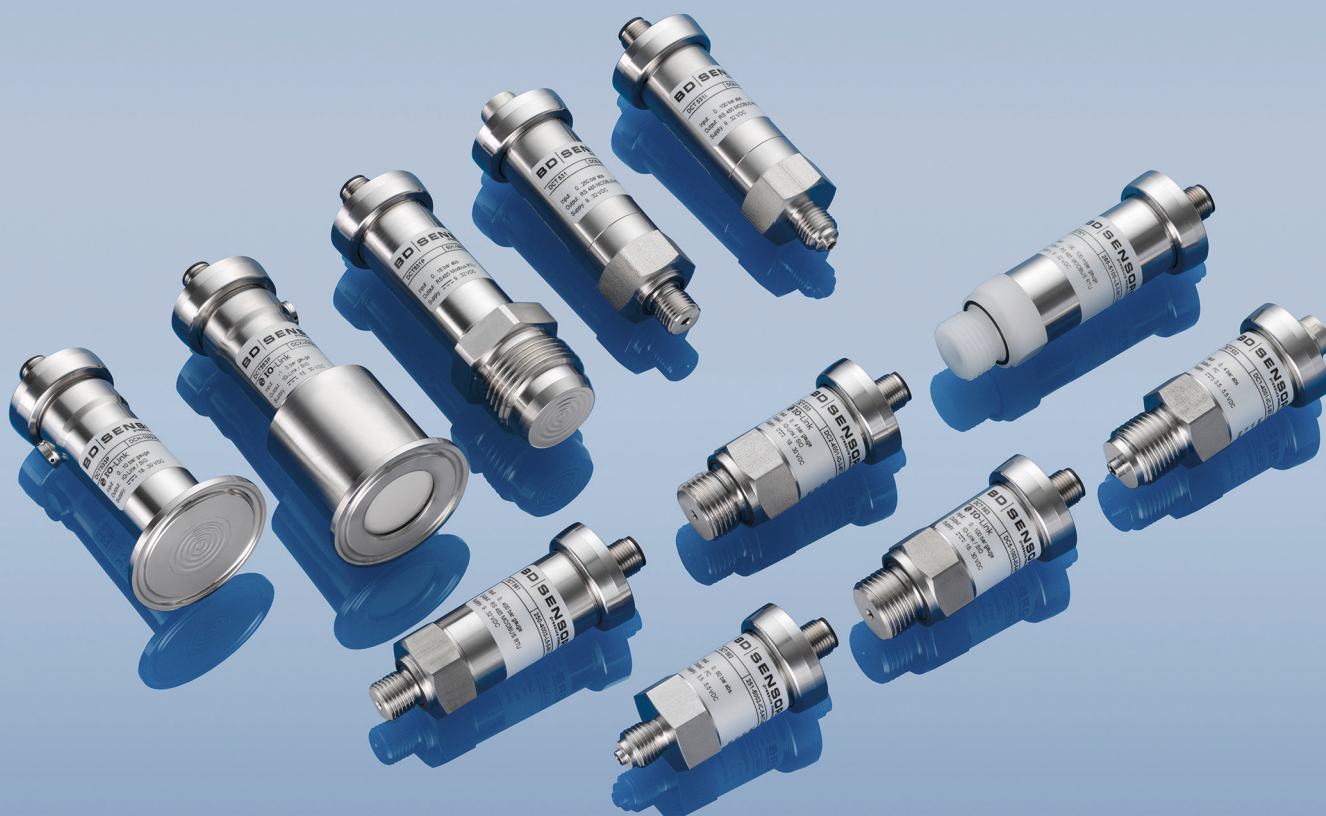


PRESSURE TRANSMITTER DIGITAL

PRODUCT CATALOGUE



PRESSURE at the highest LEVEL.

BD|SENSORS
pressure measurement

>> www.bdsensors.de

PRESSURE AT THE HIGHEST LEVEL.

„Successful medium-sized companies are not successful because they are active in many areas, but rather because they concentrate on one area and do it better than anyone else“

This is our philosophy. That's why BDESENSORS has concentrated on electronic pressure measurement technology from the beginning.

With our unrelenting product and quality strategy we have been successful in becoming a major player on the world market for electronic pressure sensing devices within a few years.

With 300 employees at 3 locations in Germany, the Czech Republic and China BD|SENSORS has solutions from 0.1 mbar to 6.000 bar:

- > pressure sensors, pressure transducers
pressure transmitters
- > electronic pressure switches
- > pressure measuring devices with display and
switching outputs
- > hydrostatic level probes

Two pressure transmitters and a submersible probe, based on a stainless steel silicon sensor were the beginning. Today the range extends to more than 70 standard products, from economical OEM devices to high-end products with HART® communication or field bus interface.

In addition we have developed hundreds of customer-specific applications, underlining the competence and flexibility of BD|SENSORS. The excellent price/performance ratio of our products is proof of the fact that we are able to meet the toughest demand: Being a problem-solver for our customers.

For large production batches as well as for small production numbers, no matter for what medium or external factors, with almost any mechanical or electrical connection – we solve your problem

flexibly, quickly and cost-efficiently.

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	PRODUCT	PREFERRED APPLICATION		MEDIA WETTED PARTS						NOMINAL PRESSURE		ACCURACY	INTERFACE			APPROVAL		
		general purpose	hygienic	pressure port		sensor				bar min	bar max	% FSO (standard)	IO-Link	RS 485 with Modbus RTU	i²C	UL	3A	EHEDG
				metal	PVDF/PP/plastics	stainless steel	ceramic	elastomer	without, welded									
PRECISION	DCT 531 i	•		•		•		•	•	0.10	400	≤± 0.10		•		•		
INDUSTRY	DCT 531	•		•		•		•	•	0.10	400	≤± 0.25		•		•		
	DCT 532	•		•		•		•	•	0.10	400	≤± 0.25			•	•		
	DCT 533	•		•		•		•	•	0.10	400	≤± 0.35	•			•		
	DCT 561	•		•	•		•	•		0.60	600	≤± 0.50		•		•		
	DCT 562	•		•	•		•	•		0.60	600	≤± 0.50			•	•		
	DCT 563	•		•	•		•	•		0.60	600	≤± 0.50	•			•		
	DCT 571	•		•	•		•	•		0.10	40	≤± 0.35		•		•		
	DCT 531 P		•	•		•			•	0.10	40	≤± 0.25		•		•	•	•
	DCT 533 P		•	•		•			•	0.10	40	≤± 0.35	•			•	•	•
DCT 553 P		•	•			•	•		0.04	20	≤± 0.35	•			•			
OEM	DCT 163	•		•			•	•		1.00	400	≤± 0.50	•			•		

* according to IEC 60770



DCT 531i

Precision Pressure Transmitter with RS485 Modbus RTU

Stainless Steel Sensor

accuracy according to IEC 60770:
0.1 % FSO

Nominal pressure

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

Output signal

RS485 with Modbus RTU protocol

Special characteristics

- ▶ transfer of pressure and temperature value
- ▶ perfect thermal behaviour
- ▶ excellent long term stability
- ▶ reset function

Optional versions

- ▶ pressure port
G 1/2" flush up to max. 40 bar
- ▶ pressure sensor welded
- ▶ customer specific versions

The DCT 531i is characterized by very good accuracy and excellent temperature behaviour and is therefore ideally suited for applications where precise pressure measurement is necessary (e.g. test benches, leakage tests, etc.).

Thanks to the integrated RS485 interface (based on the MODBUS RTU protocol), reliable and robust data transmission is available, which also works without problems over longer distances. Since the DCT 531i works directly with a master e.g. is coupled to a SPS, conversion losses of an analogue input card are avoided.

Different mechanical and electrical connections are available so that the DCT 531i can be used in various applications without any problems.

Preferred areas of use are



Plant and machine engineering



Energy industry



Modbus®

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	<div><div>$p_N \geq 1$ bar: unlimited vacuum resistance</div><div>$p_N < 1$ bar: on request</div></div>									

Output signal	
Digital	RS485 with Modbus RTU protocol (pressure & temperature)

Supply	
Direct voltage	$V_S = 9 \dots 32 V_{DC}$

Performance	
Accuracy ¹	nominal pressure ≥ 0.25 bar: $\leq \pm 0.10$ % FSO nominal pressure < 0.25 bar: $\leq \pm 0.25$ % FSO
Long term stability	$\leq \pm 0.1$ % FSO / year at reference conditions
Measuring rate	500 Hz
Delay time	500 msec

¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

Thermal effects (offset and span)	
Thermal error	$\leq \pm 0.02$ % FSO / 10 K
In compensated range	-20 ... 80 °C

Permissible temperatures	
Medium	-25 ... 125 °C
Electronics / environment	-25 ... 85 °C
Storage	-40 ... 100 °C

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

Mechanical stability	
Vibration	10 g RMS (20 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	100 g / 11 msec according to DIN EN 60068-2-27

Materials	
Pressure port / housing	stainless steel 1.4404 (316 L)
Seals	standard: FKM option: EPDM without ² (welded version) others on request
Diaphragm	stainless steel 1.4435 (316 L)
Media wetted parts	pressure port, seal, diaphragm

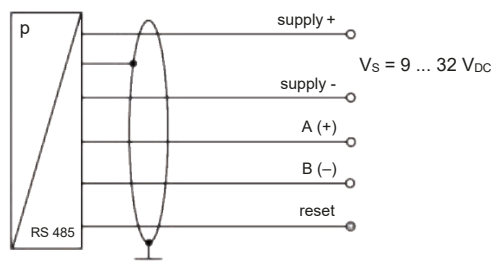
² welded version only with pressure ports according to EN 837 and NPT, $p_N \leq 40$ bar

