ILMP 331

Screw-In Transmitter

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 ... 40 bar

Output signals

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

Special characteristics

- pressure port G 3/4" flush
- excellent accuracy
- small thermal effect
- excellent long term stability

Optional versions

- accuracy 0.1% FSO IEC 60770
- IS-version: Ex ia = intrinsically safe for gases and dusts
- SIL 2 application according to IEC 61508 / IEC 61511
- different electrical connections
- customer specific versions
  e. g. special pressure ranges

The screw-in transmitter ILMP 331 has been designed for continuous level measurement and is characterized by an excellent performance and a robust construction. The modular construction allows the user the highest possible flexibility in the adaption of LMP 331.

Optional features like e.g. an intrinsically safe version or a functionally safe version (SIL 2) increase the advantages when launching and realizing projects for plants and systems.

Preferred areas of use are

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

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Input pressure range															
Nominal pressure gauge [bar]	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6	10	16	25	40
Level [mH_2O]	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400
Overpressure [bar]	0.5	1	1	2	5	5	10	10	20	40	40	80	80	105
Burst pressure ≥ [bar]	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50	50	120	120	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}
Option IS-version	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	
Accuracy1	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 pressures: ≤ ± 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]	2-Leiter: ≤ 10 msec 3-Leiter: ≤ 3 msec
[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*	

Thermal effects (Offset and Span)		
Nominal pressure P_N [bar]	≤ 0.40	> 0.40
Tolerance band [% FSO]	≤ ± 1	≤ ± 0.75
in compensated range [°C]	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
Explosion protection (only for 4 ... 20 mA / 2-wire)	
Approvals DX19-LMP 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 ≈ 0nF, L_i ≈ 0 µH, the supply connections have an inner capacity of max. 27 nF opposite the housing
Permissible temperature for medium	in zone 0: -20 ... 60 °C with p_{atm} 0.8 bar bis 1.1 bar in zone 1 or higher: -20 ... 70 °C
Conneting 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
Materials	
Pressure port	stainless steel 1.4404 (316L)
Housing	stainless steel 1.4404 (316L)
Seals	standard: FKM option: EPDM NBR others on request
Diaphragm	stainless steel 1.4435 (316L)
Media wetted parts	pressure port, seals, diaphragm

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Miscellaneous		
Optionally SIL 2 application	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 [3]	
Operational life	> 100 x 10^6 cycles	
CE-conformity	EMC Directive: 2004/108/EC	
ATEX Directive	94/4/EG	

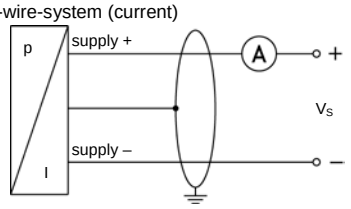
[3] *Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviation in the zero point for pressure ranges $P_N \leq 1$ bar.*

Pin configuration

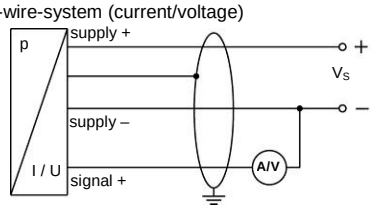
Electrical connections	ISO 4400	Binder 723 (5-pin)	M12x1 / metal (4-pin)	field housing	cable colours (DIN 47100)
Supply +	1	3	1	IN +	wh (white)
Supply –	2	4	2	IN –	bn (brown)
Signal + (only for 3-wire)	3	1	3	OUT +	gn (green)
Shield	ground pin	5	4	⏚	ye/gn(yellow/green)

Wiring diagrams

2-wire-system (current)

