70
Permissible temperatures	medium: -25 ... 125 °C	electronics / environment: -25 ... 85 °C	storage: -40 ... 100 °C

[2] relating to nominal pressure range

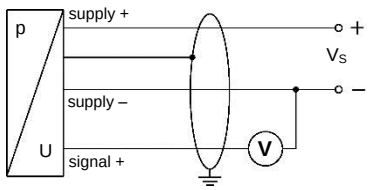
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Mechanical stability	
Vibration	10 g RMS (20 ... 2000 Hz)
Shock	100 g / 11 msec
Materials	
Pressure port	stainless steel 1.4404 (316L)
Housing	aluminium, black anodized
Seals (media wetted)	FKM / others on request
Diaphragm	stainless steel 1.4435 (316L)
Media wetted parts	pressure port, seals, diaphragm
Miscellaneous	
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 250 g
Operational life	100 million load cycles
Ingress protection	IP 65
CE-conformity	EMC Directive: 2014/30/EU
ATEX Directive	2014/34/EU
Explosion protection (only for 4 … 20 mA / 2 wire)	
Approvals DX13A-DMD 331	IBExU 08 ATEX 1125 X zone 1: II 2G Ex ia IIC T4 Gb zone 21: II 2D Ex ia IIIC T85°C Db
Safety technical maximum values	U_i = 28 V_{DC}, I_i = 93 mA, P_i = 660 mW, C_i ≤ 1 nF, L_i ≤ 10 µH, the supply connections have an inner capacity of max. 27 nF to the housing
Permissible temperatures for environment	-25 ... 65°C
Pin configuration	
Electrical connection	ISO 4400
Supply + Supply – Signal + (only 3-wire)	1 2 3
Shield	ground pin ⏚

Wiring diagrams

2-wire-system (current)

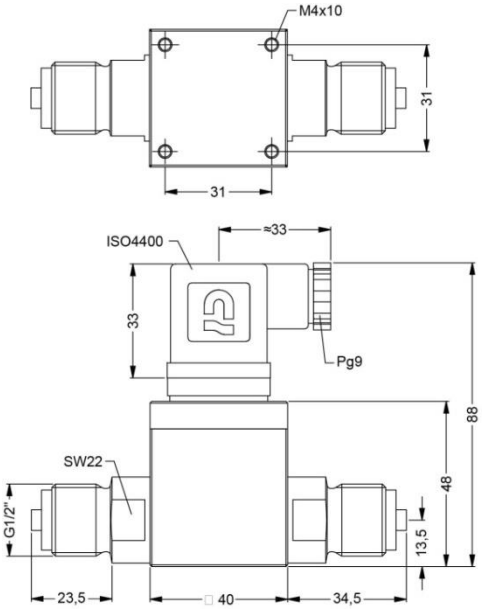


3-wire-system (voltage)



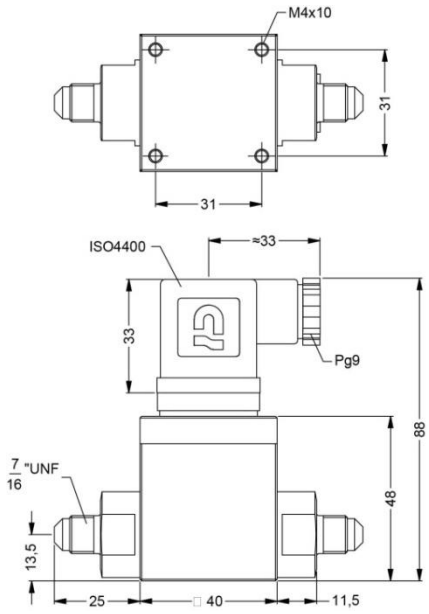
Mechanical connection (dimensions in mm)

standard

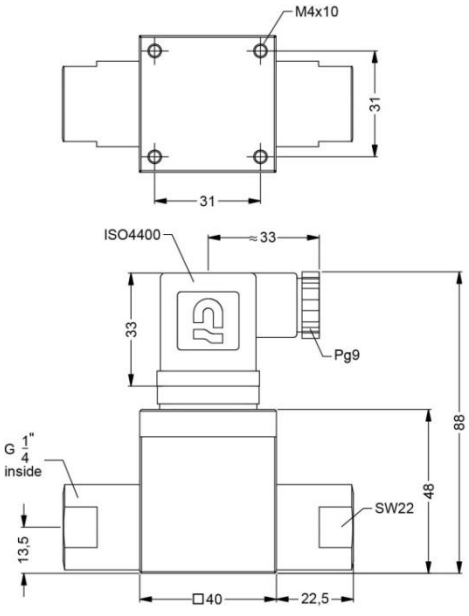


G1/2" EN 837

option



7/16" UNF DIN 3866



G1/4" internal

DRUCK & TEMPERATUR
Leitenberger GmbH

Specification Sheet Differential Pressure Transmitter DMD 331

DMD 331 ☐☐☐-☐-☐☐☐☐-☐-☐-☐☐☐-☐☐☐-☐-☐☐☐

Pressure	Code	
differential pressure	7 3 0	

Nominal pressure range [bar]	Code	
0.2	F	
0.4	A	
1.0	B	
2.5	C	
6.0	D	
16	E	
customer	9	consult

Differential pressure range [bar]	F	A	B	C	D	E	Code	
0.02	■						0 2 0 0	
0.04	■	■					0 4 0 0	
0.10	■	■	■				1 0 0 0	
0.25		■	■	■			2 5 0 0	
0.40		■	■	■			4 0 0 0	
0.60			■	■	■		6 0 0 0	
1.0			■	■	■		1 0 0 1	
2.5				■	■	■	2 5 0 1	
4.0					■	■	4 0 0 1	
6.0					■	■	6 0 0 1	
10						■	1 0 0 2	
16						■	1 6 0 2	
customer							9 9 9 9	consult

Output	Code	
4 … 20 mA / 2-wire	1	
intrinsic safety 4 … 20 mA / 2 wire	E	
0 … 10 V / 3-wire	3	
customer	9	consult

Accuracy		Code	
TD ≤ 1:5	0.5 % FSO	5	
TD > 1:5 up to 1:10	1.0 % FSO	8	
	customer	9	consult

Electrical connection	Code	
male and female plug ISO 4400	1 0 0	
customer	9 9 9	consult

Mechanical connection	Code	
G1/2" EN 837	2 0 0	
7/16" UNF DIN 3866	U 0 0	
G1/4" internal thread	J 0 0	
customer	9 9 9	consult

Seals	Code	
FKM	1	
customer	9	consult

Special version	Code	
standard	0 0 0	
customer	9 9 9	consult

Prices EXW Kirchentellinsfurt, excluding package

DMD 831

Differential Pressure Transmitter with Display and Contact for Fluids and Gases

- 2 piezoresistive stainless steel sensors
- differential pressure from 0 ... 1 bar up to 0 ... 70 bar
- display and pressure port rotatable

Technical Data

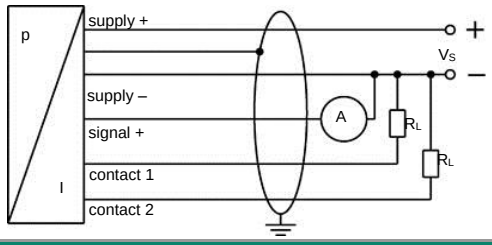
CE

Input pressure range							
Type	D5	D6	D7	D8	DA	DB	H1
Differential pressure range gauge/abs (calibration) [bar]	0 … 1	0 … 2	0 … 3,5	0 … 7	0 … 20	0 … 35	0 … 70
Permissible static pressure one-sided [bar]	1	2	3,5	7	20	35	70

Analogue signal / Supply		
Standard	3-wire: 4 ... 20 mA	24 V_{DC} ± 10 %
Permissible load	500 Ω	
Accuracy [1]	≤ ± 1 % BFSL	
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)		
Contact		
Number, type	standard: 1 PNP	option: 2 independent PNP
Max. switching current	125 mA, short-circuit proof	
Switching accuracy [1]	≤ ± 0.5 % FSO	
Repeatability	≤ ± 0.1 % FSO	
Switching cycles	> 100 x 10^6	
Delay time	0 ... 100 sec	
Programming		
Adjustability	analogue output / contact refers to:	- pressure (+ port) - pressure (- port) - differential pressure
	Turn-Down: max. 1:10	
Thermal error [2] (offset and span) / Permissible temperatures		
Tolerance band	≤ ± 1.5 % FSO	
TC, average	± 0.2 % FSO / 10 K	
In compensated range	0 ... 70 °C	
Permissible temperatures	medium: -40 ... 125 °C	electronics / environment: -25 … 85 °C — storage: -40 ... 85 °C
[2] relating to nominal pressure range		
Electrical protection		
Short-circuit protection	permanent	
Reverse polarity protection	no damage, but also no function	
Electromagnetic compatibility	emission and immunity according to EN 61326	