Miscellaneous	
Weight	approx. 210 g
Current consumption	max. 10 mA
Ingress protection	IP 67
Installation position	any ³
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 diagram



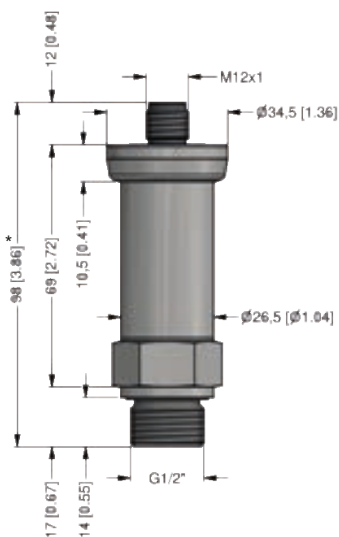
Pin configuration / electrical connection

Electrical connection	M12x1, metal (5-pin)
Supply +	1
Supply -	3
A (+)	2
B (-)	4
Reset	5
Shield	plug housing

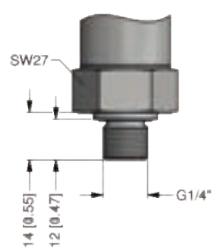


Dimensions (mm / in)

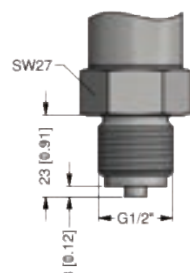
standard

G1/2" DIN 3852
with M12x1

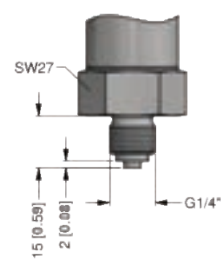
options



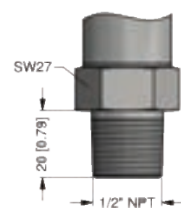
G1/4" DIN 3852



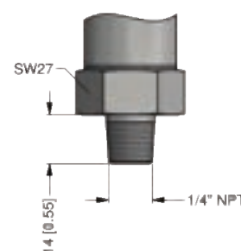
G1/2" EN 837



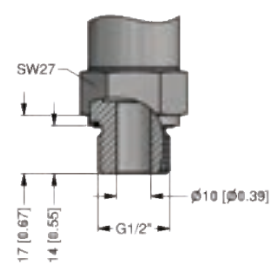
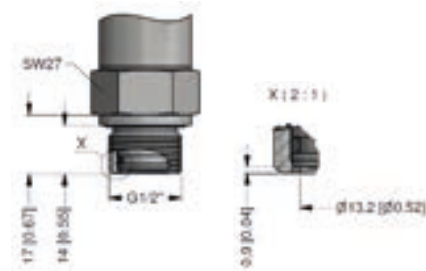
G1/4" EN 837



G1/2" NPT



G1/4" NPT

G1/2" DIN 3852
open port ($p_N \leq 40$ bar)G1/2" DIN 3852 with
semi-flush sensor ($p_N \leq 40$ bar)

* with nominal pressure > 40 bar the length of devices increases by 9 mm [0.35 in]

⇒ metric threads and other versions on request

Configuration Modbus RTU					
Standard configuration	001	-	1	-	1
Address					
Address	001				
	...				
	247				
Baud Rate					
4800 Bd			0		
9600 Bd			1		
19200 Bd			2		
38400 Bd			3		
Parity					
None					0
Odd					1
Even					2
Configuration code (to specify with order)					
		-		-	

Ordering code DCT 531i

DCT 531i

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Pressure						
	gauge absolute	D D	C C	7 8		
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 customer		X	1 0 2	9 9 9 9		consult
Output RS485 Modbus RTU L 5						
Accuracy						
standard for p _N ≥ 0.25 bar:	0.10 % FSO			1		
standard for p _N < 0.25 bar:	0.25 % FSO			2		
	customer			9		consult
Electrical connection male plug M12x1 (5-pin) / metal customer N 9 1 9 1 9						
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 semi-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
Seal						
FKM				1		
EPDM				3		
without (welded version) ³				2		consult
	customer			9		consult
Special version						
standard customer				1 9 1 9 1 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



DCT 531

Industrial Pressure Transmitter with RS485 Modbus RTU

Stainless Steel Sensor

accuracy according to IEC 60770:
0.25 % FSO

Nominal pressure

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

output signal

RS485 with Modbus RTU protocol

Special characteristic

- ▶ pressure value
- ▶ perfect thermal behaviour
- ▶ excellent long term stability
- ▶ reset function

Optional versions

- ▶ pressure port
G 1/2" flush up to max. 40 bar
- ▶ pressure sensor welded
- ▶ customer specific versions

The DCT 531 with RS485 interface uses the communication protocol Modbus RTU which has found the way in industrial communication as an open protocol. The Modbus protocol is based on a master slave architecture with which up to 247 slaves can be questioned by a master.

Due to the usage of high quality materials and components, the DCT 531 is suitable for almost every industrial application, if the medium is compatible with stainless steel 316L.

The modular concept of the device allows customized mechanical connections, so it is easy to adapt the pressure transmitter to different conditions on-site.

Preferred areas of use are



Plant and machine engineering



Energy industry

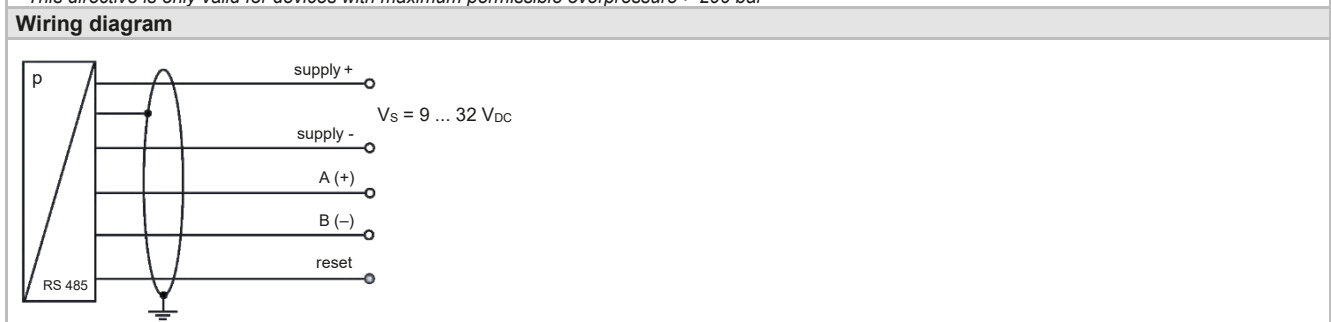


Modbus®

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

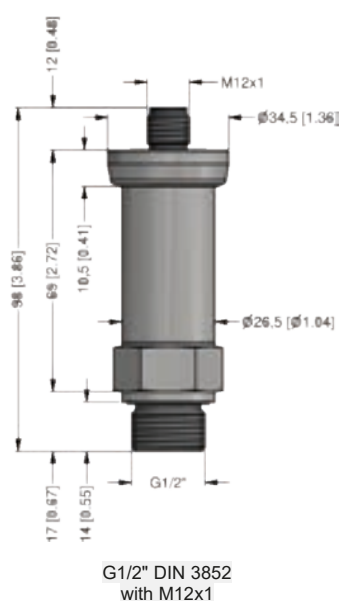
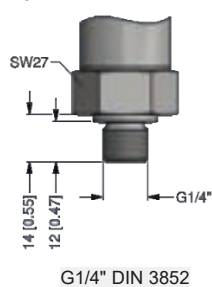
Nominal pressure gauge / absolute	[bar]	10	16	25	40	60	100	160	250	400
Overpressure	[bar]	40	80	80	105	210	600	600	1000	1000
Burst pressure \geq	[bar]	50	120	120	210	420	1000	1000	1250	1250
Vacuum resistance	$p_N \geq 1$ bar: unlimited vacuum resistance						$p_N < 1$ bar: on request			

Output signal	
Digital	RS 485 with Modbus RTU protocol (pressure)
Supply	
Direct current	$V_S = 9 \dots 32 V_{DC}$
Performance	
Accuracy ¹	$\leq \pm 0.25 \% \text{ FSO}$
Long term stability	$\leq \pm 0.1 \% \text{ FSO} / \text{year}$ at reference conditions
Measuring rate	500 Hz
Delay time	500 msec
¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)	
Thermal effects (offset and span)	
Tolerance band	$\leq \pm 0.75 \% \text{ FSO}$
in compensated range	$-20 \dots 85^\circ\text{C}$
Permissible temperatures	
Medium	$-40 \dots 125^\circ\text{C}$
Electronics / environment	$-40 \dots 85^\circ\text{C}$
Storage	$-40 \dots 100^\circ\text{C}$
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	10 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	100 g / 11 msec according to DIN EN 60068-2-27
Materials	
Pressure port / housing	stainless steel 1.4404 (316 L)
Seals	standard: FKM option: 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 and NPT, $p_N \leq 40$ bar	
Miscellaneous	
Weight	approx. 210 g
Ingress protection	IP 67
Current consumption	max. 10 mA
Operational life	100 million load cycles
Installation position	any ³
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	

