DCT 533

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 b

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 DCT 533 is the same as those of the proven pressure transmitter DMP 331 / DMP 333, whereby the DCT 533 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 DCT 533 to different conditions on-site.

Preferred areas of use are

- Plant and machine engineering
- Energy industry

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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 / 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) SIO (switching output)	V_S = 18 ... 30 V_{DC}	
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 option	for p_N ≥ 0.4 bar: ≤ ± 0.35 % FSO for p_N < 0.4 bar: ≤ ± 0.50 % FSO 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)			

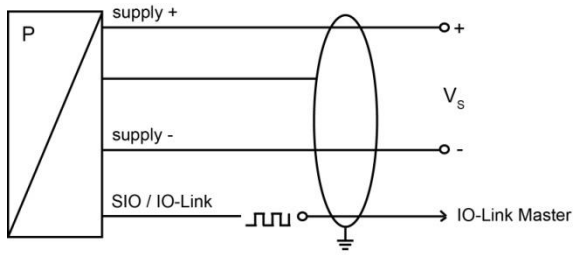
Thermal effects (offset and span)			
Nominal pressure p_N [bar]	-1 … 0	< 0.40	≥ 0.40
Tolerance band [% FSO]	≤ ± 0.75	≤ ± 1	≤ ± 0.75
in compensated range [°C]	-20 ... 85	0 ... 70	-20 … 85

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 and NPT, p_N ≤40 bar	

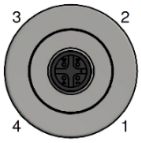
Miscellaneous	
Current consumption	max. 15 mA
Weight	approx. 140 g
Installation position	any [3]
Protection class	IP 67
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) [4]

[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

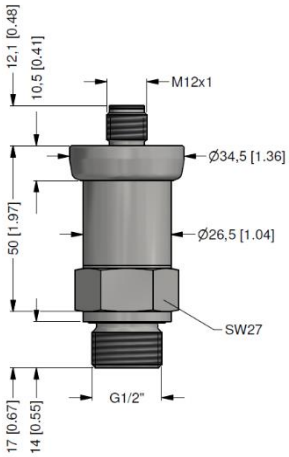


Pin configuration

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

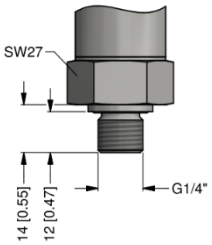
Dimensions (mm / in)

standard

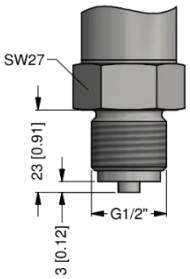


G1/2" DIN 3852
with M12x1

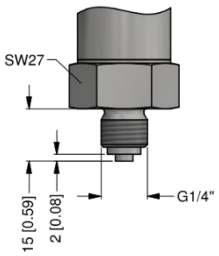
optionally



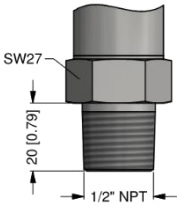
G1/4" DIN 3852



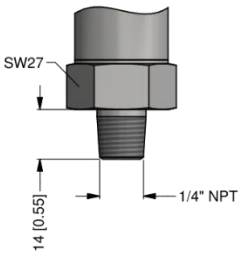
G1/2" EN 837



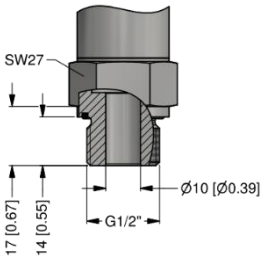
G1/4" EN 837



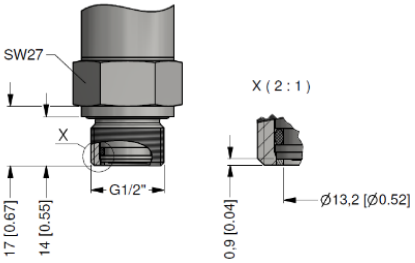
1/2" NPT



1/4" NPT



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



G1/2" DIN 3852
with flush sensor, p_N ≤ 40 bar

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

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BD|SENSORS pressure measurement

Ordering code DCT 533

DCT 533 ☐☐☐ - ☐☐☐☐ - ☐ - ☐ - ☐☐☐ - ☐☐☐ - ☐ - ☐☐☐

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					consult
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
Seal									
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 and NPT, possible for $p_N \leq 40$ bar

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