Mechanical stability		
Vibration	10 g RMS (20 ... 2000 Hz)	according to DIN EN 60068-2-6
Shock	100 g / 11 msec	according to DIN EN 60068-2-27
Materials		
Pressure port	stainless steel 1.4404 (316L)	
Housing	PA 6.6, Polycarbonate	
Seals (media wetted)	FKM	others on request
Diaphragm	stainless steel 1.4435 (316L)	
Media wetted parts	pressure port, seals, diaphragm	
Miscellaneous		
Display	4-digit, red LED-display, digit size 7 mm range of indication -1999 ... +9999; accuracy 0.1 % +/- 1 digit; digital damping 0.3 … 30 sec (programmable);	
Current consumption	signal output current: max. 60 mA (without switching current)	
Weight	approx. 350 g	
Operational life	> 100 x 10^6 pressure cycles	
Ingress protection	IP 65	
Electrical connections		
Standard	connector M12x1 / 5- pin (IP 67)	others on request

Wiring diagram

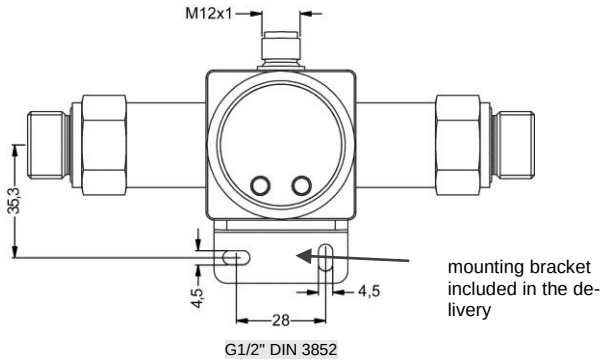


Pin configuration

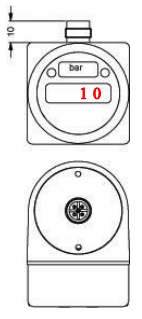
Electrical connections	M12x1 (5-pin), plastic	cable outlet (IP 67)
Supply +	1	wh (white)
Supply –	3	bn (brown)
Signal +	2	gn (green)
Contact 1	4	gy (grey)
Contact 2	5	pk (pink)
Shield	via pressure port	ye/gn (yellow / green)

Mechanical connections (in mm) — **Electrical connections (dimensions in mm)**

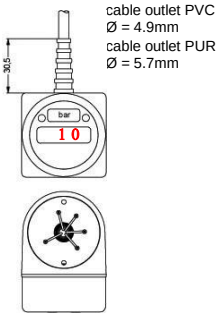
standard



G1/2" DIN 3852

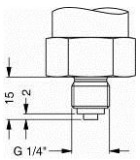


M12x1 (5-polig)

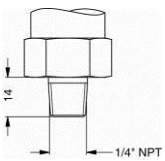


cable outlet

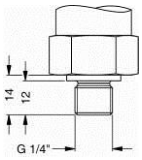
option



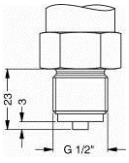
G1/4" EN 837



1/4" NPT



G1/4" DIN 3852



G1/2" EN 837

DMD 831

DMD 831 ☐☐☐-☐☐-☐☐☐☐-☐-☐-☐-☐☐☐-☐☐☐-☐-☐☐☐

Messgröße	Pressure	Code	
Differenzdruck rel.	differential pressure gauge	7 3 2	
Differenzdruck abs.	differential pressure abs.	7 3 3	

max. statischer Druck [bar]	max. static pressure [bar]	Code	
1	1	D 5	
2	2	D 6	
3,5	3.5	D 7	
7	7	D 8	
20	20	D A	
35	35	D B	
70	70	H 1	
Sondermessbereiche	customer	9 9	auf Anfrage consult

Differenzdruckbereich [bar] Minimum	Maximum	differential pressure range [bar] Minimum	Maximum	D5	D6	D7	D8	DA	DB	H1	Code	
0,1	1	0.1	1	■	■	■	■				1 0 0 1	
0,2	2	0.2	2		■	■	■	■			2 0 0 1	
0,35	3,5	0.35	3.5			■	■	■	■		3 5 0 1	
0,7	7	0.7	7				■	■	■	■	7 0 0 1	
2	20	2	20					■	■	■	2 0 0 2	
3,5	35	3.5	35						■	■	3 5 0 2	
7	70	7	70							■	7 0 0 2	
Sondermessbereiche		customer									9 9 9 9	auf Anfrage consult

Analogausgang	Analogue output	Code	
4 … 20 mA / 3-Leiter	4 … 20 mA / 3-wire	7	
andere	customer	9	auf Anfrage consult

Schaltausgang	Contact	Code	
1 Schaltausgang PNP	1 contact PNP	1	
2 Schaltausgänge PNP	2 contacts PNP	2	
andere	customer	9	auf Anfrage consult

Genauigkeit	Accuracy	Code	
1 % FSO BFSL	1% FSO BFSL	G	
andere	customer	9	auf Anfrage consult

Elektrischer Anschluss	Electrical connection	Code	
M12x1 (5-polig)	M12x1 (5-pin)	N 0 1	
Kabelausgang mit PVC-Kabel	Cable outlet with PVC cable [1]	T A 0	auf Anfrage consult
andere	customer	9 9 9	auf Anfrage consult

Mechanischer Anschluss	Mechanical connection	Code	
G 1/2" DIN 3852	G 1/2" DIN 3852	1 0 0	
G 1/2" EN 837	G 1/2" EN 837	2 0 0	
G 1/4" DIN 3852	G 1/4" DIN 3852	3 0 0	
G 1/4" EN 837	G 1/4" EN 837	4 0 0	
1/2" NPT	1/2" NPT	N 0 0	
1/4" NPT	1/4" NPT	N 4 0	
andere	customer	9 9 9	auf Anfrage consult

Dichtung	Seals	Code	
FKM	FKM	1	
andere	customer	9	auf Anfrage consult

Sonderausführungen	Special version	Code	
Standard	standard	0 0 0	
andere	customer	9 9 9	auf Anfrage consult

Preise EXW Thierstein, ausschl. Ver| Prices EXW Thierstein, excluding package

[1] Standard: 2 m PVC-Kabel ohne Belüftungsschlau standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C)

DRUCK & TEMPERATUR
LEITENBERGER GMBH

DMD 341

Differential Pressure Transmitter For Gases And Compressed Air In Compact Version

Silicon Sensor

accuracy according to IEC 60770:
0.35 % / 1% / 2%

Differential-Pressure Transmitter

DMD 341

Differential pressure:

from 0 ... 6 mbar
up to 0 ... 1000 mbar

Output signals:

2-wire: 4 … 20 mA
(12 ± 8) mA
3-wire: 0 ... 20 mA / 0 ... 10 V
(10 ± 10) mA / (5 ± 5) V

Special characteristics:

- ► aluminium housing
- ► suited for non-aggressive gases and compressed air

Optional versions:

- ► display and switching module with up to 2 contacts
- ► customer specific versions

CE

The **DMD 341** is a differential pressure transmitter for non-aggressive gases and compressed air. Because of its compact and robust aluminium housing it is particularly suited for machine and plant engineering.

Basic element of the **DMD 341** is a piezoresistive silicon pressure sensor, which features high accuracy and excellent long term stability.

In combination with our display and switching unit PA 430 the user has a 4-digit LED-display for representing the differential pressure as well as up to 2 freely configurable contacts.

Preferred areas of use are:

Plant and Machine Engineering

Heating and Air Conditioning

Preferred used for:

Compressed Air,
Non-Aggressive Gases

Input pressure range											
Nominal pressure P_N [mbar] (over, differential pressure)	0...6	0...10	0...20	0...40	0...60	0...100	0...160	0...250	0...400	0...600	0...1000
Nominal pressure P_N symmetric (differential pressure) [mbar]	± 6	± 10	± 20	± 40	± 60	± 100	± 160	± 250	± 400	± 600	± 1000
Overpressure [mbar]	100	100	200	350	350	1000	1000	1000	1000	3000	3000

Output signal / Supply				
Standard	standard pressure range:	2-wire:	4 ... 20 mA	/ V_S = 12 ... 36 V_{DC}
	symmetric pressure range:	2-wire:	(12 ± 8) mA	/ V_S = 12 ... 36 V_{DC}
Options 3-wire	standard pressure range:	3-wire:	0 ... 20 mA	/ V_S = 14 ... 36 V_{DC}
			0 ... 10 V	/ V_S = 14 ... 36 V_{DC}
	symmetric pressure range:	3-wire:	(10 ± 10) mA	/ V_S = 14 ... 36 V_{DC}
			(5 ± 5) V	/ V_S = 14 ... 36 V_{DC}

Performance			
Accuracy [1]	P_N > 160 mbar:	≤± 0.35 % FSO	
	40 mbar ≤ P_N ≤ 160 mbar:	≤± 1 % FSO	
	P_N < 40 mbar:	≤± 2 % FSO	
Permissible load	current 2-wire:	R_{max} = [(V_S – V_S min) / 0.02] Ω	
	current 3-wire:	R_{max} = 500 Ω	
	voltage 3-wire:	R_{min} = 10 kΩ	
Influence effects	supply:	0.05 % FSO / 10 V	
	load:	0.05 % FSO / kΩ	
Long term stability	≤± 0.2 % FSO / year		
Response time	< 5 msec		

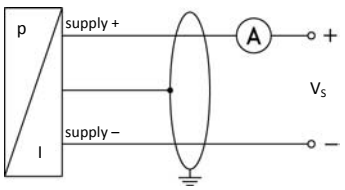
[1] *accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)*