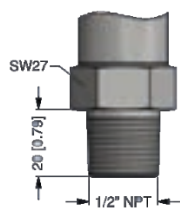


Pin configuration / electrical connection

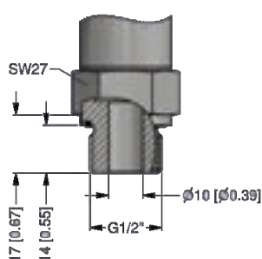
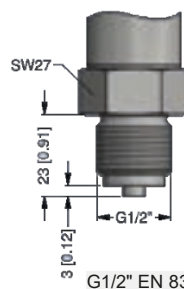
Electrical connection	M12x1, metal (5-pin)
Supply +	1
Supply –	3
A (+)	2
B (–)	4
Reset	5
Shield	plug housing

**Dimensions (mm / in)****standard**G1/2" DIN 3852
with M12x1⇒ metric threads and other
versions on request**options**

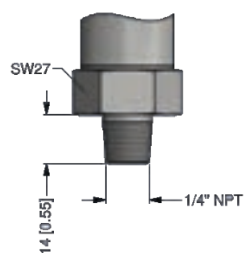
G1/4" DIN 3852



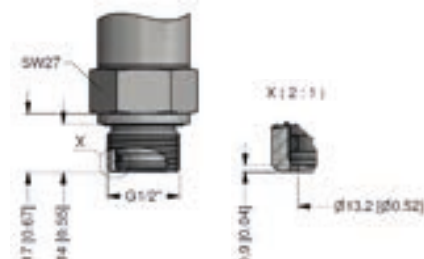
1/2" NPT

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

G1/2" EN 837



1/4" NPT

G1/2" DIN 3852 with
semi-flush sensor ($p_N \leq 40$ bar)**Configuration Modbus RTU**

Standard configuration	001	-	1	-	1
Address					
Address	001				
	...				
	247				
Baud Rate					
4800 Bd			0		
9600 Bd			1		
19200 Bd			2		
38400 Bd			3		
Parity					
None					0
Odd					1
Even					2

Configuration code
(to specify with order)

-

-

Ordering code DCT 531

DCT 531

[illegible][illegible]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



DCT 532

Industrial Pressure Transmitter with i²C interface

Stainless Steel Sensor

Accuracy according to IEC 60770:
 $\leq \pm 0.25 \% \text{ FSO}$

Nominal pressure

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

Digital output signal

- i²C
- bus frequency max. 400 kHz
- configuration of data format
- interrupt signal

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

Contrary to the industrial pressure transmitter with analogue signal, the DCT 532 has a digital i²C-interface. i²C has a master-slave topology, whereby you can use up to 127 devices at one master. In addition to the typical settings, as slave address, data format, etc., it is possible to do special parametrisation for pressure unit and more.

Due to the usage of high quality materials and components, the DCT 532 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 pressure transmitter to different conditions on-site.

Preferred areas of use are



Plant and machine engineering



Energy industry

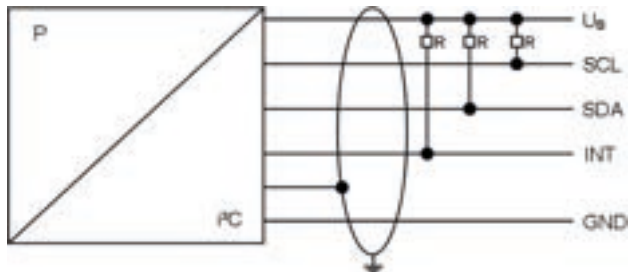


Input pressure range												
Nominal pressure gauge	[bar]	-1...0	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6
Nominal pressure abs.	[bar]	-	-	-	-	0.40	0.60	1	1.6	2.5	4	6
Overpressure	[bar]	5	0,5	1	1	2	5	5	10	10	20	40
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50

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		$p_N \geq 1$ bar: unlimited vacuum resistance $p_N < 1$ bar: on request								

Output signal / Supply	
±°C	$V_S = 3.5 \dots 5.5 V_{DC}$
Performance	
Accuracy ¹	$\leq \pm 0.25 \% \text{ FSO}$
Max. I/O current	10 mA
Long term stability	$\leq \pm 0.1 \% \text{ FSO} / \text{year}$ at reference conditions
Response time	1.5 msec + transmission time (depending on bus frequency)
Measuring rate	500 Hz
¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)	
Thermal effects (offset and span)	
Tolerance band	$\leq \pm 0.75 \% \text{ FSO}$
in compensated range	-20 ... 85 °C
Permissible temperatures	
Medium	-25 ... 125 °C
Electronics / environment	-25 ... 85 °C
Storage	-40 ... 85 °C
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	by exchanged supply connections no damage, but also no function by exchanged communication with signal lines it can come according to constellation to damages.
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 and NPT, $p_N \leq 40$ bar	
Miscellaneous	
Current consumption	< 15 mA
Weight	approx. 140 g
Ingress protection	IP 67
Installation position	any ³
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

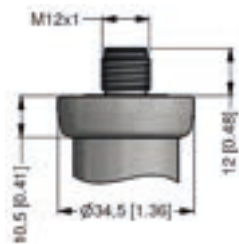


Pin configuration

Electrical connection	M12x1 / metal (5-pin)	Binder 723 (5-pin)
		
Supply +	1	1
Supply –	3	3
SDA	2	2
SCL	4	4
INT	5	5
Shield	housing	housing

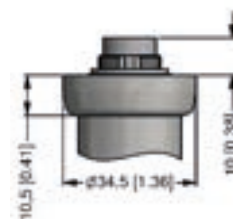
Electrical connections (dimensions mm / in)

standard



M12x1 (5-pin)

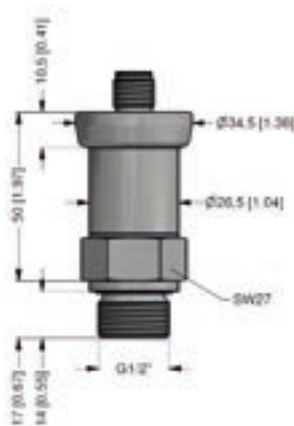
optionally



Binder Serie 723 (5-pin)

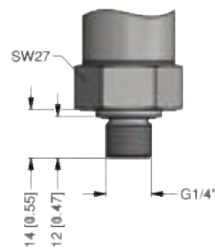
Dimensions (mm / in)

standard

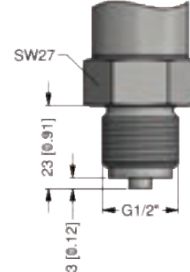


G1/2" DIN 3852
with M12x1

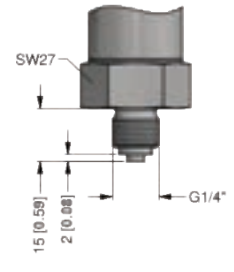
optionally



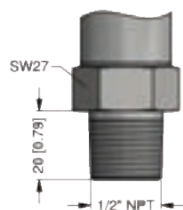
G1/4" DIN 3852



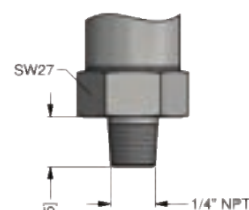
G1/2" EN 837



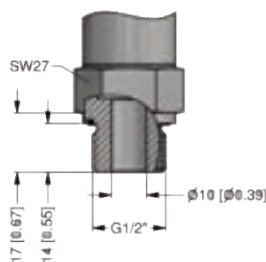
G1/4" EN 837



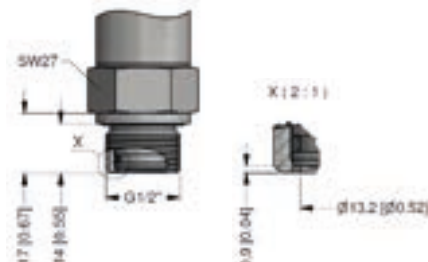
1/2" NPT



1/4" NPT



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



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

⇒ metric threads and other versions on request

Configuration i ² C-interface																
Stand configuration	0	5	0	-	0	-	0	-	0	-	0	-	0	0	0	1
Slave address																
address	0	0	1													
	1	2	7													
Type of result register																
32bit IEEE float					0											
16bit Integer					1											
Byte order of values																
Low byte first							0									
High byte first							1									
Mode of result register																
Value								0								
Percent of nominal								1								
Restore of address pointer																
No restore										0						
To last set address on next start										1						
Digital meaning																
Count of result													0	0	0	1
													1	0	0	0
Configuration code																
(has to be defined with the order)				-	-	-	-	-	-	-	-	-	-	-	-	-

Ordering code DCT 532

DCT 532

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[illegible]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



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



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 \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) $V_S = 18 \dots 30 V_{DC}$ 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

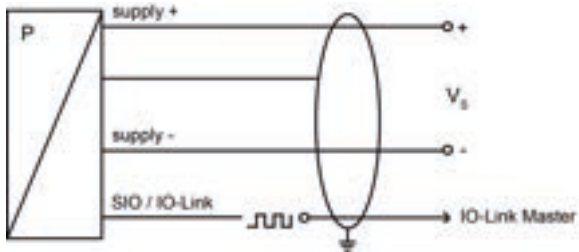
² welded version only with pressure ports according to EN 837 and NPT, $p_N \leq 40$ bar

