



DCT 533P

Industrial Pressure Transmitter with IO-Link Interface

Process Connections with Flush Welded
Stainless Steel Diaphragm

accuracy according to IEC 61298-2:
standard: $\leq \pm 0.35 \% \text{ FSO}$
option: $\leq \pm 0.25 \% \text{ FSO}$

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: 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										
² accuracy according to IEC 61298-2 – 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			≤ ± 0.75				
In compensated range ⁴	[°C]	-20 ... 85			0 ... 70			-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		20 g RMS / 10 ... 2000 Hz according to DIN EN 60068-2-6 10 g RMS / 10 ... 2000 Hz according to DIN EN 60068-2-6 (with cooling element)										
Shock		500 g / 1 msec half sine according to DIN EN 60068-2-27										
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	

Ordering code DCT 533P

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[illegible]¹ absolute pressure possible from 0.4 bar

Varivent® is a brand name of GEA Tuchenhausen GmbH