Thermal effects (Offset and Span) / Permissible temperatures				
Nominal pressure P_N [mbar]	≤ 10	≤ 20	≤ 250	> 250
Tolerance band [% FSO]	≤± 2	≤± 1.5	≤± 1	≤± 0.5
TC, average [% FSO / 10 K]	≤± 0.3	≤± 0.25	≤± 0.15	≤± 0.08
in compensated range	0 ... 60 °C			
Permissible temperatures	medium: -25 ... 125 °C	electronics / environment: -25 ... 85 °C		storage: -40 ... 100 °C

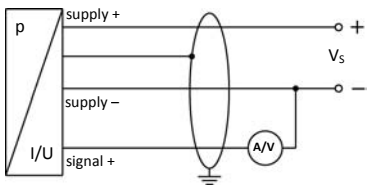
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Mechanical stability	
Vibration	10 g RMS (20 ... 2000 Hz)
Shock	100 g / 11 msec
Display and switching unit PA 430 (optional)	
Technical data of display and switching unit see data sheet PA 430	
Materials	
Pressure port	G1/8“internal: aluminium, silver anodized flexible tube connection Ø6.6 x 11: brass, nickel plated
Housing	aluminium, silver anodised
Seal (media wetted)	PUR, bonded
Sensor	silicon, glass, RTV, ceramics Al_2O_3, nickel
Media wetted parts	pressure port, housing, seal, sensor
Miscellaneous	
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1 µH/m
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 250 g
Operational life	> 100 x 10^6 pressure cycles
CE-conformity	EMC Directive: 2004/108/EC

Pin configuration			
Electrical connection	ISO 4400	M12x1 (4-pin)	cable colours (DIN 47100)
Supply +	1	1	white
Supply –	2	2	brown
Signal + (only 3-wire)	3	3	green
Shield	ground pin	4	yellow / green

Wiring diagrams

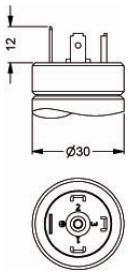


3-wire-system (current / voltage)



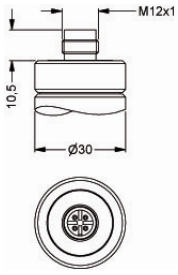
Electrical connections (dimensions in mm)

standard

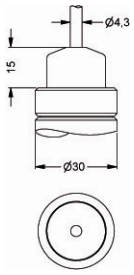


ISO 4400 (IP 65)

option



M12x1 4-pin (IP 67)

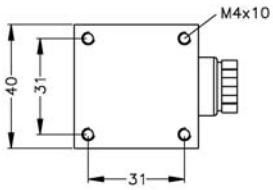


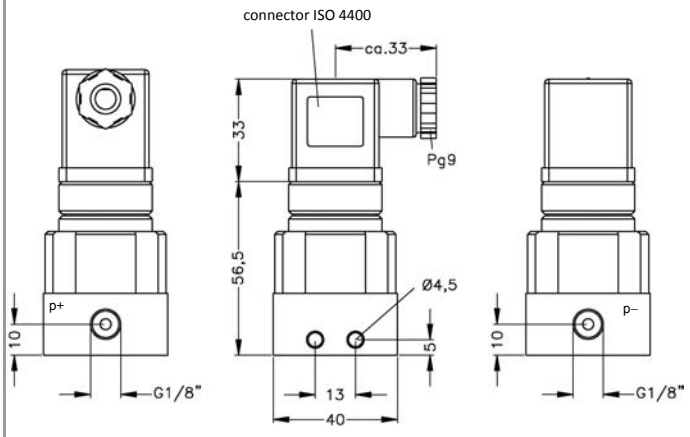
Cable outlet with PVC-cable (IP 67) [2]

[2] *standard: 2 m PVC cable (without ventilation tube), optionally cable with ventilation tube*

Mechanical connection (dimensions in mm)

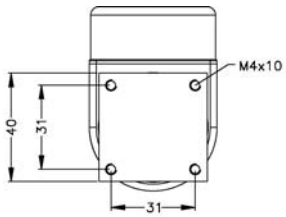
Standard

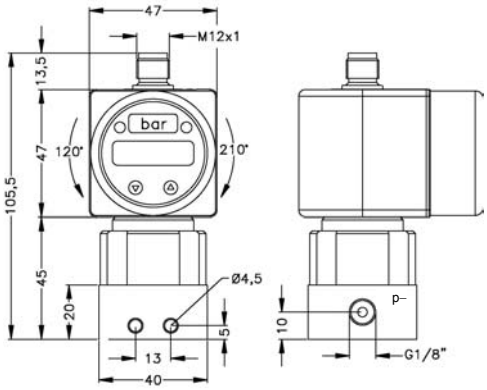


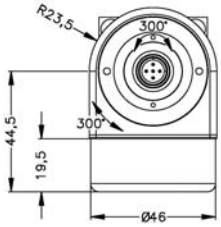


G1/8“ internal

Version with display and switching unit PA 430







G1/8“ internal
with display and switching module PA 430

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Spezifikationsblatt / *specification sheet*

DMD 341

DMD 341 ☐☐☐-☐☐☐☐-☐-☐-☐☐☐-☐☐☐-☐-☐☐☐

Messgröße		
Differenzdruck	3 3 0	
Relativdruck	3 3 1	
Eingang [mbar]		
6	0 0 6 0	
10	0 1 0 0	
20	0 2 0 0	
40	0 4 0 0	
60	0 6 0 0	
100	1 0 0 0	
160	1 6 0 0	
250	2 5 0 0	
400	4 0 0 0	
600	6 0 0 0	
1000	1 0 0 1	
-6 ... 6	S 0 0 6	auf Anfrage
-10 ... 10	S 0 1 0	auf Anfrage
-20 ... 20	S 0 2 0	auf Anfrage
-40 ... 40	S 0 4 0	auf Anfrage
-60 ... 60	S 0 6 0	auf Anfrage
-100 ... 100	S 1 0 0	auf Anfrage
-160 ... 160	S 1 6 0	auf Anfrage
-250 ... 250	S 2 5 0	auf Anfrage
-400 ... 400	S 4 0 0	auf Anfrage
-600 ... 600	S 6 0 0	auf Anfrage
-1000 ... 1000	S 1 0 2	auf Anfrage
Sondermessbereiche	9 9 9 9	auf Anfrage
Ausgang		
4 … 20 mA / 2-Leiter	1	
0 … 20 mA / 3-Leiter	2	
0 … 10 V / 3-Leiter	3	
(12 ± 8) mA / 2-Leiter	S1	auf Anfrage
(10 ± 10) mA / 3-Leiter	S2	auf Anfrage
(5 ± 5) V / 3-Leiter	S3	auf Anfrage
andere	9	auf Anfrage
Genauigkeit		
Standard für P_N > 160 mbar — 0,35 %	3	
Standard für 40 mbar ≤ P_N ≤ 160 mbar — 1,0 %	8	
Standard für P_N < 40 mbar — 2,0 %	G	
andere	9	auf Anfrage
Elektrischer Anschluss		
Stecker und Kabeldose ISO 4400	1 0 0	
Stecker M12x1 (4-polig)	M 0 0	
Kabelausgang mit PVC-Kabel [1]	T A 0	
andere	9 9 9	auf Anfrage
Mechanischer Anschluss		
G1/8" Innengewinde	Q 0 0	
∅6,6 x 11 (für flex. Schläuche ∅6)	Y 0 0	
andere	9 9 9	auf Anfrage
Dichtung		
PUR, geklebt	6	
Sonderausführungen		
Standard	0 0 0	
andere	9 9 9	auf Anfrage

[1] Standard: 2 m PVC-Kabel ohne Belüftungsschlauch (Temperatureinsatzbereich: -5 … 70 °C)

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DPS 300

Multi Range Differential Pressure Transmitter for Gas and Compressed Air

Silicon Sensor

accuracy according to IEC 60770:
0.5% FSO BFSL

Differential pressure

from 0 ... 1.6 mbar up to 0 ... 1000 mbar

Output signals

3-wire: 0 ... 10 V, 0 ... 20 mA
(0 ... 5 V, 4 ... 20 mA switchable)

2-wire: 4 ... 20 mA (optional)

Special characteristics

- adjustable ranges
- high overpressure capability
- adjustable damping
- compact form

Optional versions

- LC-display, two-line
- automatic zero adjustment
- contacts
  (only in combination with display)
- square root extraction
  (only in combination with display)

The pressure transmitter **DPS 300** was developed for the differential pressure measuring for dry, non aggressive gases and compressed air and can be used for several HVAC applications

The **DPS 300** is a multi range transmitter with up to three adjustable ranges.

The device is equipped with a two-line LC display optionally and can be parameterized simply. Values, status of the contact and the unit are shown on the display.