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

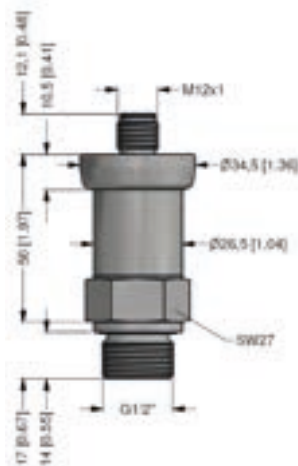


Pin configuration

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

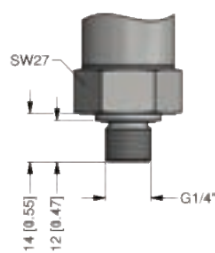
Dimensions (mm / in)

standard

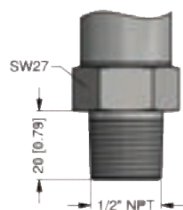


G1/2" DIN 3852
with M12x1

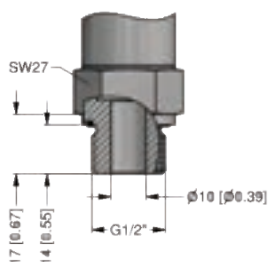
optionally



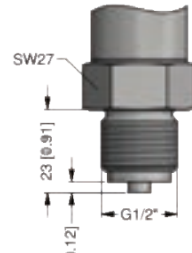
G1/4" DIN 3852



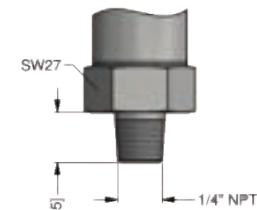
1/2" NPT



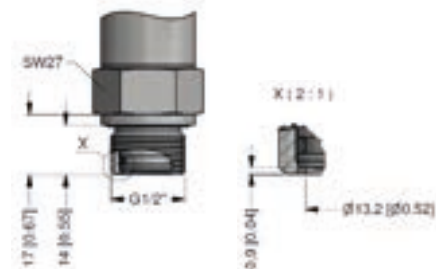
G1/2" DIN 3852 open port,
 $p_N \leq 40$ bar



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

Ordering code DCT 533

DCT 533

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[illegible]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



DCT 561

Industrial Pressure Transmitter with RS485 Modbus RTU

Ceramic Sensor

accuracy according to IEC 60770:
0.5 % FSO

Nominal pressure

from 0 ... 600 mbar up to 0 ... 600 bar

Output signal

RS485 with Modbus RTU protocol

Special characteristic

- ▶ good thermal behaviour
- ▶ good long term stability
- ▶ reset function

Optional versions

- ▶ pressure port G 1/2" open port PVDF for aggressive media (up to 60 bar)
- ▶ oxygen application

The DCT 561 with RS485 interface uses the communication protocol Modbus RTU which has found the way in industrial communication as an open protocol. The Modbus protocol is based on a master slave architecture with which up to 247 slaves can be questioned by a master – the data will transfer in binary form.

The sensor technology of the DCT 561 is the same as those of the proven pressure transmitter DMK 331, whereby the DCT 561 is suitable for pasty, polluted and aggressive media as well as for low-pressure oxygen applications.

The modular concept of the pressure transmitter allows customized electrical or mechanical connections, so it is easy to adapt the DCT 561 to different conditions on-site.

Preferred areas of use are



Plant and machine engineering



Environmental engineering
(water - sewage - recycling)



Medical technology



Input pressure range ¹										
Nominal pressure gauge	[bar]	-1 ... 0	0.6	1	1.6	2.5	4	6	10	16
Nominal pressure absolute	[bar]	-	0.6	1	1.6	2.5	4	6	10	16
Overpressure	[bar]	3	2	3	5	5	12	12	20	50
Burst pressure ≥	[bar]	4	4	4	7	7.5	15	18	30	70

Nominal pressure gauge / absolute	[bar]	25	40	60	100	160	250	400	600
Overpressure	[bar]	50	120	120	200	400	400	650	800
Burst pressure ≥	[bar]	75	150	180	300	500	750	1000	1100

Vacuum resistance unlimited vacuum resistance

¹ PVDF pressure port possible for nominal pressure ranges up to 60 bar

Output signal

Digital (pressure) RS485 with Modbus RTU protocol

Supply

Direct current $V_S = 9 \dots 32 V_{DC}$

Performance

Accuracy ²	$\leq \pm 0.5 \% \text{ FSO}$
Long term stability	$\leq \pm 0.3 \% \text{ FSO} / \text{year}$ at reference conditions
Measuring rate	500 Hz
Delay time	500 msec

² accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

Thermal effects (offset and span) / Permissible temperatures

Thermal error	$\leq \pm 0.2 \% \text{ FSO} / 10 \text{ K}$
In compensated range	0 ... 85 °C
Permissible temperatures ³	medium: -25 ... 125 °C electronics / environment: -25 ... 85 °C storage: -40 ... 80 °C

³ for pressure port in PVDF the medium temperature is -25 ... 60 °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

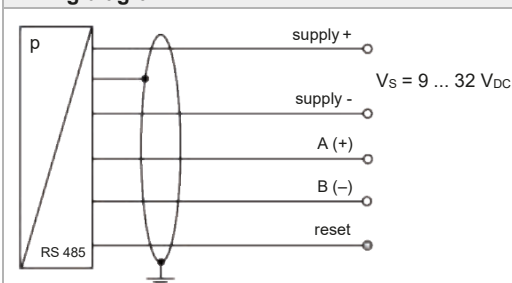
Pressure port	standard: stainless steel 1.4404 (316 L) optional for G1/2" open port with nominal pressure range up to 60 bar: PVDF others on request
Housing	stainless steel 1.4404 (316L)
Seals	standard: FKM options: EPDM (for $p_N \leq 160 \text{ bar}$) others on request
Diaphragm	ceramic Al_2O_3 96 %
Media wetted parts	pressure port, seal, diaphragm


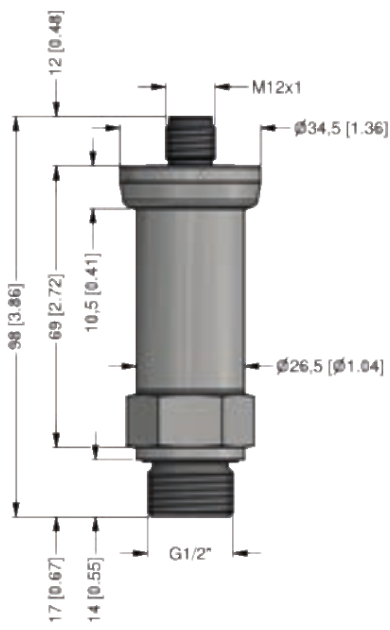
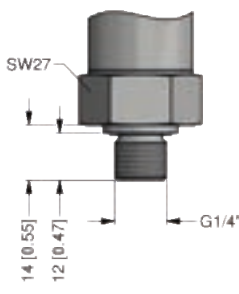
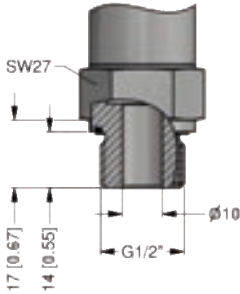
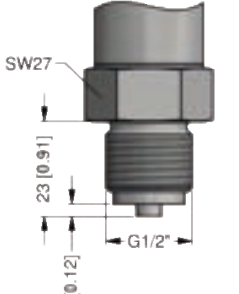
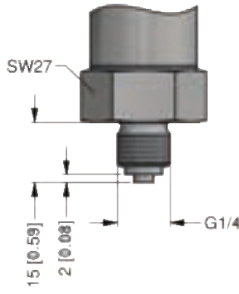
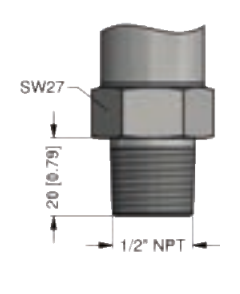
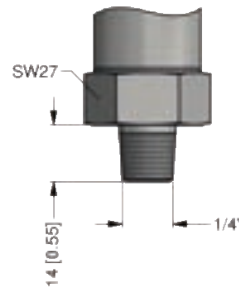
Miscellaneous

Option oxygen application	for $p_N \leq 25 \text{ bar}$: O-ring in FKM Vi 567 (with BAM-approval); permissible maximum values are 25 bar / 150° C
Current consumption	max. 10 mA
Weight	approx. 210 g
Installation position	any
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

⁴ This directive is only valid for devices with maximum permissible overpressure > 200 bar

Wiring diagram



Pin configuration		
Electrical connection	M12x1, metal (5-pin)	
Supply +	1	
Supply –	3	
A (+)	2	
B (–)	4	
Reset	5	
Shield	plug housing	
Dimensions (mm / in)		
<div> <div> standard  <p>G1/2" DIN 3852 with M12x1</p> </div> <div> options <div>  <p>G1/4" DIN 3852</p> </div>  <p>G1/2" DIN 3852 open port</p> <div>  <p>G1/2" EN 837</p> </div> <div>  <p>G1/4" EN 837</p> </div> <div>  <p>1/2" NPT</p> </div> <div>  <p>1/4" NPT</p> </div> </div> </div>		
⇒ metric threads and other versions on request		

Configuration Modbus RTU					
Standard configuration	001	-	1	-	1
Address					
Address	001				
	...				
	247				
Baud Rate					
4800 Bd			0		
9600 Bd			1		
19200 Bd			2		
38400 Bd			3		
Parity					
None					0
Odd					1
Even					2
Configuration code (to specify with order)		-		-	

DCT 561

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¹ metric threads and others on request
² possible for nominal pressure range $p_n \leq 160$ bar
³ PVDF only with G1/2" DIN 3852 open pressure port (up to 60 bar); permissible medium temperature: -25 ... 60 °C
⁴ oxygen application with FKM-seal up to 25 bar



DCT 562

Industrial Pressure Transmitter with i²C interface

Ceramic Sensor

accuracy according to IEC 60770:
0.5 % FSO

Nominal pressure

from 0 ... 400 mbar up to 0 ... 600 bar

Digital output signal

- i²C
- bus frequency max. 400 kHz
- configuration of data format
- interrupt signal

Special characteristic

- ▶ pressure port G 1/2" open port PVDF for aggressive media

Optional versions

- ▶ customer specific versions

Regardless of whether you need a pressure transmitter with i²C interface for an application in the laboratory area or in plant and mechanical engineering, the DCT 562 is adaptable for the detection of pressures and fill levels of pasty, contaminated Universal or aggressive media. Various mechanical and electrical connections are available.

