

DCT 533

Industrial Pressure Transmitter with IO-Link Interface

Stainless Steel Sensor

accuracy according to IEC 60770:
standard: $\leq \pm 0.35 \% \text{ FSO}$
option: $\leq \pm 0.25 \% \text{ FSO}$



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



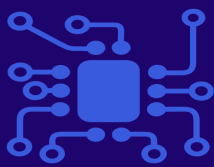
Plant and machine engineering



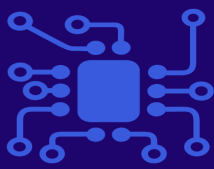
Energy industry



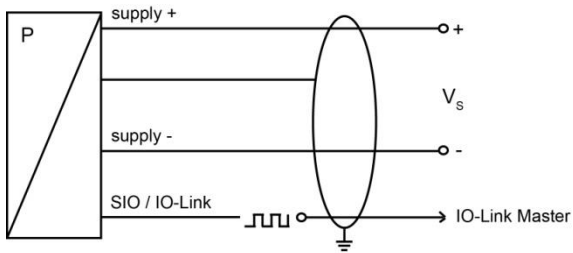
IO-Link



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 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 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

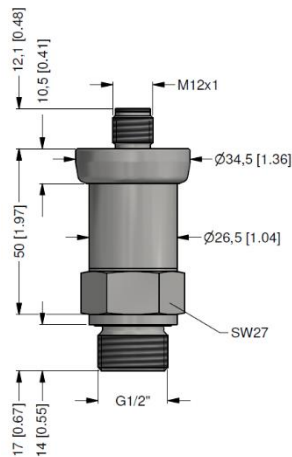


Pin configuration

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

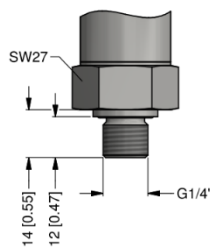
Dimensions (mm / in)

standard

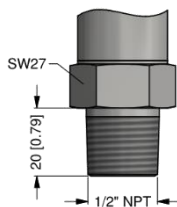


G1/2" DIN 3852
with M12x1

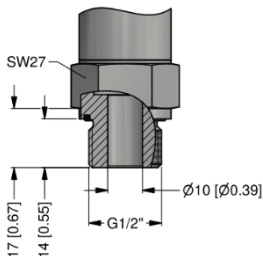
optionally



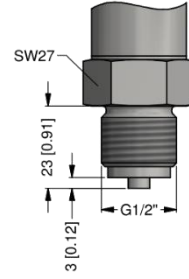
G1/4" DIN 3852



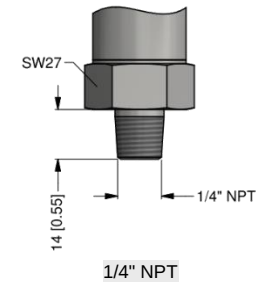
1/2" NPT



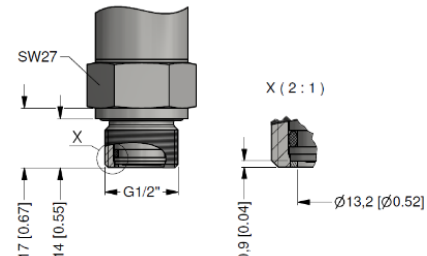
G1/2" DIN 3852 open port,
 $p_N \leq 40$ bar



G1/2" EN 837



1/4" NPT



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

⇒ metric threads and other versions on request

Ordering code DCT 533

DCT 533

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Pressure		D C 2		D C 3															
	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							F	0	0									
	with flush sensor ²																		
	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