Preferred applications are

HAVC applications
e.g. air conditioning, clean room technology, filter monitoring

Medical

Preferred areas of use are

Gas, compressed air

Input pressure range						
Nominal pressure P_N [mbar] (differential, gauge pressure)	1.6	4	10	40	250	1000
Adjustable to [mbar]	1.0	2.5	6	25	60 / 160	400 / 600
Nominal pressure P_N symmetric (differential pressure) [mbar]	±1.6	±4	±10	±40	±250	±1000
Max. static pressure [mbar]	200	200	200	345	1000	3000

Output signal / Supply				
Standard	3-wire:		0 ... 10 V / 0 ... 20 mA	V_S = 19 ... 32 V_{DC}
		switchable on:	0 … 5 V / 4 … 20 mA	
			with automatic zero adjustment:	V_S = 24 ... 32 V_{DC}
Option	2-wire:		4 ... 20 mA	V_S = 11 ... 32 V_{DC}
			with automatic zero adjustment:	V_S = 24 ... 32 V_{DC}

Performance			
Accuracy	for $P_N \geq 6$ mbar:	≤ ± 0.5% FSO BFSL	for $P_N < 6$ mbar: ≤ ± 1% FSO BFSL
Permissible load	voltage 3-wire:	R_{min} = 10 kΩ	current 3-wire: 330 Ω
	current 2-wire:	$R_{max} = [(V_S - V_{S\,min}) / 0{,}02\ A]\ \Omega$	
Influence effects	supply:	0.05 % FSO / 10 V	load: 0.05 % FSO / kΩ
Response time T_{90}	< 100 msec; adjustable by potentiometer in the range of 0 msec up to 5000 msec		
Turn on time	500 msec		
Long term stability	≤ ± 0.5% FSO / year at reference conditions, for $P_N < 6$ mbar ≤ ± 0.2% FSO / year at reference conditions, for $P_N \geq 6$ mbar		
Measuring rate	12.5 Hz		

Contact (optional)		
	3-wire version	2-wire version
Number, form	2 x relay-output (NO/NC)	2 x PNP-open-collector-contact
switching current switching voltage switching capacity	max. 1 A max. 60 V_{DC}; max. 40 V_{AC} max. 60 W	max. 125 mA resistant; short-circuit-proof
Accuracy of switching points	≤ ± 2 % FSO	≤ ± 2 % FSO
Accuracy of repeatability	≤ ± 0.5 % FSO	≤ ± 0.5 % FSO
Switching frequency	5 Hz	5 Hz
Switching cycles	< 100 x 10^6	< 100 x 10^6

Thermal effects / Permissible temperatures			
Thermal error (offset and span)	≤ ± 0.5 % FSO / 10 K (typ.) for $P_N < 6$ mbar		≤ ± 0.3 % FSO / 10 K (typ.) for $P_N \geq 6$ mbar
in compensated range	0 ... 50 °C		
Permissible temperatures	medium: 0 … 50°C	electronics / environment: 0 … 50°C	storage: -10 … 70°C

Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic protection	EMC directive: 2014/30/EU emission and immunity according to EN 61326

Materials	
Pressure port	brass nickel plated
Housing	ABS
Sensor	ceramic, silicon, epoxy, RTV
Media wetted parts	pressure port, PVC / silicone tube, sensor

Display (optional)	
Performance	two-line LC-Display, visible range 32.5 x 22.5 mm; 5-digit 7-segment-main display, digit size 8 mm, range of indication: ±9999; 8-digit 14-segment-additional display, digit size 5 mm; 52-segment-bargraph; accuracy: 0.1% ±1 digit
Functions	- parameterisation of contacts - selection of units - selection of signal (linear, square root extraction) - cut-off-function (only with square root extraction) - min- / max-value - recalibration - autozeroing - factory setting

Miscellaneous		
Current consumption	2-wire: max. 22 mA (during automatic zero adjustment: +23 mA)	3-wire: max. 30 mA
Weight	approx. 200 g	
Ingress protection	IP 54	
Installation position	vertical [1]	
Operational life	100 million load cycles	

[1] The devices are calibrated in a vertical position with pressure port down. If this position is changed on installation there can be slight deviations in the zero point.

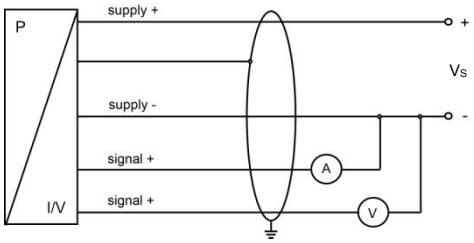
Mechanical connections (dimensions in mm)	
Standard	Ø 6.6 x 11 (for flex. tubes Ø 6)
Option	Ø 4.4 x 10 (for flex. tubes Ø 4)

Electrical connections (conductor cross-section)	
Without ferrule	1.5 mm²
With ferrule	1 mm²

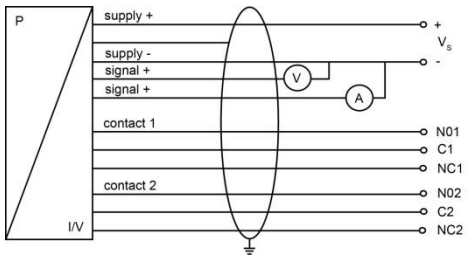
Pin configuration		
Standard	cable gland M16x1.5	
Electrical connections	3-wire	2-wire
supply + supply – signal + (only for 3-wire) contact 1 contact 2	VS + VS - Iout / Vout C1 / NO1 / NC1 C2 / NO2 / NC2	VS + VS - - S1 S2

Wiring diagram

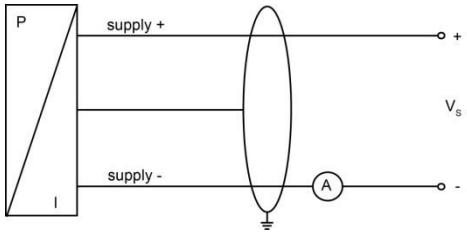
3-wire-system (current / voltage)



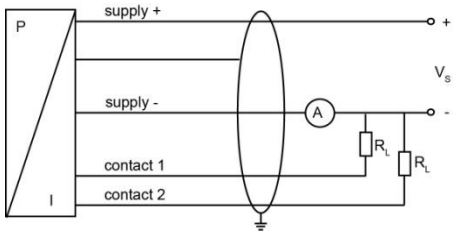
3-wire-system (current / voltage) with 2 contacts



2-wire-system (current

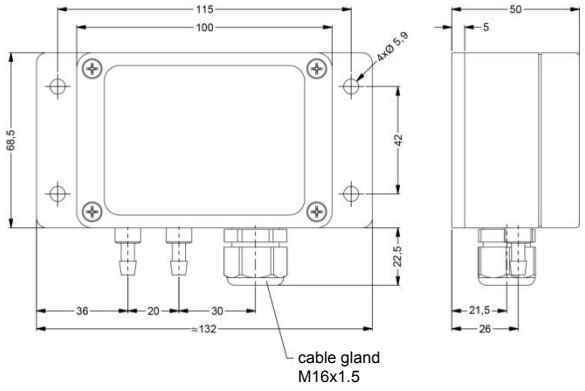


2-wire-system (current) with 2 contacts



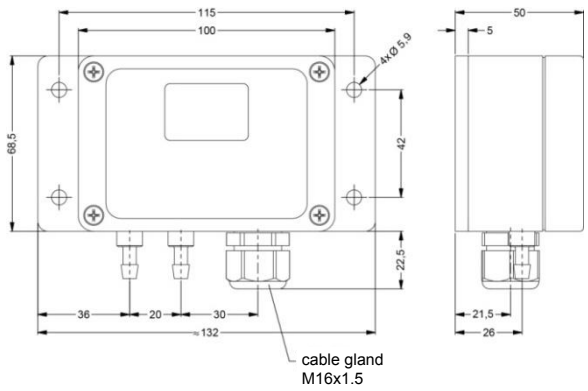
Dimension (in mm)

standard



DPS 300 without display

option



DPS 300 with display

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Spezifikationsblatt - specification sheet

DPS 300

DPS 300 □□□-□□□□-□-□-□-□-□-□□□-□-□□□

Deutsch	English	Code	
Messgröße	**Pressure**		
Differenzdruck	differential pressure	815	
Relativdruck	gauge pressure	816	auf Anfrage consult
Eingang [mbar]	**Input** [mbar]		
1,6	1.6	0016	
4,0	4.0	0040	
10	10	0100	
40	40	0400	
250	250	2500	
1000	1000	1001	
-1,6 … 1,6	-1.6 … 1.6	S1K6	
-4 … 4	-4 … 4	S004	
-10 … 10	-10 … 10	S010	
-40 … 40	-40 … 40	S040	
-250 … 250	-250 … 250	S250	
-1000 … 1000	-1000 … 1000	S102	
Sondermessbereiche	customer	9999	auf Anfrage consult
Ausgang	**Output**		
3-Leiter: 0 … 10 V, 0 … 20 mA	3-wire: 0 … 10 V, 0 … 20 mA [1]	3Z	
2-Leiter: 4 … 20 mA	2-wire: 4 … 20 mA	1	
andere	customer	9	auf Anfrage consult
Schaltausgang	**contact**		
ohne	without	0	
2 Schaltausgänge	2 contacts [2]	B	
Genauigkeit	**Accuracy**		
$P_N \geq$ 6 mbar 0,5 % FSO BFSL	$P_N \geq$ 6 mbar 0,5 % FSO BFSL	8	
$P_N <$ 6 mbar 1,0 % FSO BFSL	$P_N <$ 6 mbar 1,0 % FSO BFSL	G	
Anzeige	**Display**		
ohne Anzeige	without display	0	
LC-Display	LC display	C	
andere	customer	9	auf Anfrage consult
Bedienfolie	**Front foil**		
LEITENBERGER	LEITENBERGER	9	
neutral	neutral	N	
Mechanischer Anschluss	**Mechanical connection**		
Ø6,6 x 11 (für flex. Schläuche Ø6)	Ø6.6 x 11 (for flex. tubes Ø6)	Y00	
Ø4,4 x 10 (für flex. Schläuche Ø4)	Ø4.4 x 10 (for flex. tubes Ø4)	Y02	
andere		999	auf Anfrage consult
Druckanschluss	**Pressure port**		
Messing vernickelt	brass nickel plated	M	
andere	customer	9	auf Anfrage consult
Sonderausführungen	**Special version**		
Standard	standard	000	
automatische Nullierung	automatic zeroing	600	
radiziertes Ausgangssignal	square-root extraction [2]	605	
andere	customer	999	auf Anfrage consult