The integrated i²C interface offers the user various options in the area of addressing and data acquisition, as well as simple control and use of the network for fast and slow bus users.

Preferred areas of use are



Plant and machine engineering



Energy industry



Laboratory applications



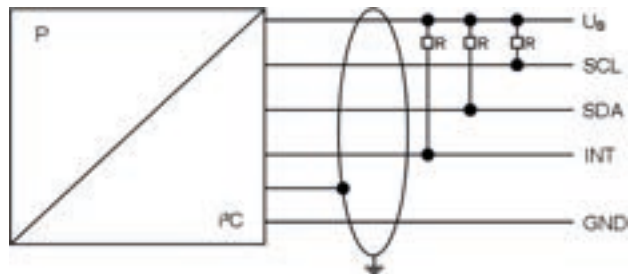
Input pressure range ¹																			
Nominal pressure gauge [bar]	-1...0	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600	
Nominal pressure absolute [bar]	-	-	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600	
Overpressure [bar]	4	1	2	2	4	4	10	10	20	40	40	100	100	200	400	400	600	800	
Burst pressure ≥ [bar]	7	2	4	4	5	7.5	12	18	30	50	75	120	180	300	500	750	1000	1100	
Permissible vacuum	$p_N \geq 1$ bar: unlimited vacuum resistance $p_N < 1$ bar: on request																		

¹ PVDF pressure port possible for nominal pressure ranges up to 60 bar

Output signal / Supply	
i ² C	V _S = 3.5 ... 5.5 V _{DC}
Performance	
Accuracy ²	≤ ± 0.5 % FSO
Max. I/O current	10 mA
Long term stability	≤ ± 0.3 % FSO / year at reference conditions
Response time	1.5 msec + transmission time (depending on bus frequency)
Measuring rate	500 Hz
² accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)	
Thermal effects (offset and span)	
Thermal error	≤ ± 0.2 % FSO / 10 K
In compensated range	0 ... 85 °C
Permissible temperatures ³	
Medium	-40 ... 125 °C
Electronics / environment	-40 ... 85 °C
Storage	-40 ... 100 °C
³ for pressure port in PVDF the medium temperature is -30 ... 60 °C	
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	by exchanged supply connections no damage, but also no function by exchanged communication with signal lines it can come according to constellation to damages.
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	standard: stainless steel 1.4404 (316 L) optional for G1/2" DIN 3852 open port with nominal pressure range max. up to 60 bar: PVDF others on request
Housing	stainless steel 1.4404 (316 L)
Seals	standard: FKM option: EPDM (for $p_N \leq 160$ bar) others on request
Diaphragm	ceramic Al ₂ O ₃ 96 %
Media wetted parts	pressure port, seals, diaphragm
Miscellaneous	
Current consumption	< 15 mA
Weight	approx. 140 g
Ingress protection	IP 67
Installation position	any
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) ⁴

⁴ This directive is only valid for devices with maximum permissible overpressure > 200 bar

Wiring diagram

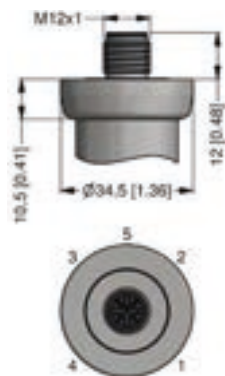


Pin configuration

Electrical connection	M12x1 / metal (5-pin)	Binder 723 (5-pin)
Supply +	1	1
Supply –	3	3
SDA	2	2
SCL	4	4
INT	5	5
Shield	housing	housing

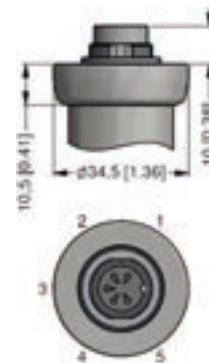
Electrical connections (dimensions mm/in)

Standard



M12x1 (5-pin)

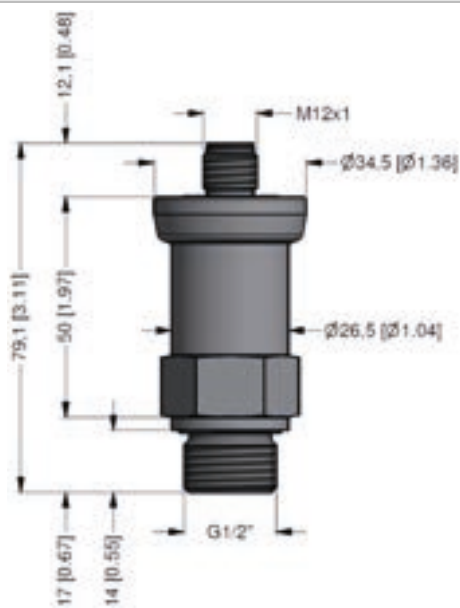
Optional



Binder Serie 723 (5-pin)

Dimensions / mechanical connections (dimensions in mm)

standard



G1/2" DIN 3852 with male plug M12x1

Mechanical connections (dimensions mm/in)

option

G1/4" DIN 3852

G1/2" DIN 3852 open port

G1/2" EN 837

G1/4" EN 837

1/2" NPT

1/4" NPT

⇒ metric threads and other versions on request

Configuration i ² C-interface																
Stand configuration	0	5	0	-	0	-	0	-	0	-	0	-	0	0	0	1
Slave address																
address	0	0	1													
		...														
	1	2	7													
Type of result register																
32bit IEEE float					0											
16bit Integer					1											
Byte order of values																
Low byte first						0										
High byte first						1										
Mode of result register																
Value								0								
Percent of nominal								1								
Restore of address pointer																
No restore									0							
To last set address on next start									1							
Digital meaning																
Count of result												0	0	0	0	1
													...			
												1	0	0	0	0
Configuration code (has to be defined with the order)																
				-		-		-		-		-				

BDSENSORS www.bdsensors.de

Ordering code DCT 562

DCT 562				<div></div>	<div></div>	<div></div>	-	<div></div>	<div></div>	<div></div>	-	<div></div>	<div></div>	-	<div></div>	<div></div>	-	<div></div>	<div></div>	-	<div></div>	<div></div>	-	<div></div>	<div></div>	-	<div></div>	<div></div>	<div></div>	<div></div>
Pressure																														
		gauge		2	5	0																								
		absolute		2	5	1																								
Input																														
		[bar]																												
		0.4					4	0	0	0																				
		0.6					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																				
		600					6	0	0	3																				
		-1 ... 0					X	1	0	2																				
		customer					9	9	9	9																			consult	
Output																														
		i°C									I	C																		
Accuracy																														
		0.5 % FSO										5																		
		customer										9																	consult	
Electrical connection																														
		male plug M12x1 (5-pin) / metal										N	1	7																
		male plug Binder series 723 (5-pin)										2	0	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 open pressure port											H	0	0															
		1/2" NPT											N	0	0															
		1/4" NPT											N	4	0															
		customer											9	9	9													consult		
Seal																														
		FKM															1													
		EPDM ²															3													
		customer															9											consult		
Pressure port																														
		stainless steel 1.4404 (316L)																				1								
		PVDF ³																				B								
		customer																				9						consult		
Diaphragm																														
		ceramics Al ₂ O ₃ 96 %																						2						
		customer																						9				consult		
Special version																														
		standard																							0	0	0			
		customer																							9	9	9		consult	

¹ metric threads and others on request

² possible for nominal pressure ranges $p_N \leq 160$ bar

³ PVDF only with G1/2" DIN 3852 open pressure port (up to 60 bar); permissible medium temperature: -30 ... 60 °C



DCT 563

Industrial Pressure Transmitter with IO-Link Interface

Ceramic Sensor

accuracy according to IEC 60770:
0.5 % FSO

Nominal pressure

from 0 ... 600 mbar up to 0 ... 600 bar

Digital output signal

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

Special characteristic

- ▶ good thermal behaviour
- ▶ good long term stability

Optional versions

- ▶ pressure port G 1/2" flush for pasty media (up to 25 bar)
- ▶ pressure port G 1/2" open port PVDF for aggressive media (up to 60 bar)
- ▶ oxygen application

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 parameterized and the measured values transferred. The integration to the master is easy by using the IODD-file.

The sensor technology of the DCT 563 is the same as those of the proven pressure transmitter DMK 331, whereby the DCT 563 is suitable for pasty, polluted and aggressive media as well as for low-pressure oxygen applications.

The modular concept of the pressure transmitter allows customized electrical or mechanical connections, so it is easy to adapt the DCT 563 to different conditions on-site.

