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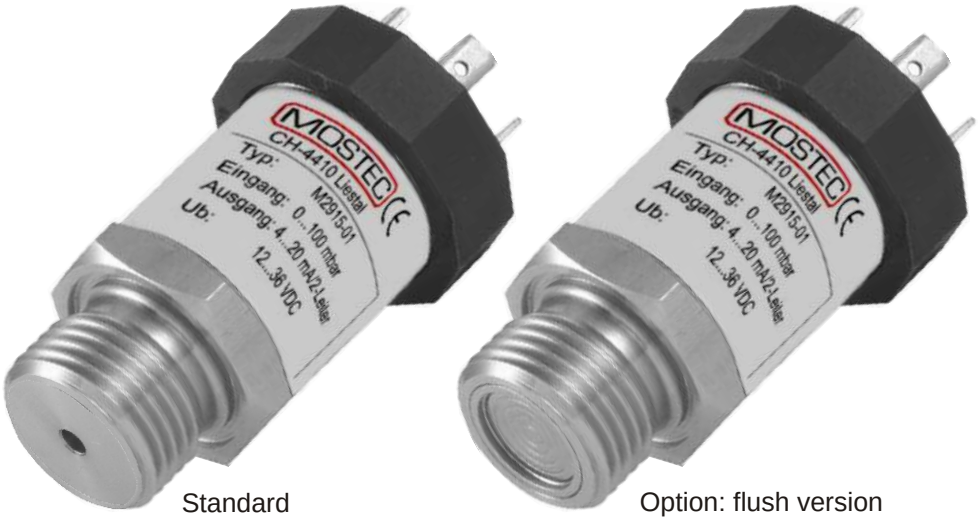
MOSTEC

Industrial Pressure Transmitter for Low Pressure Type M2915-01



Standard Option: flush version

Technical Description

The M2915-01 is a pressure transmitter for universal use in all branches of industry. Permissible media are compressed air, non-aggressive gases, steam, water, heating and diesel oil as well as all with stainless steel 1.4571 resp. 1.4435 compatible media.

A piezoresistive stainless steel sensor, which features small thermal effect and excellent linearity generate the basis of the M2915-01. So it is possible to meet accuracy demands up to 0,1 % FSO (IEC 60770).

A variety of standard output signals as well as mechanical and electrical connections make the M2915-01 covering a wide field of applications. Additional it is possible to use the M2915-01 in explosive area (zone 0 / 20).

Characteristics
? piezoresistive stainless steel sensor
? accuracy:
0.175 %, 0.125 %, 0.10 %, 0.05 % FSO BFSL
(0.35 %, 0.25 %, 0.2 %, 0.1 % FSO IEC 60770)
? nominal pressure ranges from
0 ... 100 mbar up to 0 ... 40 bar
? small thermal effect
? excellent linearity
? option Ex-version (only for 4 … 20 mA / 2-wire) TÜV 03 ATEX 2006 X
? option: flush pressure port
? customer specific versions:
- special pressure ranges
- variety of electrical and mechanical connections
- other versions on request

Typical areas of use are:
? pneumatics / hydraulics
? mechanical engineering
? process control and chemical industry
? environmental engineering
? measurement technology

Technical Data:

Input pressure range

Nominal pressure gauge	[bar]	-1...0	0.10	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40
Nominal pressure abs.	[bar]	-	0.10	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40
Permissible overpressure	[bar]	3	1	1	1	1	3	3	6	6	20	20	60	60	100	100

Output signal / Supply

Standard	2-wire:	4 ... 20 mA / V_S = 12 ... 36 V_{DC}	Ex-protection:	V_S = 14 ... 28 V_{DC}
Optional	3-wire:	0 ... 20 mA / V_S = 14 ... 36 V_{DC} 0 ... 10 V / V_S = 14 ... 36 V_{DC}		