Preise EXW Kirchentellinsfurt, ausschl. Verpackung / Prices ex factory Kirchentellinsfurt, without packing

[1] Ausgaangssignal umschaltbar auf 0 … 5 V / 4 … 20 mA — output switchable on 0 … 5 V / 4 … 20 mA

[2] nur in Verbindung mit Display — only in combination with display

DPS 200

Differential Pressure Transmitter for Gas and Compressed Air

Applications:

- for HVAC-applications

Characteristics:

- piezoresistive pressure sensor
- differential pressure range 1 ... 1000 mbar

CE

Technical Data

Input pressure range								
Nominal pressure P_N [mbar] (differential, gauge pressure)		1	1.6	2.5	4	6	10	40
max. static pressure	[mbar]	200	200	200	200	200	345	345
Nominal pressure P_N [mbar] (differential, gauge pressure)		60	100	160	250	400	600	1000
max. static pressure	[mbar]	345	345	1000	1000	3000	3000	3000

Output signal / Supply		
Standard	3-wire: 0 ... 10 V	V_S= 19 ... 32 V_{DC} / 24 V_{AC} ± 10 %
Option	3-wire: 0 ... 20 mA / 3-wire: 4 ... 20 mA	V_S= 19 ... 32 V_{DC} / 24 V_{AC} ± 10 %
Performance		
Accuracy	1 % FSO BFSL	
Permissible load	current 3-wire: 330 Ω	voltage 3-wire: 10 kΩ
Influence effects	supply: ≤ ± 0.1 % FSO	load: ≤ ± 0.1 % FSO
Response time	adjustable by potentiometer in the range of 50 msec up to 2.5 sec	
Measuring rate	1 kHz	
Thermal effects (Offset and Span) / Permissible temperatures		
Thermal error (offset and span)	0.5 % FSO / 10 K (typ.) for nominal pressure ≤ 5 mbar 0.3 % FSO / 10 K (typ.) for P_N > 5 mbar	
in compensated range	0 ... 50 °C	
Permissible temperatures	medium: 0 ... 50°C	electronics / environment: 0 ... 50°C storage: -10 ... 70°C
Electrical protection		
Short-circuit protection	permanent	
Reverse polarity protection	no damage, but also no function	
Elektromagnetic protection	emission and immunity according to EN 61326	
Materials		
Pressure port	brass nickel plated	
Housing	ABS	
Diaphragm	sensor	
Media wetted parts	pressure port, PVC / silicon tube, diaphragm, sensor	

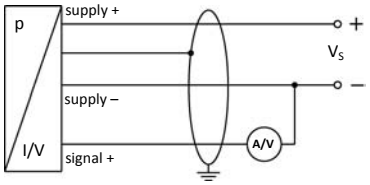
Miscellaneous	
Display (optional)	LC-Display, visible range 32.5 x 22.5 mm; 5-digit 7-segment-main display, digit size 8 mm, 8-digit 14-segment-additional display, digit size 5 mm; 52-segment-bargraph
Current consumption	signal output current: max. 30 mA signal output voltage: 7.5 mA (20 mA short circuit) display: + 1 mA
Ingress protection	IP 54
Weight	approx. 165 g
Installation position	vertical [1]

[1] *The devices are calibrated in a vertical position with the pressure port down. If this position is changed on installation there can be slight deviations in the zero point.*

Mechanical connections (dimensions in mm)	
Standard	Ø 6.6 x 11 (for flex. tubes Ø 6)
Option	Ø 4.4 x 10 (for flex. tubes Ø 4)

Wiring diagram

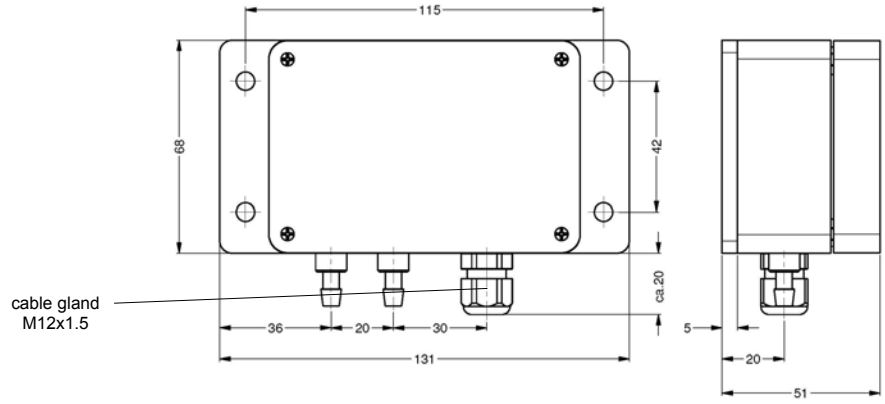
3-wire-system (current / voltage)



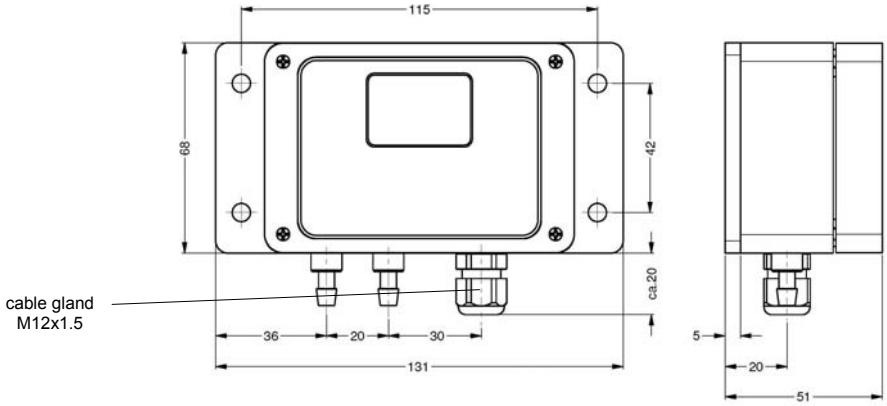
Pin configuration	
Electrical connections	Terminals
supply +	2
supply –	3
signal +	1

Dimensions (in mm)

standard:
DPS 200 without display



optional:
DPS 200 with display



DPS 200

DPS 200 □□□-□□□□-□-□-□-□-□□□-□-□□□

Messgröße																							
Differenzdruck	8	1	0																				
Relativdruck	8	1	1																				
Eingang [mbar]																							
1,0				0	0	1	0																
1,6				0	0	1	6																
2,5				0	0	2	5																
4,0				0	0	4	0																
6,0				0	0	6	0																
10				0	1	0	0																
40				0	4	0	0																
60				0	6	0	0																
100				1	0	0	0																
160				1	6	0	0																
250				2	5	0	0																
400				4	0	0	0																
600				6	0	0	0																
1000				1	0	0	1																
Sondermessbereiche				9	9	9	9																auf Anfrage
Ausgang																							
0 ... 10 V / 3-Leiter								3															
0 ... 20 mA / 3-Leiter								2															
4 ... 20 mA / 3-Leiter								7															
andere								9															auf Anfrage
Genauigkeit																							
1 % FSO BFSL									G														
Anzeige																							
ohne Anzeige										0													
LC-Display										C													
andere										9													auf Anfrage
Bedienfolie																							
neutral											N												
andere											9												auf Anfrage
Mechanischer Anschluss																							
Ø6,6 x 11 (für flex. Schläuche Ø6)												Y	0	0									
Ø4,4 x 10 (für flex. Schläuche Ø4)												Y	0	2									
andere												9	9	9									auf Anfrage
Druckanschluss																							
Messing vernickelt															M								
andere															9								auf Anfrage
Sonderausführungen																							
Standard																		0	0	0			
andere																		9	9	9			auf Anfrage

Pressure Transmitter DS1 and DS2

- **for small pressure, vacuum and differential pressure**
- **Ranges from 0...0.25 mbar to 0...1000 mbar**
- **Model DS1 also for absolute pressure 700...1100 mbar**

The pressure transmitter models **DS1** and **DS2** measure differential pressure, gauge pressure or vacuum, optional velocity of flow.
The measured values are transmitted to voltage (0...10 V) or current (4...20 A), optional as frequency signal (0...10 kHz).
The version with current output (4...20 mA) is realised in two wire technic.

- The model **DS1** can be supplied with square root output for measurement of velocity of flow. In this case an orifice plate or a prandtl pipe is to be used (not supplied).

