

DCT 533P



Industrial Pressure Transmitter with IO-Link Interface

Process Connections with Flush Welded Stainless Steel Diaphragm

accuracy according to IEC 60770:
standard: $\leq \pm 0.25$ % FSO
option: $\leq \pm 0.1$ % FSO

Nominal pressure

from 0 ... 100 mbar up to 0 ... 40 bar

Output signal

- IO-Link according to specification V 1.1
- data transfer rate 38.4 kbit/sec
- smart sensor profile

Special characteristics

- ▶ hygienic version
- ▶ diaphragm with low surface roughness
- ▶ CIP / SIP-cleaning up to 150 °C
- ▶ ingress protection IP 67 / IP 69

Optional versions

- ▶ different process connections
- ▶ cooling element for media temperatures up to 300 °C

The DCT 533P is suitable for food / beverage and pharmaceutical industry as well as, for applications where a totally flush pressure port is required. The special design prevents condensation inside the pressure transmitter and thus a failure in applications with large temperature changes.

The integrated, standardised IO-Link interface increases productivity and supports the operator in service and maintenance. Properties can be read and qualified via IO-Link, which helps the user to assess the state of system or process.

Preferred areas of use are



Food and beverage



Pharmaceutical industry

Material and test certificates

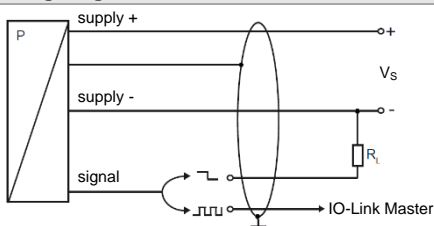
- ▶ Inspection certificate 3.1 according to EN 10204
- ▶ Test report 2.2 according to EN 10204



Input pressure range ¹												
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	
Overpressure	[bar]	40			80			80			105	
Burst pressure ≥	[bar]	50			120			120			210	
Vacuum resistance		p _N > 1 bar: unlimited vacuum resistance						p _N ≤ 1 bar: on request				
¹ consider the pressure resistance of fitting and clamps												
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 ²		standard: ≤ ± 0.25 % FSO option: ≤ ± 0.1 % 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										
² accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)												
Thermal effects (offset and span) ³												
Nominal pressure p _N	[bar]	-1 ... 0			< 0.40			≥ 0.40				
Tolerance band	[% FSO]	≤ ± 0.75			≤ ± 1.5			≤ ± 0.75				
In compensated range ⁴	[°C]	-20 ... 85			0 ... 50			-20 ... 85				
³ an optional cooling element can influence thermal effects for offset and span depending on installation position and filling conditions												
⁴ the minimum compensation temperature depends on the filling fluid used												
Permissible temperatures												
Filling fluid		silicone oil					food compatible oil					
Medium ⁵		-40 ... 125 °C					-10 ... 125 °C					
Medium with cooling element ⁶		overpressure: -40 ... 300 °C vacuum: -40 ... 150 °C ⁷					overpressure: -10 ... 250 °C vacuum: -10 ... 150 °C ⁷					
Electronics / environment		-40 ... 85 °C										
Storage		-40 ... 100 °C										
⁵ max. temperature of the medium for nominal pressure gauge > 0 bar: 150 °C for 60 minutes with a max. environmental temperature of 50 °C												
⁶ max. temperature depends on the used sealing material and type of seal and installation												
⁷ also for p _{abs} ≤ 1 bar												
Electrical protection												
Short-circuit protection		permanent										
Reverse polarity protection		on supply connection no damage, but also no function										
Electromagnetic compatibility		emission and immunity according to EN 61326										
Mechanical stability												
Vibration		acc. to DIN EN 60068-2-6 G 1/2": 20 g RMS (25...2000 Hz)					others: 10 g RMS (25...2000 Hz)					
Shock		acc. to DIN EN 60068-2-27 G 1/2": 500 g / 1 msec					others: 100 g / 1 msec					
Filling fluids												
Standard		silicone oil										
Option		food compatible oil according to 21CFR178.3570 (Mobil SHC Cibus 32; Category Code: H1; NSF Registration No.: 141500) others on request										
Materials												
Housing / electrical connection		stainless steel 1.4404 (316 L)										
Pressure port		stainless steel 1.4435 (316 L), R _a < 0.8 μm (media wetted parts and weld seam)										
Diaphragm		stainless steel 1.4435 (316 L), R _a < 0.15 μm										
Seals		standard: FKM (recommended for medium temperatures ≤ 200 °C) option: FFKM (recommended for medium temperatures < 260 °C) others on request Clamp, Varivent®: without										
Media wetted parts		pressure port, seal, diaphragm										

Miscellaneous	
EHEDG certificate Type EL Class I (in preparation)	EHEDG conformity is only ensured in combination with an approved seal. This is e.g. for - Clamp (C61, C62): T-ring-seal from Combifit International B.V. - Varivent® (P41): EPDM-O-ring which is FDA-listed
Weight	approx. 200 g
Current consumption	max. 15 mA
Operational life	100 million load cycles
Installation position	any (standard calibration in a vertical position with the pressure port connection down; differing installation position for $p_N \leq 2$ bar have to be specified in the order)
CE-conformity	EMC Directive: 2014/30/EU

