

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 bar

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



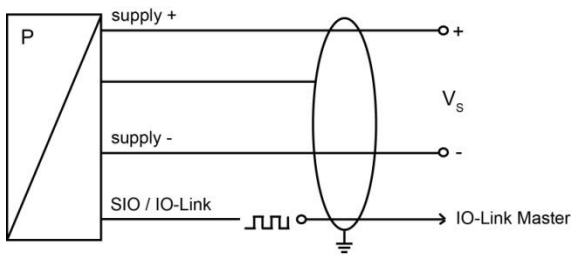
Energy industry



IO-Link

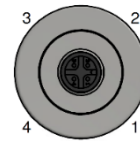
Input pressure range														
Nominal pressure gauge	[bar]	-1...0	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6		
Nominal pressure abs.	[bar]	-	-	-	-	0.40	0.60	1	1.6	2.5	4	6		
Overpressure	[bar]	5	0.5	1	1	2	5	5	10	10	20	40		
Burst pressure \geq	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50		
Nominal pressure 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 \geq	[bar]	50	120	120	210	420	1000	1000	1250	1250				
Vacuum resistance		p _N \geq 1 bar: unlimited vacuum resistance					p _N < 1 bar: on request							
Output signal / Supply														
Standard		IO-Link (measured value transmission)					V _S = 18 ... 30 V _{DC}							
		SIO (switching output)												
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 \geq 0.4 bar:		$\leq \pm 0.35$ % FSO									
			for p _N < 0.4 bar:		$\leq \pm 0.50$ % FSO									
		option	for p _N \geq 0.4 bar:		$\leq \pm 0.25$ % FSO									
Switching current (SIO-Mode)		max. 200 mA												
Switching frequency		max. 200 Hz												
Switching cycles		$> 100 \times 10^6$												
Long term stability		$\leq \pm 0.1$ % 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]	$\leq \pm 0.75$				$\leq \pm 1$				$\leq \pm 0.75$				
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 \leq 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, p _N \leq 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 \leq 1 bar.														
⁴ This directive is only valid for devices with maximum permissible overpressure > 200 bar.														

Wiring diagrams



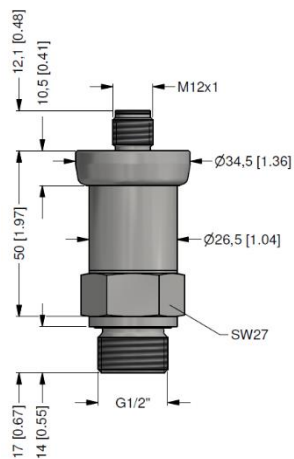
Pin configuration

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



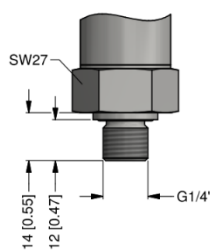
Dimensions (mm / in)

standard

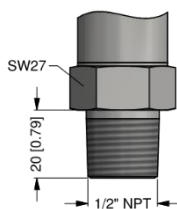


G1/2" DIN 3852
with M12x1

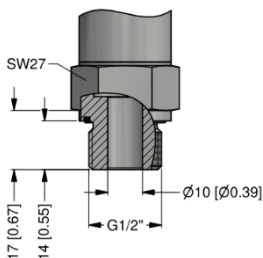
optionally



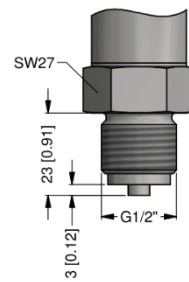
G1/4" DIN 3852



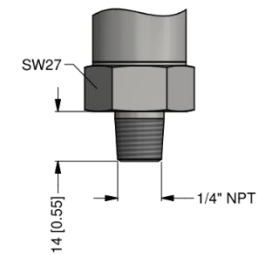
1/2" NPT



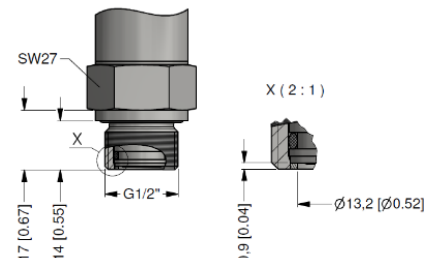
G1/2" DIN 3852 open port,
 $p_N \leq 40$ bar



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

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Ordering code DCT 533

DCT 533

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Pressure																			
	gauge	1	D C 2																
	absolute		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
Seals																			
	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, possible for $p_N \leq 40$ bar

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