The models **DS1** and **DS2** are using piezoresistive cells to reach a high realiability and precision. The dependence of zero signal from mounting position is very small. The transmitters are housed in a robust aluminium package. This guarantees good EMC properties.
Both models are completed with an electronic signal damping. On request the transmitter can be supplied without signal damping (respons time approx. 50 ms (instead of 2.5 s).

Model	**DS1**	**DS2**
Typical applications:	Control of airblowers Subervision of airfilters Mechanical and system engineering Environmental technology Liquid level control Pressure control in pressure chambers Medical engineering	
Operating temperature range:	0...50°C	
Hysteresis:	0.1% Bereich 50 Pa: 1% / 100 Pa: 0,5%	
Suitable pressure media:	Air and all non-aggressive gases	
Electrical connections:	Srew clamps for 0.14...1.5 mm²	
Pressure ports (pneumatic):	2 connections for tube with 4 or 6 mm inner diameter	
Cable gland:	PG 7	
Weight:	approx. 170 g	
Protection degree:	IP 65	
Response time (with damping):	2.5 s (without damping: approx. 50 ms)	
Version with Voltage output	**Model DS1-010**	**Model DS2-010**
Output signal and poser supply:	0...10 V (R_L ≥ 2kΩ; 24 VDC/AC ±10%)	
Pin connections:	Plug 1: +24 VDC Plug 2: Output 0...10 V Plug 3: GND	
Version with Current output	**Model DS1-420**	**Model DS2-420**
Output signal and poser supply:	4...20 mA (RB ≤ 400Ω; 15...30 VDC)	
Pin connections:	Plug 1: +24 VDC *) Plug 2: Output 4...20 mA *)	
Options:	(extra Charge)	
	• Frequency output 0...10 kHz • Square root output for flow measurement • Power supply 230 VAC (with larger housing 160 x 80 x 37 mm)	

DS1
DS2

Pressure Transmitter for small pressure, vacuum and differential pressure: Models DS1 and DS2

Standard pressure ranges:

Model DS1 (Versions DS1-010 and DS1-420) for differential pressure:

Pressure range [mbar]	Pressure range [kPa]	Over pressure [mbar]	Max. error of linearity [±% v.E.]	Max. error of temperature [±% v.E.] 0-50°C	Long time stability [% FS]/year	Repeata-bility [% FS]
0...0.25	0...0.025	250	0.5	6	6	4.0
0...0.5	0...0.05	250	0.5	4	4	2.0
0...1	0...0.1	250	0.8	3	2.5	1.0
0...2.5	0...0.25	250	0.8	2	2	0.3
0...5	0...0.5	250	0.8	1	1	0.3
Model DS 1 (Versions DS1-010 and DS1-420) for absolute pressure:						
700...1100	70...110	3-fach	±0.9 mbar	2.3 mbar	0.1	0.1

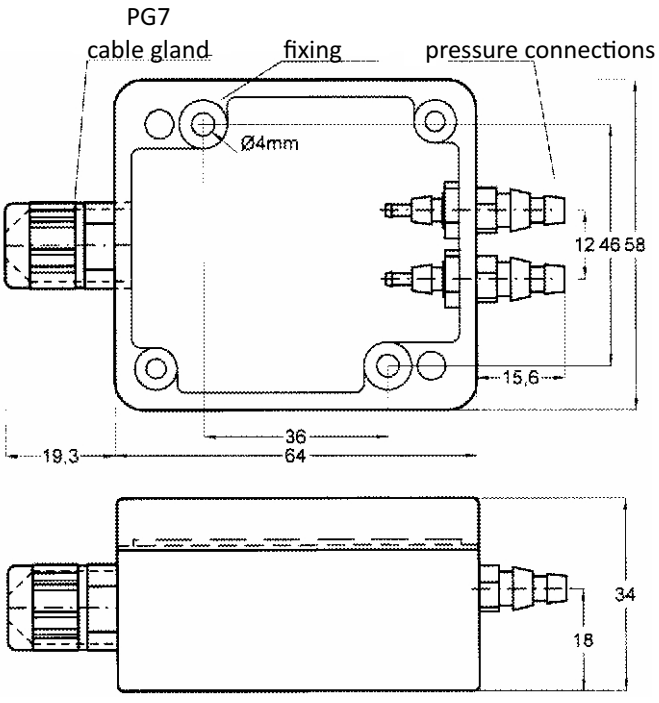
Model DS2 (Versions DS2-010 and DS2-420) for differential pressure:

Pressure range [mbar]	Pressure range [kPa]	Over pressure [mbar]	Max. error of linearity [±% v.E.]	Max. error of temperature [±% v.E.] 0-50°C	Long time stability [% FS]/year	Repeata-bility [% FS]
0...2.5	0...0.25	350	1.0	3,5	2	0.3
0...5	0...0.5	350	1.0	2,5	2	0.3
0...10	0...1	350	1.0	1	0.5	0.2
0...25	0...2.5	350	0.8	1	0.5	0.1
0...50	0...5	350	0.8	1	0.5	0.1
0...100	0...10	350	0.8	1	0.5	0.1
0...250	0...25	4-fold	0.5	1	0.1	0.1
0...500	0...50	4-fold	0.5	1	0.1	0.1
0...1000	0...100	2-fold	0.5	1	0.1	0.1
Model DS2 version DS2-420 with electrn. correction of linearity errors (differential pressure):						
0...100	0...10	350	0.2	1	0.1	0.1
0...250	0...25	4-fold	0.2	1	0.1	0.1
0...500	0...50	4-fold	0.2	1	0.1	0.1
0...1000	0...100	2-fold	0.2	1	0.1	0.1

Other pressure ranges available on request.

Models DS1-420 and DS2-420 with current output:

*) Because of a special circuitry, the transmitter cannot be damaged due to a wrong connection. This means, both wires can be changed. Between connection 2 and GND ther must be connected a resistor $R_b \leq 400\ \Omega$ at power supply +24 VDC.



PA 430

Plug-on Display for Current Loop with Contacts

Functional range

- free scalable display
- switch mode, hysteresis, parameterizable deceleration of the contacts
- display 330° rotatable
- connector 300° rotatable
- no external power supply necessary

Product characteristics

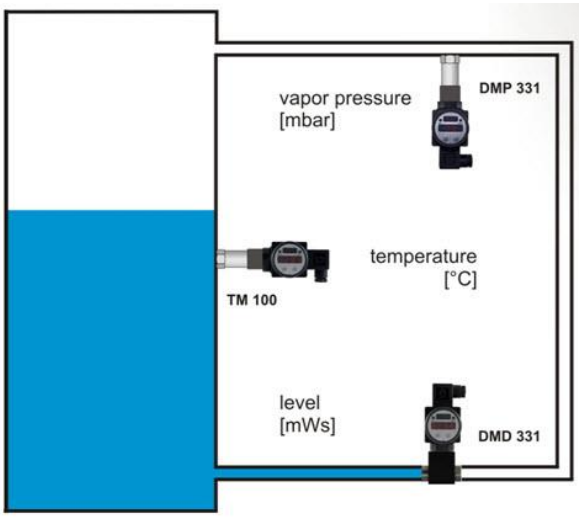
- plug-on display for pressure transmitter with output signal: 4 … 20 mA / 2-wire or 0 … 10 V / 3-wire
- 4-digit LED display

Optional versions

- IS-version
- 1 or 2 programmable contacts

Typical application

in situ display of pressure, temperature and level



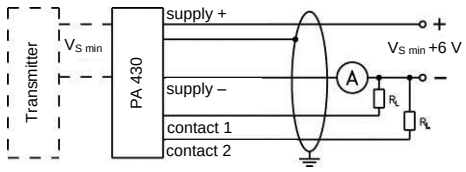
Analogue signal	
2-wire-system	2-wire: 4 ... 20 mA
Option IS-version	2-wire: 4 ... 20 mA
3-wire-system	0 ... 10 V
Supply	
2-wire-system	supplied by current loop; voltage drop ≤ 6 V; $V_S = (V_{T\,min}$ ... $V_{T\,max}) + 6\ V_{DC}$ with V_T = supply of the used transmitter
	IS-version: max. 28 V_{DC} (for combination of transmitter and PA 430)
3-wire-system	display is supplied parallel with transmitter $V_{S\,min} = 8\ V_{DC}$ ... $V_{T\,min}$; $V_{S\,max} = V_{T\,max}$ ... 36 V_{DC} with V_T = supply of the used transmitter
Contact (optionally) [1]	
Number, type	max. 2 independent PNP open collector contacts
Switching performance	$V_{switch} = V_S$ - 2 V; contact rating max. 125 mA, short-circuit resistant
max. switching current [2]	70 mA
Repeatability	≤ ± 0.1 % FSO
Switching frequency	max. 10 Hz
Switching cycles	> 100 x 10^6
Delay time	0 ... 100 sec

[1] max. 1 contact for: 4 ... 20 mA / 2-wire with plug ISO 4400; 0 ... 10 V / 3-wire with Binder 723 (5-pin) or M12x1; IS-version no contact possible with 0 ... 10 V / 3-wire with plug ISO 4400
[2] the real switching current in the application depends on the power supply unit

