



LPT 333P

Industrial Pressure Transmitter

Pressure Ports with Flush Welded Stainless Steel Diaphragm

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

Nominal pressure

from 0 ... 60 bar up to 0 ... 600 bar

Output signals

2-wire: 4 ... 20 mA
3-wire: 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 (in preparation)
- ▶ gold-plated process connection for hydrogen applications
- ▶ cooling element for media temperatures up to 200 °C
- ▶ customer specific versions

The The pressure transmitter **LPT 333P** is suitable for measuring the pressure of viscous, pasty or gaseous media and for applications that require a front-flush, dead space-free process connection. Especially for hydrogen applications there is the possibility to use the process connection with gold plating. A temperature decoupler can also be provided for medium temperatures of up to 200 °C. A wide range of electrical connection variants are available to enable the **LPT 333P** to be integrated easily and quickly in the various system configurations.

Preferred areas of use are

-  Plant and machine engineering
-  Hydrogen

Preferred used for

-  Viscous and pasty media



Input pressure range						
Nominal pressure gauge ¹ [bar]	60	100	-	-	-	-
Nominal pressure absolute [bar]	60	100	160	250	400	600
Overpressure [bar]	210	210	600	1000	1000	1000
Burst pressure ≥ [bar]	1000	1000	1000	1250	1250	1800

¹ measurement starts with ambient pressure

Output signal / Supply	
Standard	2-wire: 4 ... 20 mA / $V_S = 8 ... 32 V_{DC}$
Option IS-protection	2-wire: 4 ... 20 mA / $V_S = 10 ... 28 V_{DC}$ (in preparation)
Options 3-wire	3-wire: 0 ... 10 V / $V_S = 14 ... 30 V_{DC}$

Performance	
Accuracy ²	standard: $\leq \pm 0.35 \% FSO$ option: $\leq \pm 0.25 \% FSO$
Permissible load	current 2-wire: $R_{max} = [(U_B - U_{Bmin}) / 0.02 A] \Omega$ voltage 3-wire: $R_{min} = 10 k\Omega$
Influence effects	supply: 0.05 % FSO / 10 V load: 0.05 % FSO / k Ω
Long term stability	$\leq \pm 0.1 \% FSO$ / 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	
Tolerance band	$\leq \pm 0.75 \% FSO$
In compensated range	-20 ... 80 °C
Permissible temperatures	medium: -40 ... 125 °C electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C
Permissible temperature medium for cooling element 200 °C	overpressure: -40 ... 200 °C vacuum: -40 ... 150 °C

³ an optional cooling element can influence thermal effects for offset and span depending on installation position and filling conditions

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	20 g RMS (25 ... 2000 Hz) with cooling element: 10 g RMS (25 ... 2000 Hz)
Shock according to DIN EN 60068-2-27	500 g / 1 msec with cooling element: 100 g / 1 msec

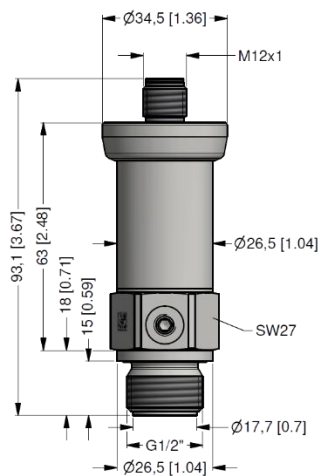
Filling fluids	
Standard	silicone oil others on request

Materials	
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)
Pressure port	standard: stainless steel 1.4404 (316 L) option: stainless steel 1.4404 (316 L), golden others on request
Diaphragm	standard: stainless steel 1.4435 (316 L) option: stainless steel 1.4435 (316 L), golden others on request
Seals	standard: FKM (recommended for medium temperatures ≤ 200 °C) option: FFKM (recommended for medium temperatures > 200 °C) others on request
Media wetted parts	pressure port, seal, diaphragm

Explosion protection (only for 4 ... 20 mA / 2-wire) in preparation					
Approvals DX19-DMP 333P	IBExU 10 ATEX xxxx X zone 0: II 1G Ex ia IIC T4 Ga; zone 20: II 1D Ex ia IIIC T 135°C Da				
Safety technical maximum values	$U_i = 28\text{ V}$, $I_i = 93\text{ mA}$, $P_i = 660\text{ mW}$, $C_i \approx 0\text{ nF}$, $L_i \approx 0\text{ }\mu\text{H}$, 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 up to bis 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 $\mu\text{H}/\text{m}$				
Miscellaneous					
Current consumption	signal output current: max. 25 mA		signal output voltage: max. 7 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 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 +	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 \oplus	5	4	\oplus	GNYE (green-yellow)
Electrical connections (dimensions mm/in)					
Standard <p>ISO 4400 (IP 65)</p>		Optional <p>Binder series 723, 5-pin (IP 67)</p>		<p>M12x1, 4-pin (IP 67)</p>	
<p>compact field housing (IP 67)</p>		<p>cable outlet with PVC cable (IP 67) ³</p>		<p>cable outlet, cable with ventilation tube (IP 68) ⁴</p>	
⇒ 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					

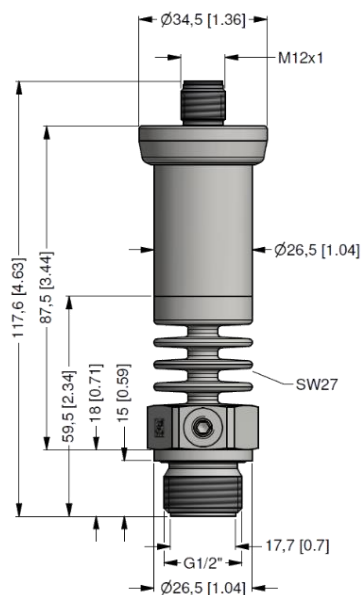
Mechanical connection (dimension mm/in)

standard



G1/2" flush DIN 3852

option



G1/2" flush DIN 3852
with cooling element 200 °C

⇒ metric threads and other versions on request

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Ordering code LPT 333P

LPT 333P



Pressure									
gauge ¹	5	4	C						
absolute	5	4	D						
Input									
[bar]									
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						consult
Output									
4 ... 20 mA / 2-wire					1				
0 ... 10 V / 3-wire					3				
intrinsic safety 4 ... 20 mA / 2-wire					E				in preparation
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) ²					T	A	0		
male plug M12x1 (4-pin) / metal					M	1	0		
compact field housing					8	5	0		
stainless steel 1.4301 (304)									
customer					9	9	9		consult
Mechanical connection									
G1/2" DIN 3852 with flush diaphragm					Z	0	0		
customer					9	9	9		consult
Diaphragm									
stainless steel 1.4435 (316L)								1	
stainless steel 1.4435 (316L), golden								G	
customer								9	consult
Seal									
FKM								1	
FFKM ³								7	
customer								9	consult
Filling fluid									
silicone oil								1	
customer								9	consult
Special version									
standard								0	0
with cooling element up to 200 °C ⁴								2	0
customer								9	9

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¹ measurement starts with ambient pressure
² standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C); others on request
³ only for p_N ≤ 100 bar possible
⁴ only for p_N ≤ 160 bar and mechanical connection G1/2" possible