DCT 533

Industrial Pressure Transmitter with IO-Link Interface

Stainless Steel Sensor

accuracy according to IEC 60770:
standart: ≤ ± 0.35 % FSO
sption: ≤ ± 0.25 % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 400 bar

Digital output signals

- IO-Link according to specification V 1.1
- Data transfer 38.4 kBaud
- 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

CE IO-Link

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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 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 ≥	[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) V_S = 18 ... 30 V_{DC} SIO (switching output)
IO-Link	V 1.1 / Slave / Smart Sensor Profile
Data transfer	COM 2 38,4 kBaud
Mode	SIO / IO-Link
Standard	IEC 61131-9

Performance	
Accuracy [1]	standard for P_N ≥ 0.4 bar: ≤ ± 0.35 % FSO standard for P_N < 0.4 bar: ≤ ± 0.5 % FSO option for P_N ≥ 0.4 bar: ≤ ± 0.25 % FSO
Switching current (SIO-Mode)	max. 200 mA
switchingfrequency	max. 200 Hz
Switching cycles	> 100 x 10^6
Long term stability	≤ ± 0.1 % FSO / year at reference conditions
Switch-on time	SIO-Modus: ca. 20 ms
Response time	SIO-Modus: < 4 ms
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				
Permissible temperatures	medium:	-25 ... 125 °C	electronics / environment:	-25 ... 85 °C
	storage:	-40 ... 85 °C		

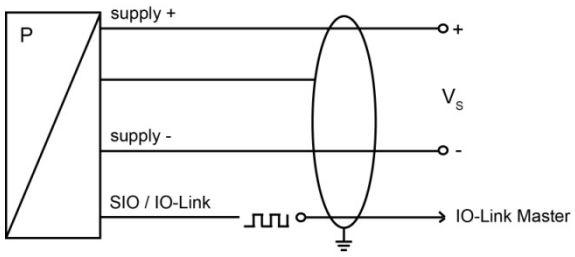
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326

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] 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	

Miscellaneous	
Current consumption	< 20 mA
Weight	approx. 140 g
Installation position	any [3]
Protection class	IP 67
Operational life	> 100 x 10^6 pressure cycles
CE-conformity	EMC Directive: 2004/108/EC
[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.	

Wiring diagrams

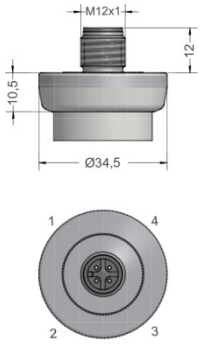


Pin configuration

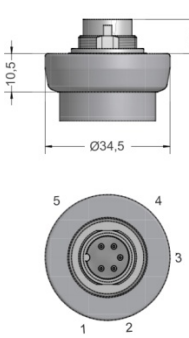
Electrical connection	M12x1 / metal (4-pin)	Binder 723 (5-pin)	cable colours (DIN 47100)
Supply + Supply – SIO / IO Link	1 3 4	1 3 4	wh (white) bn (brown) gn (green)
Shield	housing	housing	ye/gn (yellow / green)

Electrical connections (dimensions in mm)

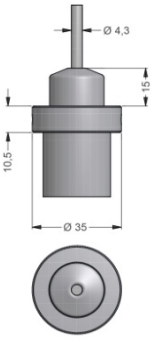
standard **option**



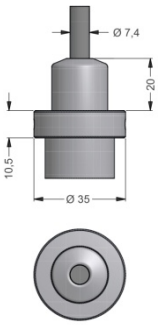
M12x1 4-pin
(IP 67)



Binder Series 723 5-pin
(IP 67)



cable outlet with PVC cable
(IP 67) [5]

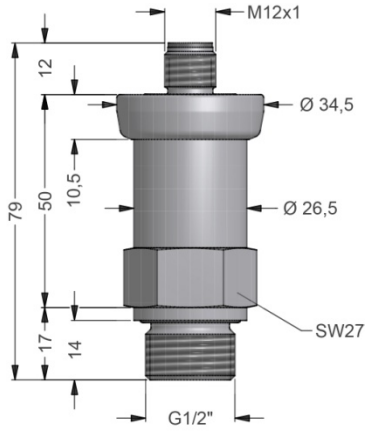


cable outlet, cable with ventilation tube
(IP 68) [6]

[5] *standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C)*
[6] *different cable types and lengths available, permissible temperature depends on kind of cable*

Mechanische Anschlüsse (Maße in mm)

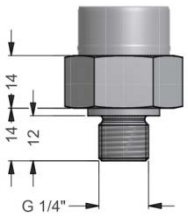
standard



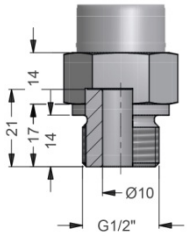
G1/2" DIN 3852
with M12x1

Mechanical connections (dimensions in mm)

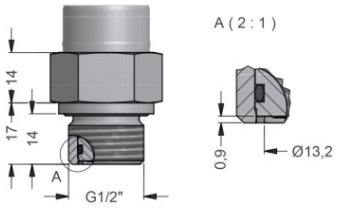
option



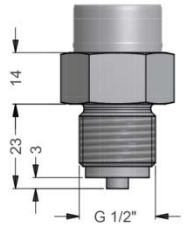
G1/4" DIN 3852



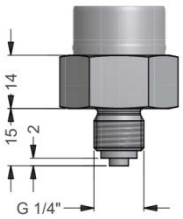
G1/2" open port



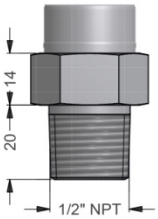
G1/2" DIN 3852
with flush sensor



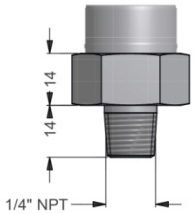
G1/2" EN 837



G1/4" EN 837



1/2" NPT



1/4" NPT

⇨ **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		D	C	3																			
Input	**[bar]**																						
0.1	[1]				1	0	0	0															
0.16	[1]				1	6	0	0															
0.25	[1]				2	5	0	0															
0.4					4	0	0	0															
0.6					6	0	0	0															
1					1	0	0	1															
1.6					1	6	0	1															
2.5					2	5	0	1															
4					4	0	0	1															
6					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 %										3												
standard for $P_N < 0.4$ bar	0.5 %										5												
option for $P_N \geq 0.4$ bar	0.25 %										2												
	0.1 %										1												consult
customer											9												consult
Electrical connection																							
Male plug M12x1 (4-pin) / metal												M	1	7									
Male plug Binder series 723 (5-pin)												2	0	7									
Cable outlet with PVC cable	[2]											T	A	0									
Cable outlet (IP68)	[3]											T	R	0									
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															F	0	0						
G1/2" DIN 3852 open pressure port															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)	[4]																	2					
customer																		9					consult
Special version																							
standard																			0	0	0		
customer																			9	9	9		consult

[1] absolute pressure possible from 0.4 bar

[2] standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 … 70°C), others on request

[3] cable with ventilation tube (code TR0 = PVC cable), different cable types and lengths available, price without cable

[4] welded version only with pressure ports according to EN 837

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