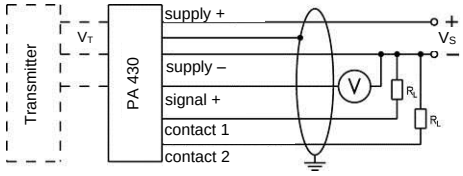
Miscellaneous	
Electrical protection	reverse polarity protection (no damage, but also no function); electromagnetic compatibility (emission and immunity according to EN 61326); short-circuit protection; ingress protection IP 65
Display	4-digit, 7-segment red LED display, digit height 7 mm; range of indication -1999 ... +9999; accuracy 0.1 % ± 1 digit; digital damping 0.3 … 30 sec (programmable); measured value update 0.0 … 10 sec (programmable)
Permissible temperatures	electronics / environment: -25 … 85 °C storage: -40 ... 85 °C
Material of display housing	PA 6.6, polycarbonate
Mechanical stability	vibration: 5 g RMS (20 ... 2000 Hz) shock: 100 g / 11 msec
Weight	approx. 150 g
CE-conformity	EMC Directive: 2014/30/EU
Explosion protection (optionally for 4 … 20 mA / 2-wire)	
Approval AX14-PA 430	IBExU 06 ATEX 1050 X zone 1: II 2G Ex ia IIC T4 Gb
Safety techn. maximum values	U_i = 28 V, I_i = 93 mA, P_i = 660 mW, C ≈ 0 nF, L_i ≈ 0 µH; plus cable inductivities 1 µH/m and cable capacities 100 pF/m
Permissible temperature for environment	-25 ... 70° C

Wirings diagrams

2-wire-system (current)



3-wire-system (voltage)

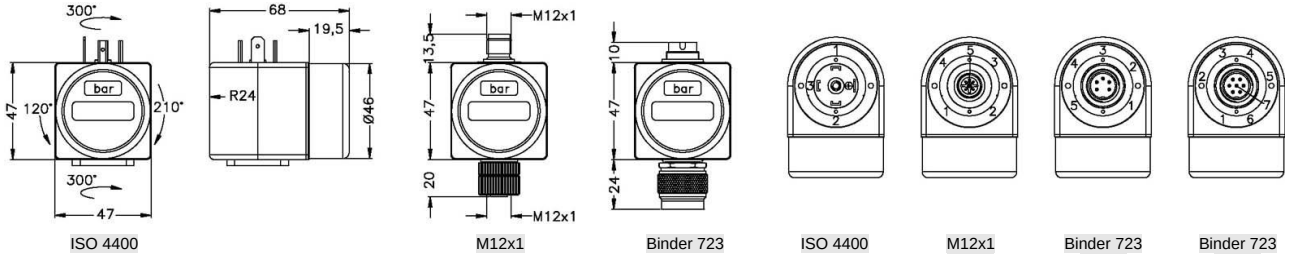


Pin configuration

Electrical connection	ISO 4400	M12x1 metal (5-pin)	Binder 723 (5-pin)	Binder 723 (7-pin) [3]
Supply +	1	1	3	3
Supply –	2	2	4	1
Signal + (for 3-wire)	3 [1]	3 [1]	5 [1]	-
Contact 1	3 [1]	5	2	-
Contact 2	-	3 [1]	1 [1]	-
Shield	ground pin ⏚	4	ground pin	2

[3] intended for usage with DMP 331i, DMP 333i and LMP 331i with electrical connection Binder Series 723 (7-pin); pins 4, 5, 6, 7 are wired through 1:1; standard without contacts; contacts on request; 3-wire version not possible

Dimensions (in mm)



ISO 4400 | M12x1 | Binder 723 | ISO 4400 | M12x1 (5-pin) | Binder 723 (5-pin) | Binder 723 (7-pin)

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Leitenberger GmbH

Specification Sheet **PA 430**

PA 430 □□□-□-□-□□□-□-□-□□□

Standard version			
	8 5 0		
Analogue output			
4 … 20 mA / 2-wire	1		
0 … 10 V / 3-wire	3		
intrinsic safety for zone 1 / 4 … 20 mA / 2-wire	E		
customer	9		consult
Contact [1]			
without contact	0		
1 contact	1		
2 contacts	2		
Electrical connection			
ISO 4400	1 0 0		
Binder series 723 (5-pin)	2 0 0		
Binder series 723 (7-pin) [2]	A 0 1		
M12x1 (5-pin) / metal version	N 1 0		
Unit			
without [3]	0		
bar	1		
mbar	2		
mH_2O	3		
%	P		
mA	A		
customer	9		consult
Label on display			
standard	1		
neutral	N		
customer	9		consult
Special version			
standard	0 0 0		
customer	9 9 9		consult

Prices EXW Kirchentellinsfurt (Germany), excluding package

[1] max. 1 contact for: 4 ... 20 mA / 2-wire with plug ISO 4400; 0 ... 10 V / 3-wire with Binder 723 (5-pin) or M12x1 (5-pin); IS protection
no contact possible with 0 ... 10 V / 3-wire with plug ISO 4400

[2] intended for the use with DMP 331i, DMP 333i and LMP 331i with el. connection Binder Serie 723 (7-pin)

[3] the unit signs are loose-settled

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PA 440

Field Display

Functional range

- ► free scalable display
- ► switch mode, hysteresis, parameterizable deceleration of the contacts
- ► no external power supply necessary

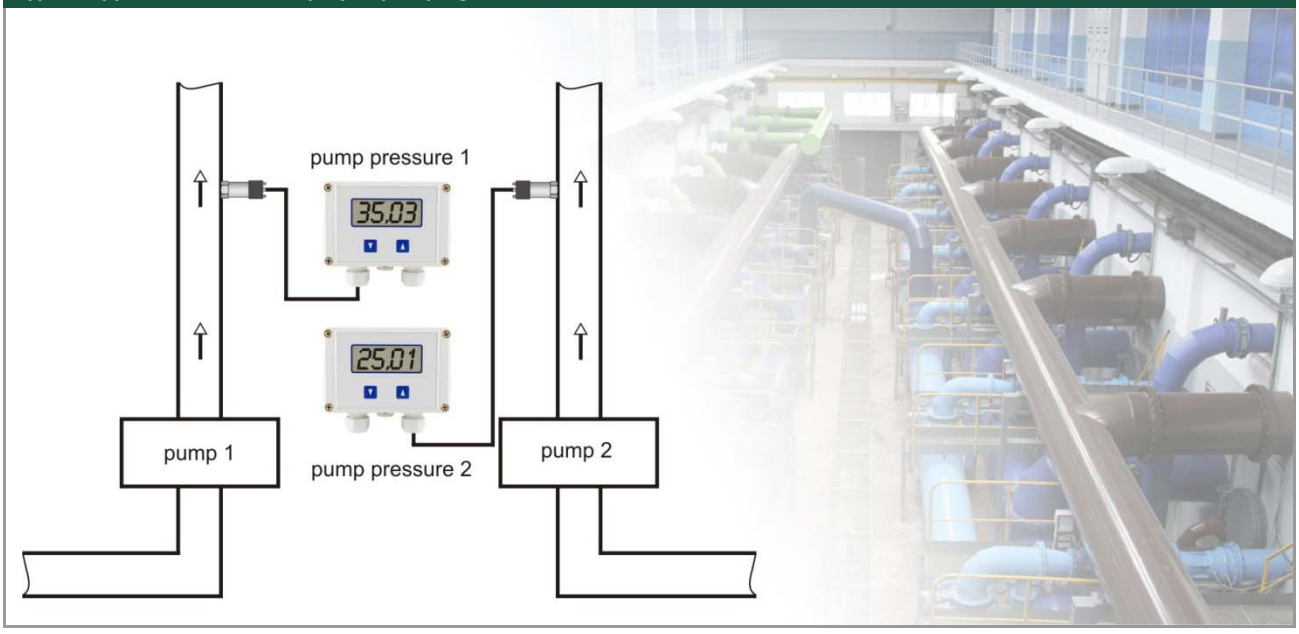
Product characteristics

- ► field display for pressure transmitter with output signal: 4 … 20 mA / 2-wire or 0 … 10 V / 3-wire
- ► 4-digit LC display
- ► plastic or aluminium housing
- ► pressure compensation element with PTFE-Filter