Performance

Accuracy			IEC 60770 [1]	BFSL
	standard:	nominal pressure > 0.4 bar	≤ ± 0.35 % FSO	≤ ± 0.175 % FSO
		nominal pressure ≤ 0.4 bar	≤ ± 0.50 % FSO	≤ ± 0.250 % FSO
	option 1:	nominal pressure > 0.4 bar	≤ ± 0.25 % FSO	≤ ± 0.125 % FSO
	option 2:	nominal pressure ≥ 1 bar	≤ ± 0.20 % FSO	≤ ± 0.100 % FSO
	option 3:	nominal pressure ≥ 0.16 bar	≤ ± 0.10 % FSO	≤ ± 0.050 % 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	≤ ± 0.1 % FSO / year			
Response time [2]	< 5 msec			

Fehlerband	[% FSO]	≤ ± 0,75	≤ ± 2	≤ ± 1,5	≤ ± 1	≤ ± 1	≤ ± 0,75
mittl. TK	[% FSO / 10 K]	± 0,07	± 0,3	± 0,2	± 0,14	± 0,1	± 0,07
im kompensierten Bereich	[°C]	0 ... 70	0 ... 50			0 ... 70	

Thermal errors (Offset and Span - standard)

Nominal pressure P_N	[bar]	-1 ... 0	≤ 0.1	≤ 0.25	≤ 0.4	≤ 1	> 1
Tolerance band	[% FSO]	≤ ± 0.75	≤ ± 2	≤ ± 1.5	≤ ± 1	≤ ± 1	≤ ± 0.75
TC, average	[% FSO / 10 K]	± 0.07	± 0.3	± 0.2	± 0.14	± 0.1	± 0.07
in compensated range	[°C]	0 ... 70	0 ... 50			0 ... 70	

Thermal errors (Offset and Span - optional for -20 ... 50 °C)

Nominal pressure P_N	[bar]	-1 ... 0	≤ 0.25	≤ 0.4	≤ 1	> 1
Tolerance band	[% FSO]	≤ ± 1.5	≤ ± 2	≤ ± 1.5	≤ ± 1	≤ ± 0.75
TC, average	[% FSO / 10 K]	± 0.2	± 0.3	± 0.2	± 0.1	± 0.07
in compensated range	[°C]	-20 ... 50				

Electrical protection

Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326
Option Ex-protection only with 4 ... 20 mA / 2-wire DX13-DMP 331	zone 0 [3]: II 1 G Ex ia IIC T4 zone 20: II 1 D Ex tD A20 IP65 T 85°C safety technical maximum values: V_i = 28 V, I_i = 93 mA, P_i = 660 mW, $C_i \leq$ 1nF, $L_i \leq$ 10 µH

Permissible temperatures

Medium	-25 ... 125 °C			
Electronics / environment	-25 ... 85 °C	Ex-protection:	application in zone 0:	-20 ... 60 °C
			application in zone 1 or higher:	-25 ... 70 °C
Storage	-40 ... 100 °C			

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

[2] with optional accuracy 0.1 % FSO the response time is 200 msec

[3] approved for atmospheric pressure from 0.8 bar up to 1.1 bar

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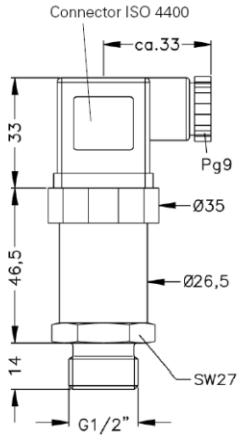
Technical Data:

Mechanical stability	
Vibration	10 g RMS (20 ... 2000 Hz)
Shock	100 g / 11 msec

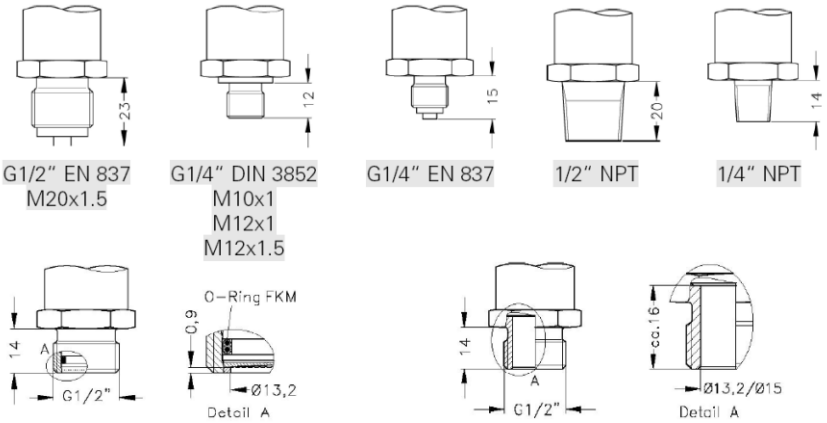
Mechanical connection (dimensions in mm)

Standard



G1/2" DIN 3852
M20x1.5

Optional



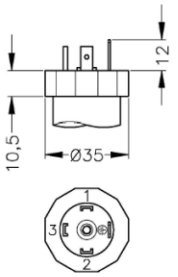
G1/2" flush (DIN 3852) [4]

G1/2" open port

⇨ Total length of devices with Ex-protection and SIL-version increases by 20 mm!
⇨ Total length of devices with accuracy 0.1 % FSO IEC 60770 increases by 37 mm! (standard, Ex-protection and SIL-version)

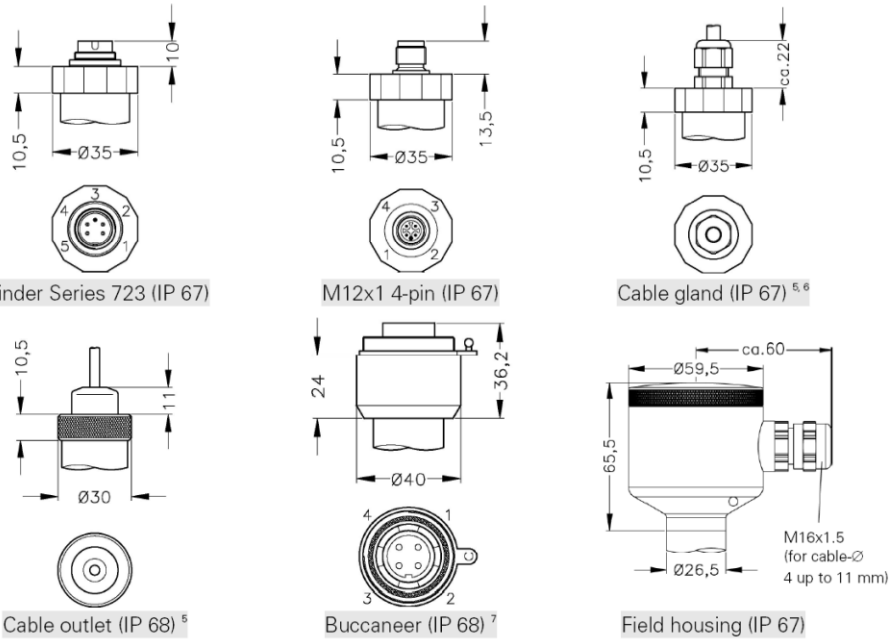
Electrical connection (dimensions in mm)

Standard



ISO 4400 (IP 65)

Optional



Binder Series 723 (IP 67)

M12x1 4-pin (IP 67)

Cable gland (IP 67) [5,6]

Cable outlet (IP 68) [5]

Buccaneer (IP 68) [7]

Field housing (IP 67)

[4] impossible for vacuum ranges
[5] different cable types and lengths available
[6] standard: 2 m PVC cable without ventilation tube, optionally cable with ventilation tube
[7] for gauge pressure cable with ventilation tube required

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Technical Data:

Materials	
Pressure port	stainless steel 1.4571 (316Ti)
Housing	standard: stainless steel 1.4301 (304) field housing: stainless steel 1.4305 (303), cable gland: brass, nickel plated
Seals (media wetted)	standard: FKM optional: EPDM; welded version [8]; others on request
Diaphragm	stainless steel 1.4435 (316L)
Media wetted parts	pressure port, seals, diaphragm

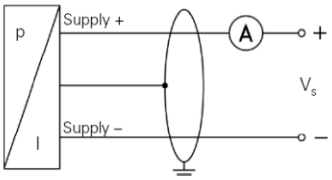
Miscellaneous	
Optionally SIL 2 application	according to IEC 61508 / IEC 61511
Connecting cables (by factory)	cable capacitance: signal line/shield also signal line/signal line: 160 pF/m cable inductance: signal line/shield also signal line/signal line: 1 µH/m
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 140 g
Installation position	any [9]
Operational life	> 100 x 10^6 cycles

Pin configuration

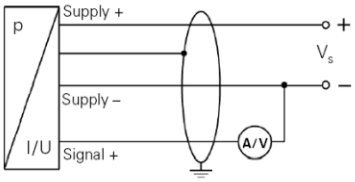
Electrical connection		ISO 4400	Binder 723 (5-pin)	M12x1 (4-pin)	Buccaneer (4-pin)	Field housing	cable colours (DIN 47100)
2-wire-system	Supply + Supply –	1 2	3 4	1 2	1 2	IN + IN -	white brown
	Ground	ground pin	5	4	4	⏚	yellow / green (shield)
3-wire-system	Supply + Supply – Signal +	1 2 3	3 4 1	1 2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

Wiring diagrams

2-wire-system (current)



3-wire-system (current / voltage)



[8] welded version only with pressure ports according to EN 837; welded version not available with pressure ranges ≤ 0.16 bar

[9] 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.

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Ordering Code:

M2915-01- □□□-□□□□-□-□-□□□-□□□-□-□□□

Pressure																					
gauge	1	1	0																		
absolute	1	1	1																		
Input	[bar]																				
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														
customer				9	9	9	9														on request
Output																					
4 ... 20 mA / 2-wire								1													
0 ... 20 mA / 3-wire								2													
0 ... 10 V / 3-wire								3													
Intrinsic safety 4 ... 20 mA / 2-wire								E													
SIL2 4 ... 20 mA / 2-wire								1S													
SIL2 with Intrinsic safety 4 ... 20 mA / 2-wire								ES													
customer								9													on request
Accuracy																					
standard for $P_N > 0,4$ bar	0,35 %								3												
standard for $P_N \leq 0,4$ bar	0,5 %								5												
option 1 for $P_N > 0,4$ bar	0,25 %								2												
option 2 for $P_N \geq 1$ bar	0,2 %								B												
option 3 for $P_N \geq 0,16$ bar	0,1 %								1												
customer									9												on request
Electrical connection																					
Male and female plug ISO 4400										1	0	0									
Binder series 723 (5-pin)										2	0	0									
Cable gland incl. cable [1, 2]										4	0	0									
Cable outlet [1]										T	R	0									
Male plug Buccaneer IP68 [3]										5	0	0									
M12x1 (4-pin)										M	0	0									
Field housing stainless steel										8	0	0									
customer										9	9	9									on request
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 [4]													F	0	0						
G1/2" DIN 3852 open pressure port													H	0	0						
1/2" NPT													N	0	0						
1/4" NPT													N	4	0						
customer													9	9	9						on request
Seals																					
FKM																1					
EPDM																3					
without (welded version) [5]																2					
customer																9					on request
Special version																					
standard																	0	0	0		
special compensation -20 ... 50 °C																	0	0	6		on request
customer																	9	9	9		on request

[1] different cable types and lengths deliverable

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

[3] for gauge pressure cable with ventilation tube required

[4] Mechanical connection G1/2" DIN 3852 flush impossible for vacuum ranges

[5] welded version only with pressure ports according to EN 837; not possible with pressure ranges ≤ 0.16 bar

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