Preferred areas of use are



Plant and machine engineering



Environmental engineering
(water - sewage - recycling)



Medical technology



Input pressure range ¹										
Nominal pressure gauge	[bar]	-1...0 ²	0.6	1	1.6	2.5	4	6	10	16
Nominal pressure abs.	[bar]	-	0.6	1	1.6	2.5	4	6	10	16
Overpressure	[bar]	3	2	3	5	5	12	12	20	50
Burst pressure ≥	[bar]	4	4	4	7	7.5	15	18	30	70

Nominal pressure gauge / abs.	[bar]	25	40	60	100	160	250	400	600
Overpressure	[bar]	50	120	120	200	400	400	650	800
Burst pressure ≥	[bar]	75	150	180	300	500	750	1000	1100

Vacuum resistance unlimited vacuum resistance

¹ PVDF pressure port possible for nominal pressure ranges up to 60 bar

² accuracy ≤ 1 % FSO

Output signal / Supply	
Standard	IO-Link (measured value / status transmission) / V _S = 18 ... 30 VDC SIO (switching output)
IO-Link	V 1.1 / slave / smart sensor profile
Data transfer	COM2 38.4 kbit/s
Mode	SIO / IO-Link (COMx)
Standard	IEC 61131-2, IEC 61131-9

Performance	
Accuracy ³	≤ ± 0.5 % 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 modus: approx. 20 msec
Response time	SIO modus: < 4 msec
Measuring rate	400 Hz

³ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

Thermal effects (offset and span)	
Thermal error	≤ ± 0.2 % FSO / 10 K
In compensated range	0 ... 85 °C

Permissible temperatures ⁴	
Medium	-25 ... 125 °C
Electronics / environment	-25 ... 85 °C
Storage	-40 ... 85 °C

⁴ for pressure port in PVDF the medium temperature is -25 ... 60 °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	standard: stainless steel 1.4404 (316 L) optional for G1/2" open port with nominal pressure range up to 60 bar: PVDF others on request
Housing	stainless steel 1.4404 (316L)
Seals (media wetted)	standard: FKM options: EPDM (for p _N ≤ 160 bar) others on request
Diaphragm	ceramic Al ₂ O ₃ 96 %
Media wetted parts	pressure port, seal, diaphragm

Miscellaneous	
Option oxygen application	for p _N ≤ 25 bar: O-ring in FKM Vi 567 (with BAM-approval); permissible maximum values are 25 bar / 150° C
Current consumption	max. 15 mA
Weight	approx. 140 g
Installation position	any
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) ⁵

⁵ This directive is only valid for devices with maximum permissible overpressure > 200 bar

5W2T

14 (3.55)

12 (3.47)

13/16

Technical drawing of a bolt with dimensions: 0.625, 1.4 (±.05), and 1/4-20 NPT.

Technical drawing of a 1/2 inch NPT female fitting. The drawing shows a cross-section of the fitting with the following dimensions:

- Overall length: 1.73 (1.73)
- Thread length: 1.44 (1.44)
- Thread diameter: 1.315 (1.315)
- Thread pitch: 14 (14)
- Thread type: NPT
- Thread specification: 1/2-14 NPT
- Thread diameter: 1.315 (1.315)
- Thread pitch: 14 (14)
- Thread type: NPT
- Thread specification: 1/2-14 NPT
- Thread diameter: 1.315 (1.315)
- Thread pitch: 14 (14)
- Thread type: NPT
- Thread specification: 1/2-14 NPT

Technical drawing of a 1/2 inch NPT female fitting. Dimensions shown include: 5/8" for the outer diameter of the upper section, 17 [0.67] for the total height, 14 [0.55] for the height of the lower section, and 1/2" for the thread diameter. A dimension 'X' is indicated for the depth of the internal thread.

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Ordering code DCT 563

DCT 563

			-					-		-		-				-				-		-		-				
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[illegible]

¹ metric threads and others on request

² possible for nominal pressure ranges $p_N \leq 25$ bar; absolute pressure ranges on request

³ possible for nominal pressure range $p_N \leq 160$ bar

⁴ PVDF only with G1/2" DIN 3852 open pressure port (up to 60 bar); permissible medium temperature: -25 ... 60 °C

⁵ oxygen application with FKM-seal up to 25 bar



DCT 571

Industrial Pressure Transmitter with RS485 Modbus RTU

Ceramic Sensor

accuracy according to IEC 60770:
standard: 0.35 % FSO
option: 0.25 % FSO

Nominal pressure

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

Output signal

RS485 with Modbus RTU protocol

Special characteristic

- ▶ diaphragm ceramics 99.9 % Al_2O_3
- ▶ high long-term stability
- ▶ reset function

Optional versions

- ▶ different kinds of inch threads
- ▶ pressure port in PVDF or PP-HT for aggressive media on request

The pressure transmitter DCT 571 was developed for applications in plant and mechanical engineering or in laboratory technology, e.g. designed to measure pressures or levels of pasty, contaminated or aggressive media.

The self-developed pressure sensor made of 99.9% pure ceramic is characterized by a high overload capacity, as well as temperature and media resistance.

The integrated RS 485 interface and the MODBUS RTU protocol used ensure reliable and robust data transmission, which also works smoothly over long distances.

Preferred areas of use



Plant and machine engineering



Laboratory techniques



Water



Aggressive media

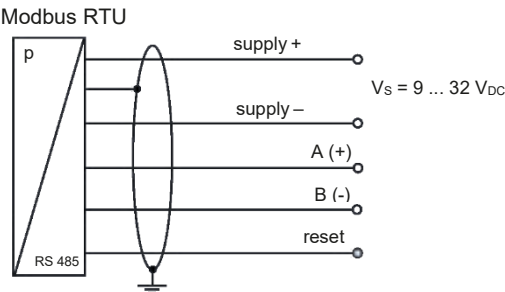


Modbus®

Input pressure range															
Nominal pressure gauge	[bar]	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40
Level	[mH ₂ O]	1	1.6	2.5	4	6	10	16	25	40	50	100	160	250	400
Overpressure	[bar]	3	4	5	5	5	7	7	12	12	20	20	20	40	70
Burst pressure ≥	[bar]	4	6	8	8	7	9	9	18	18	25	30	30	45	80
Permissible vacuum	[bar]	-0.2	-0.3	-0.5				-1 (unlimited vacuum resistance)							

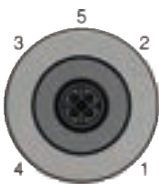
Output signal	
Digital (pressure)	RS485 with Modbus RTU protocol
Supply	
Direct current (DC)	V _S = 9 ... 32 V _{DC}
Performance	
Accuracy ¹	standard: ≤ ± 0.35 % FSO option: ≤ ± 0.25 % FSO
Long term stability	≤ ± 0,1 % FSO / year at reference conditions
Measuring rate	500 Hz
Delay time	500 msec
¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)	
Thermal effects (offset and span)	
Tolerance band	≤ ± 1 % FSO
In compensated range	-20 ... 80 °C
Permissible temperatures ²	
Medium	-40 ... 125 °C
Electronics / environment	-40 ... 85 °C
Storage	-40 ... 85 °C
² for pressure port in PVDF the operation medium temperature is -30 ... 60 °C and in PP-HT 0 ... 60 °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	100 g / 1 msec according to DIN EN 60068-2-27
Materials	
Pressure port	standard: stainless steel 1.4404 (316 L) option for G3/4" flush: PVDF (p _{max} = 20 bar), PP-HT (p _{max} = 10 bar) on request others on request
Housing	stainless steel 1.4404 (316 L) others on request
Seals (O-rings)	standard: FKM options: EPDM FFKM others on request
Diaphragm	ceramics Al ₂ O ₃ 99.9 % others on request
Media wetted parts	pressure port, seals, diaphragm
Miscellaneous	
Ingress protection	IP 67
Installation position	any
Current consumption	max. 10 mA
Weight	approx. 180 g
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU

Wiring diagram



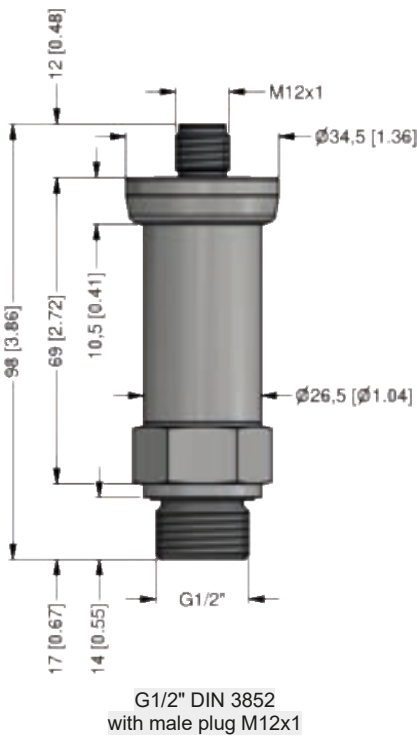
Pin configuration / electrical connection

Electrical connection	M12x1, metal (5-pin)
Supply +	1
Supply -	3
A (+)	2
B (-)	4
Reset	5
Shield	plug housing