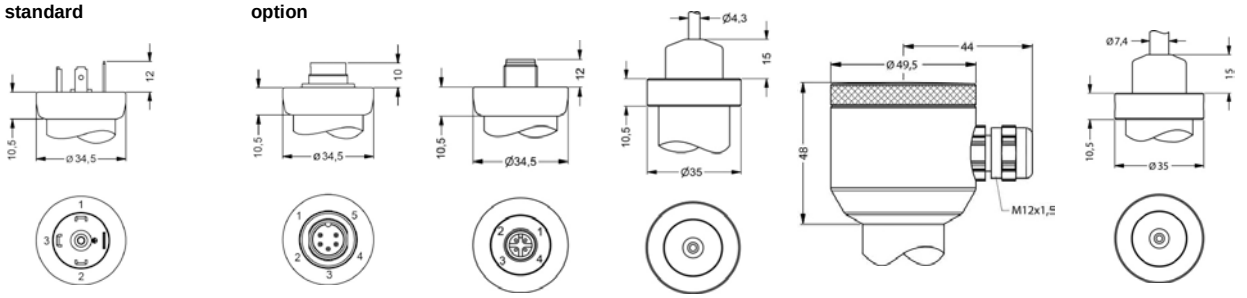


3-wire-system (current/voltage)



Electrical connections (dimensions in mm)

standard **option**

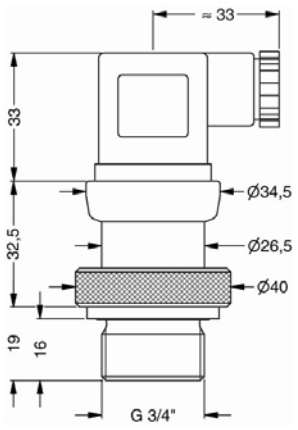


ISO 4400 (IP 65) | Binder Series 723 5-pin (IP 67) | M12x1 4-pin (IP 67) | cable outlet with PVC cable (IP 67) [4] | compact field housing (IP 67) | cable outlet, cable with ventilation tube (IP 68) [5]

[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*

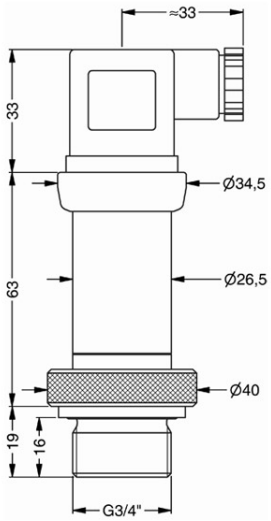
Mechanical connection (dimensions in mm)

standard



G3/4" flush (DIN 3852) with ISO 4400

standard for SIL- and SIL-Ex-version [6]



G3/4" flush (DIN 3852) with ISO 4400

[6] *not in combination with the accuracy 0.1%*

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ICS SCHNEIDER MESSTECHNIK

Ordering code ILMP 331

ILMP 331 ☐☐☐-☐☐☐☐-☐-☐-☐-☐-☐☐☐-☐-☐☐☐

Option		Code	
Pressure			
in bar		430	
in mH_2O		431	
Input [mH_2O]	**[bar]**		
1	0.10	1000	
1.6	0.16	1600	
2.5	0.25	2500	
4	0.40	4000	
6	0.60	6000	
10	1.0	1001	
16	1.6	1601	
25	2.5	2501	
40	4.0	4001	
60	6.0	6001	
100	10	1002	
160	16	1602	
250	25	2502	
400	40	4002	
customer		9999	consult
Pressure port			
Stainless steel 1.4404 (316L)		1	
customer		9	consult
Diaphragm			
Stainless steel 1.4435 (316L)		1	
customer		9	consult
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	consult
Seals			
FKM		1	
EPDM		3	
NBR		5	
customer		9	consult
Electrical connection			
Male and female plug ISO 4400		100	
Male plug Binder series 723 (5-pin)		200	
Cable outlet with PVC cable [1]		TA0	
Cable outlet [2]		TR0	
Male plug M12x1 (4-pin) / metal		M10	
Compact field housing stainless steel 1.4305		850	
customer		999	consult
Accuracy			
standard for $P_N \geq 0.4$ bar	0.35 %	3	
standard for $P_N < 0.4$ bar	0.5 %	5	
option 1 for $P_N \geq 0.4$ bar	0.25 %	2	
option 2	0.1 % [3]	1	
customer		9	consult
Special version			
standard		000	
customer		999	consult

[1] standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 … 70 °C), others on request
[2] cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable
[3] not in combination with SIL

01.06.2013

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