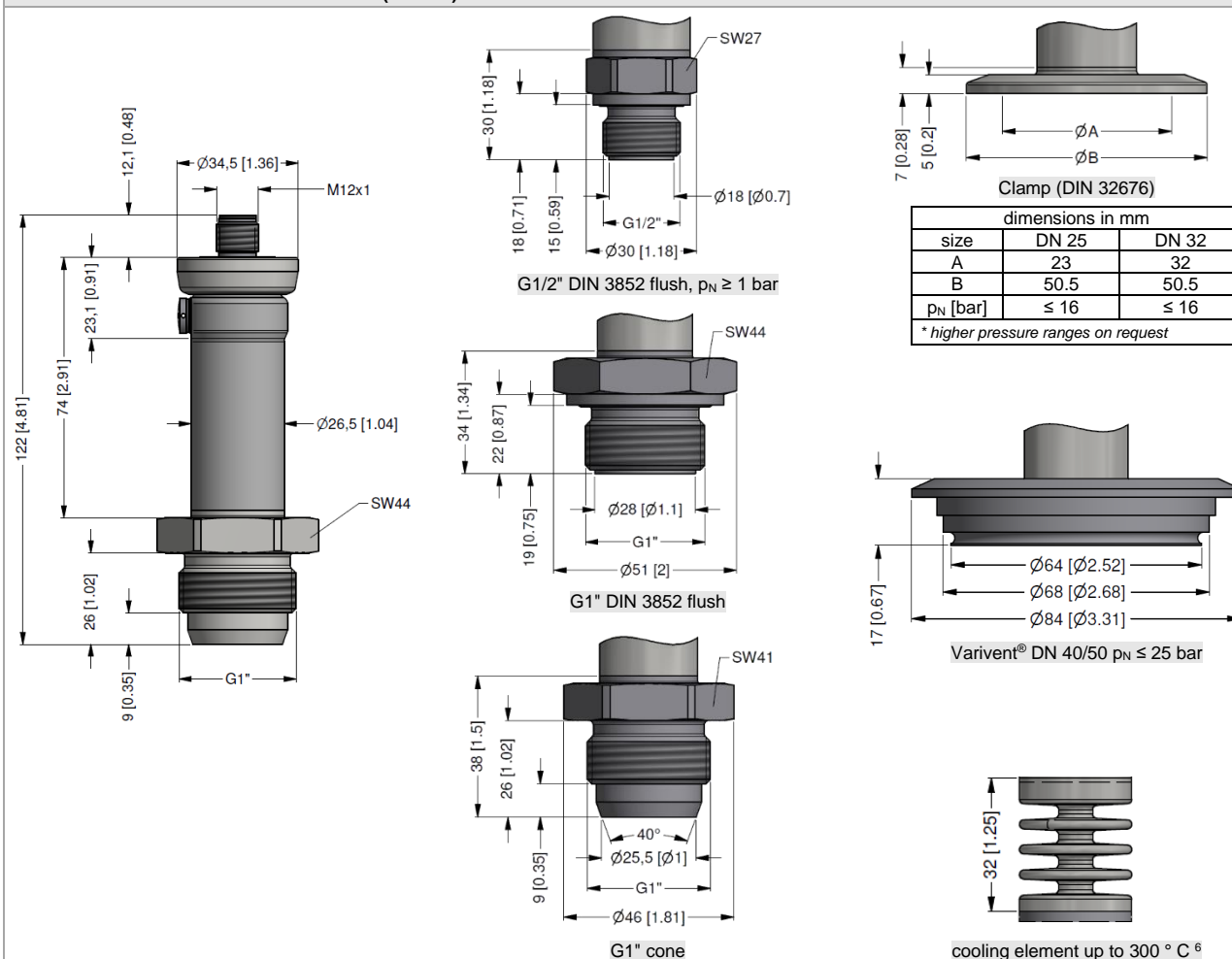
Wiring diagram



Pin configuration / electrical connection

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

Dimensions / mechanical connection (mm / in)



⇒ metric threads and other versions on request

⁶ max. temperature depends on the used sealing material and type of seal and installation

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Ordering code DCT 533P

DCT 533P



Pressure		D	C	H																
	gauge	D	C	H																
	absolute	D	C	G																
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												
	-1 ... 0				X	1	0	2												
	customer				9	9	9	9												consult
Output																				
	IO-Link / SIO								I	O										
Accuracy																				
standard:	0.25 % FSO								2											
option:	0.10 % FSO								1											
	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 flush (p _N ≥ 1 bar)								Z	0	0									
	G1" DIN 3852 flush								Z	S	1									
	G 1" cone								K	S	1									
	Clamp DN 25 DIN 32676 (p _N ≤ 16 bar)								C	6	1									
	Clamp DN 32 DIN 32676 (p _N ≤ 16 bar)								C	6	2									
	Varivent® DN 40/50 (p _N ≤ 25 bar)								P	4	1									
	customer								9	9	9									consult
Diaphragm																				
	stainless steel 1.4435 (316L)											1								
	customer											9								consult
Seal																				
for clamp, Varivent®:	without																			0
for inch thread - standard:	FKM																			1
for inch thread - option:	FFKM																			7
	customer																			9
Filling fluid																				
	silicone oil																			1
	food compatible oil (FDA)																			2
	customer																			9
Special version																				
	standard																			0 3 P
	with cooling element up to 300°C																			2 3 P
	customer																			9 9 9
																				consult

¹ absolute pressure possible from 0.4 bar

Varivent® is a brand name of GEA Tuchenhagen GmbH

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