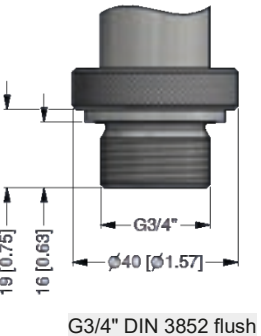
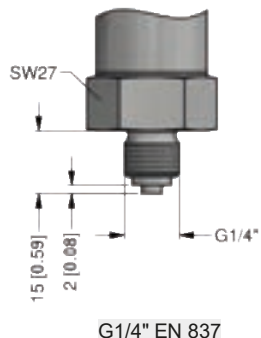
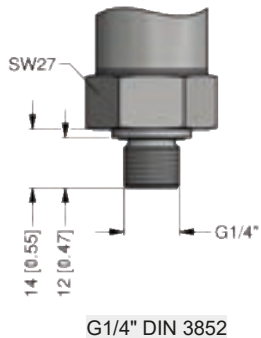
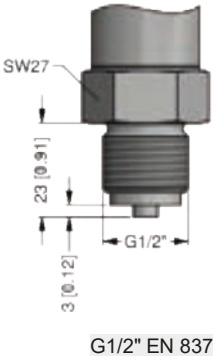
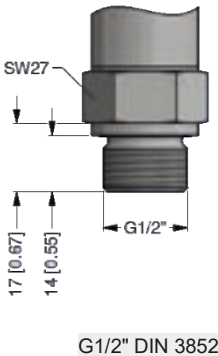


Dimensions / mechanical connection (mm / in)

standard



options



⇒ metric threads and other versions on request

Configuration Modbus RTU					
Standard configuration	001	-	1	-	1
Address					
Address	001				
	...				
	247				
Baud Rate					
4800 Bd			0		
9600 Bd			1		
19200 Bd			2		
38400 Bd			3		
Parity					
None					0
Odd					1
Even					2
Configuration code (to specify with order)					
		-		-	

Ordering code DCT 571

DCT 571

[illegible]

Pressure					
		gauge in bar	2	8	5
		gauge in mH ₂ O	2	8	6
Input	[mH ₂ O]	[bar]			
	1.0	0.1	1	0	0
	1.6	0.16	1	6	0
	2.5	0.25	2	5	0
	4.0	0.40	4	0	0
	6.0	0.60	6	0	0
	10	1.0	1	0	0
	16	1.6	1	6	0
	25	2.5	2	5	0
	40	4.0	4	0	0
	60	6.0	6	0	0
	100	10	1	0	0
	160	16	1	6	0
	250	25	2	5	0
	400	40	4	0	0
customer			9	9	9
Output	RS485 Modbus RTU		L	5	
Accuracy					
standard	0.35 % FSO		3		
option	0.25 % FSO		2		
	customer		9		
Electrical connection					
male plug M12x1 (5-pin) / metal			N	1	1
customer			9	9	9
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
G3/4" with flush sensor			K	0	0
customer			9	9	9
Seal					
FKM			1		
EPDM			3		
FFKM			7		
customer			9		
Pressure port					
stainless steel 1.4404 (316L)			1		
PVDF (p_{\max} = 20 bar) ²			B		
PP-HT (p_{\max} = 10 bar) ²			R		
customer			9		
Diaphragm					
ceramics Al ₂ O ₃ 99,9 %			C		
customer			9		
Special version					
standard			0		
customer			9		

¹ metric threads and others on request

² only for mechanical connection G3/4"; for pressure port in PVDF the operation medium temperature is -30 ... 60 °C and in PP-HT 0 ... 60 °C



DCT 531P

Industrial Pressure Transmitter with RS485 Modbus RTU

Process Connections with Flush Welded Stainless Steel Diaphragm

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

Nominal pressure

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

Output signal

RS485 with Modbus RTU protocol

Special characteristics

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

Optional versions

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

The pressure transmitter DCT 531P was designed for use in the food / beverage and pharmaceutical industry. The compact design with hygienic version guarantees an outstanding performance in terms of accuracy, thermal behaviour and long term stability.

The integrated RS485 interface is characterized by a robust and reliable data transmission that works failure-free even over long distances.

Additionally, the modular construction concept of the device allows to combine different electrical and mechanical connections, so it is easy to adapt the pressure transmitter to different conditions on-site.

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



Modbus®

¹ consider the pressure resistance of fitting and clamps

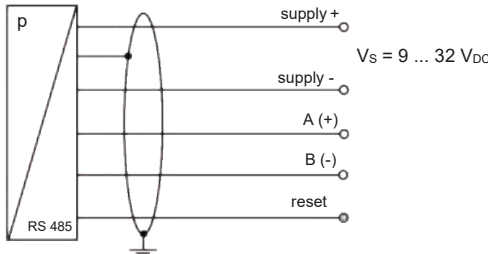

² accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)

³ an optional cooling element can influence thermal effects for offset and span depending on installation position and filling conditions

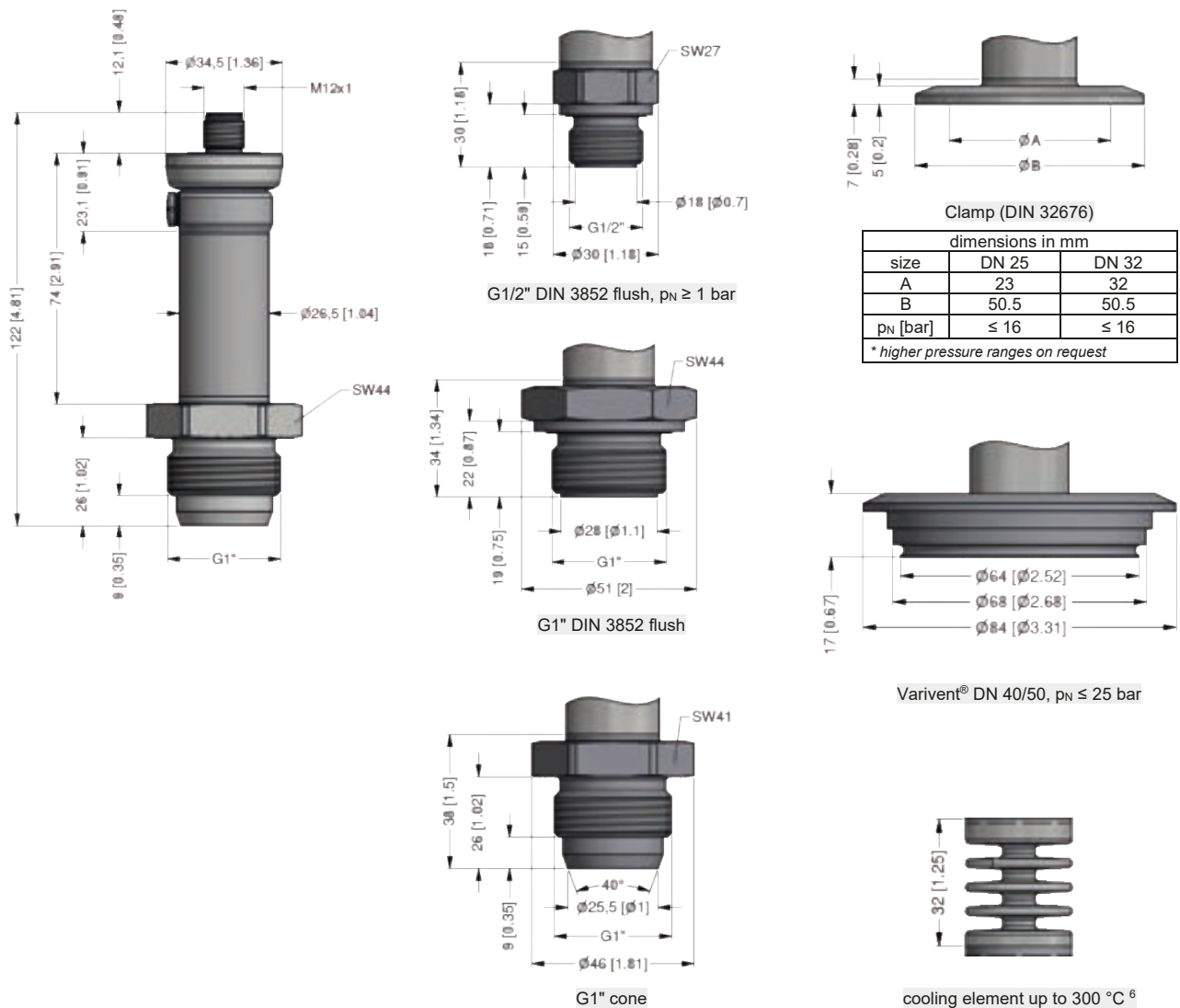
⁵ max. temperature of the medium for nominal pressure gauge > 0 bar: 150 °C for 60 minutes with a max. environmental temperature of 50 °C

Electrical protection

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)	
Diaphragm	stainless steel 1.4435 (316 L)	
Seal	standard: FKM (recommended for medium temperatures ≤ 200 °C) option: FFKM (recommended for medium temperatures < 260 °C) Clamp, Varivent®: without others on request	
Media wetted parts	pressure port, seal, diaphragm	
Miscellaneous		
EHEDG certificate Type EL Class I	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. 10 mA	
Surface roughness	pressure port R _a < 0.8 µm (media wetted parts) diaphragm R _a < 0.15 µm weld seam R _a < 0.8 µm	
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 ≤ 2 bar have to be specified in the order)	
CE-conformity	EMC Directive: 2014/30/EU	
Wiring diagram		
RS 485 / Modbus RTU		
<div></div>		
Pin configuration / electrical connection		
Electrical connection	M12x1 / metal (5-pin), IP 67	<div></div>
Supply +	1	
Supply –	3	
A (+)	2	
B (–)	4	
Reset	5	
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

Configuration Modbus RTU					
Standard configuration	001	-	1	-	1
Address					
Address	001				
	...				
	247				
Baud Rate					
4800 Bd			0		
9600 Bd			1		
19200 Bd			2		
38400 Bd			3		
Parity					
None					0
Odd					1
Even					2
Configuration code (to specify with order)					
		-		-	