Optional versions

- ► IS-version
- ► 2 contacts
- ► 4-digit LED display

Typical application: in situ display at pumping stations



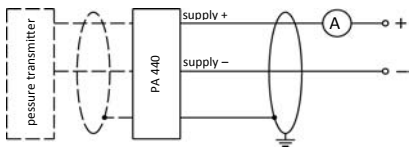
PA 440

Field Display

Technical Data

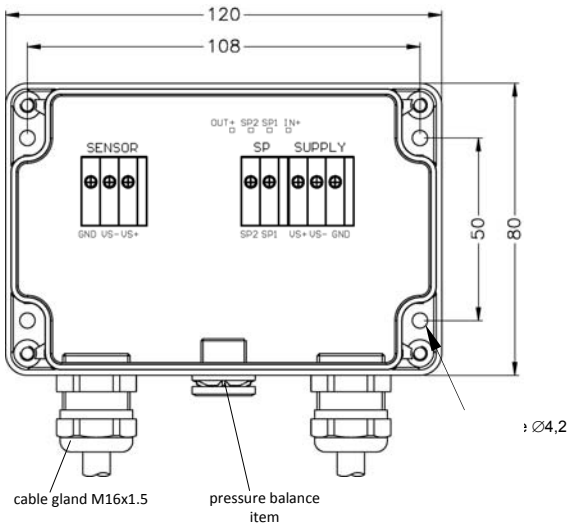
Analogue signal	
Standard	2-wire: 4 … 20 mA
Option IS-version	2-wire: 4 … 20 mA
Option 3-wire	0 … 10 V (in preparation)
Accuracy	≤±0.1 % FSO ≤±1 digit
Supply	
2-wire system	supplied by current loop; voltage drop ≤ 6.5 V
	IS version: max. 28 V_{DC} (for combination with transmitter and PA 440)
3-wire system	display is supplied parallel with transmitter; V_S = 8 V_{DC} … 36 V_{DC}
Contact (optionally for LED display)	
Number, type	2 independent PNP open collector contacts
Switching performance	contact rating max. 125 mA, short-circuit resistant
Switching frequency	max. 8/sec
Delay time	0 ... 100 sec
Miscellaneous	
Electrical protection	reverse polarity protection (no damage, but also no function); electromagnetic compatibility (emission and immunity according to EN 61326); short-circuit protection
Ingress protection	IP 65
Display	4-digit, 7-segment LC display, range of indication -1999 ... +9999; accuracy 0.2 % ± 1 digit; standard: LC display, digit height 18 mm option: LED display, digit height 10 mm, red
Permissible temperatures	electronics / environment / storage: -20 ... 70 °C
Material display housing	standard: plastic ABS, grey option: aluminium die cast case, grey powder-coating
Cable entries	cable gland M16x1.5 Polyamide, seals NBR, diameter range: standard 5 ... 10 mm
Atmospheric pressure compensation	pressure compensation element with PTFE filter
Terminal clamps	vertical clamps for stranded and solid wires up to 2.5 mm^2
Dimensions (height x width x depth)	plastic housing: 80 mm x 120 mm x 57 mm aluminium die cast case: 80 mm x 125 mm x 57 mm
Weight	plastic housing: approx. 220 g aluminium die cast case: approx. 550 g
IS protection (optionally) – only in combination with LED display	
Approval AX15-PA 440	zone 1: II 2G Ex ia IIB T4
Safety technical maximum values	U_i = 28 V_{DC}, I_i = 93 mA, P_i = 660 mW

Wiring diagram

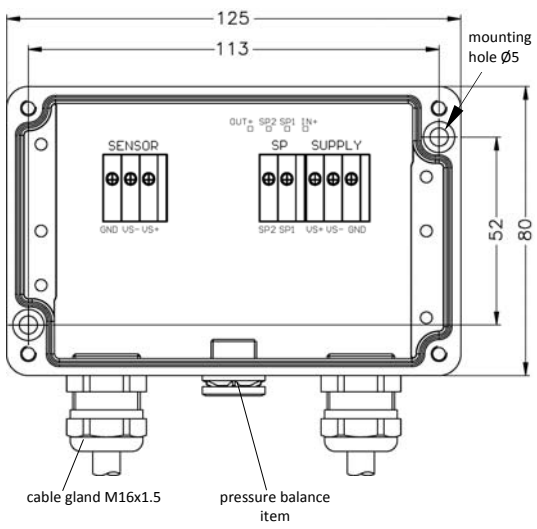


Dimensions (in mm)

plastic housing:



aluminium die cast case:



PA 440

PA 440 □□□-□-□-□-□-□-□-□□□

Standardversion														
	8	5	1											
Analogausgang														
4 ... 20 mA / 2-Leiter				1										
Ex-Schutz für Zone 1 / 4 ... 20 mA / 2-Leiter				E										
andere				9										auf Anfrage
Schaltausgang														
kein Schaltausgang					0									
2 Schaltausgänge [1]					2									
Einheit														
ohne [2]						0								
bar						1								
mbar						2								
mH_2O						3								
%						P								
mA						A								
andere						9								auf Anfrage
Beschriftung Anzeigen														
Standard							1							
Neutral							N							
andere							9							auf Anfrage
Anzeige														
LC-Display								C						
LED-Display								D						
Gehäusematerial														
Kunststoff ABS									G					
Aluminium									L					
Sonderausführungen														
Standard										0	0	0		
Überspannungsschutz [3]										1	0	1		
andere										9	9	9		auf Anfrage

[1] nur in Kombination mit LED-Anzeige
[2] Einheitenschilder sind lose beigelegt
[3] nicht möglich für Ex-Ausführung

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PA 450

2 Channel Process Display

Subtraction

Function

- different display modes to show difference or input
- simulation of contact and analogue output
- simple menu system for configuration of display, contacts, etc.

Product characteristics

- mathematical subtraction for standard transmitter with 4 … 20 mA / 2-wire technology
- integrated transmitter power supply
- output signal 4 … 20 mA and 0 … 20 mA adjustable
- turn down of analogue signal 1:6
- 4-digit LED display
- robust plastic housing

Optional versions

- 3-wire-analogue output: 0 ... 10 V
- 1 or 2 contacts
- square root extraction

The process display **PA 450** has been designed for the subtraction of two independent analog signals. Due to the integrated transmitter power supply the wiring costs are considerably reduced.

The difference or the individual value of the respective transmitter is shown on the 4-digit LED display.

About the user-friendly menu system the device simply can be configured. It has functions, such as access protection, configuration of advertisement and contacts, min. / max. value memory. The set parameters are being stored in an EEPROM and are being kept also in case of power breakdown.

Optionally the **PA 450** can reamed with one or two contacts and square root analogue signal.

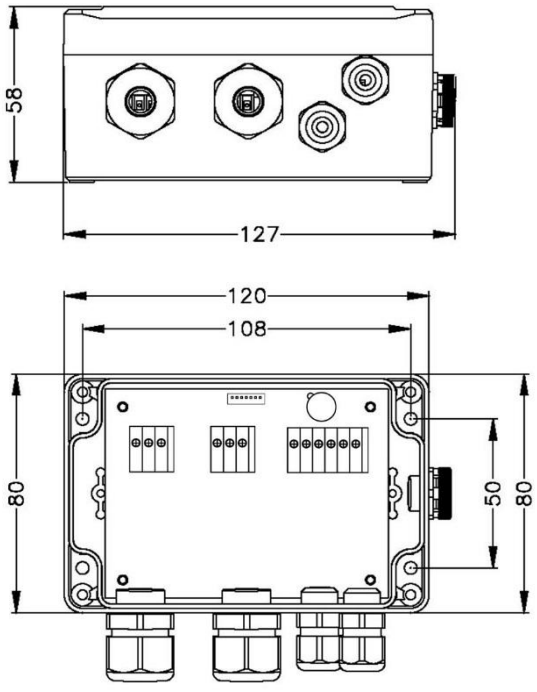
Typical applications

Differential Pressure Measurement
Filter Monitoring

General specifications	
Supply	24 V_{DC} ± 10 %
Housing material	plastic ABS, grey
Ingress protection	IP 66
Cable gland	2 x M16x1.5 and 2x M12x1 Polyamide, seals NBR, IP 68
Atmospheric pressure	pressure compensation element with PTFE filter
Connecting terminals	Screw-typ terminal for stranded and solid wires up to 1.5 mm^2
Permissible temperatures	environment / storage: -20 ... 60 °C
Installation position	any
Weight	approx. 300 g
Display	4-digit, 7-segment-LED display, visible range 37.2 x 11 mm; digit height 10 mm, range of indication -1999 ... +9999; accuracy 0.2 % ± 1 digit; digital damping 0.3 … 30 sec (programmable); measured value update 0.0 … 10 sec (programmable)
Data memory	non-volatile EEPROM
Sensor supply	V_S - 4 V @ 20 mA
Sensor current limit	approx. 32 mA
Contact (optional)	
Number, type	standard: without option: 1 PNP-contact 2 PNP-contacts
Max. switching current	contact rating max. 125 mA, short-circuit resistant
Repeatability	≤ ± 0.1 % FSO
Switching frequency	max. 10 Hz
Switching cycles	> 100 x 10^6
Delay time	0 ... 100 sec
Analogue output (on request)	
standard 3-wire current signal	0 ... 20 mA / 4 … 20 mA, adjustable (turn-down of span 1:6 [1]) permissible load: R_{max} = 500 Ω response time: < 30 msec
option 3-wire voltage signal	0 … 10 V, adjustable (turn-down of span 1:6[1]) permissible load: R_{min} = 10 kΩ response time: < 30 msec

[1] with turn-down of span the analogue signal is adjusted automatically to the new measuring range

Dimensions



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Bestellschlüssel **PA 450**
*ordering code **PA 450***

PA 450 □□□-□-□-□

Standardversion	***Standard version***						
		8 5 4					
Schaltausgang	***Contact***						
kein Schaltausgang	*without contact*		0				
1 PNP-Ausgang	*1 PNP-contact*		1				
2 PNP-Ausgänge	*2 PNP-contacts*		2				
Analogausgang	***Analogue output***						
4 … 20 mA / 3-Leiter	*4 … 20 mA / 3-wire*			7			
0 … 10 V / 3-Leiter	*0 … 10 V / 3-wire*			3			
andere	*customer*			9		auf Anfrage	consult
Beschriftung der Anzeigen	***Label on display***						
Neutral	*neutral*				N		
andere	*customer*				9	auf Anfrage	consult

Preise EXW Thierstein, ausschl. Verpackung

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