Ordering code DCT 531P

DCT 531P

			-				-			-		-				-				-		-		-			
--	--	--	---	--	--	--	---	--	--	---	--	---	--	--	--	---	--	--	--	---	--	---	--	---	--	--	--

Pressure	
	absolute
	gauge
Input	[bar]
	0.10 ¹
	0.16 ¹
	0.25 ¹
	0.40
	0.60
	1.0
	1.6
	2.5
	4.0
	6.0
	10
	16
	25
	40
	-1 ... 0
	customer
Output	
	RS485 Modbus RTU
Accuracy	
	0.25 % FSO
	customer
Electrical connection	
	male plug M12x1 (5-pin) / metal
	customer
Mechanical connection	
	G1/2" DIN 3852 flush ($p_N \geq 1$ bar)
	G1" DIN 3852 flush
	G 1" cone
	Clamp DN 25 DIN 32676 ($p_N \leq 16$ bar)
	Clamp DN 32 DIN 32676 ($p_N \leq 16$ bar)
	Varivent® DN 40/50 ($p_N \leq 25$ bar)
	customer
Diaphragm	
	stainless steel 1.4435 (316L)
	customer
Seal	
	for clamp, Varivent®:
	for inch thread - standard:
	for inch thread - option:
	customer
Filling fluid	
	silicone oil
	food compatible oil (FDA)
	customer
Special version	
	standard
	with cooling element up to 300°C
	customer

¹ absolute pressure possible from 0.4 bar

Varivent[®] is a brand name of GEA Tuchenhausen GmbH



DCT 533P

Industrial Pressure Transmitter with IO-Link Interface

Process Connections with Flush Welded Stainless Steel Diaphragm

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

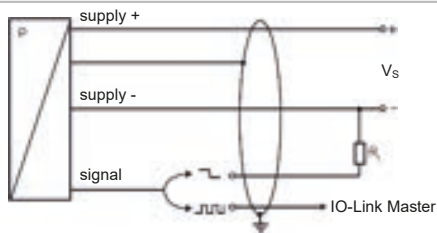
Mechanical stability	
Vibration	acc. to DIN EN 60068-2-6 G 1/2": 20 g RMS (25...2000 Hz) others: 10 g RMS (25...2000 Hz)
Shock	acc. to DIN EN 60068-2-27 G 1/2": 500 g / 1 msec others: 100 g / 1 msec

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

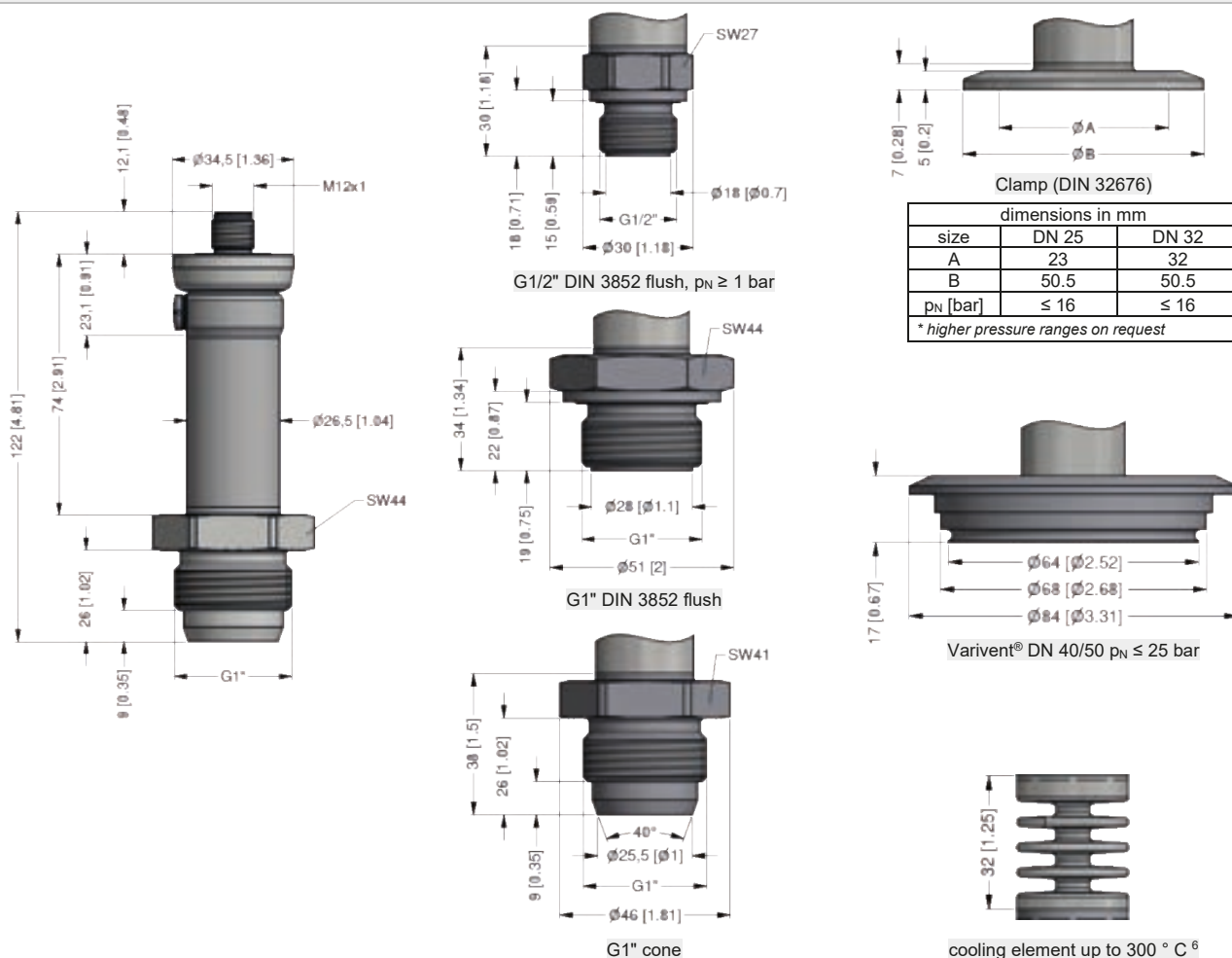
Materials	
Housing / electrical connection	stainless steel 1.4404 (316 L)
Pressure port	stainless steel 1.4435 (316 L), R _a < 0.8 µm (media wetted parts and weld seam)
Diaphragm	stainless steel 1.4435 (316 L), R _a < 0.15 µm
Seals	standard: FKM (recommended for medium temperatures ≤ 200 °C) option: 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

Ordering code DCT 533P

DCT 533P

[illegible]

Pressure					
	gauge absolute	D D	C C	H H	G 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
Output				I	O
	IO-Link / SIO				
Accuracy					
standard for p _N ≥ 0.4 bar	0.35 % FSO			3	
standard for p _N < 0.4 bar	0.50 % FSO			5	
option for p _N ≥ 0.4 bar	0.25 % FSO			2	
	customer			9	
Electrical connection					
	male plug M12x1 (4-pin) / metal	M	1	7	
	customer	9	9	9	
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	
Diaphragm					
	stainless steel 1.4435 (316L)		1		
	customer		9		
Seal					
	without		0		
	FKM		1		
	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

¹ absolute pressure possible from 0.4 bar

Varivent® is a brand name of GEA Tuchenhagen GmbH



DCT 553P

Industrial Pressure Transmitter with IO-Link Interface

Process Connections with semi-flush ceramic diaphragm

accuracy according to IEC 60770:
Standard: 0.35 % FSO
Option: 0.25 % FSO

Nominal pressure

from 0 ... 40 mbar up to 0 ... 20 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
- ▶ high purity ceramic 99.9 % Al_2O_3 diaphragm
- ▶ high overpressure capability
- ▶ ingress protection IP 67 / IP 69

Optional versions

- ▶ different process connections

The pressure transmitter DCT 553P is used in the food and pharmaceutical industries or in applications where a dead space-free process connection is required. A capacitive ceramic pressure sensor developed in-house is used as the basic sensor, which is characterized by a high overload and excellent surface quality.

The special design prevents the condensation inside the pressure transmitter and thus failure in applications with large temperature changes.

The integrated, standardised IO-Link interface increases productivity and supports the operator in service and maintenance.

Preferred areas of use are



Food industry



Chemical and petrochemical industry

Material and test certificates

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



Input pressure range																
Nominal pressure gauge	[bar]	0.04	0.06	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	20
Nominal pressure absolute	[bar]	on request					0.4	0.6	1	1.6	2.5	4	6	10	16	20
Overpressure	[bar]	2	2	4	4	6	6	8	8	15	25	25	35	35	45	45
Burst pressure \geq	[bar]	-0.2		-0.3		-0.5				-1						

Output signal / Supply	
Standard	IO-Link (measured value transmission) $V_S = 18 \dots 30 V_{DC}$ 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: $\leq \pm 0.35 \% \text{ FSO}$ option for $p_N \geq 0.6 \text{ bar}$: $\leq \pm 0.25 \% \text{ FSO}$
Switching current (SIO-Mode)	max. 200 mA
Switching frequency	max. 200 Hz
Switching cycles	$> 100 \times 10^6$
Long term stability	$\leq \pm 0.1 \% \text{ FSO} / \text{year}$ at reference conditions
Turn-on time	SIO mode: approx. 20 msec
Response time	SIO mode: $< 4 \text{ msec}$
Measuring rate	400 Hz
¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)	
Thermal effects (offset and span)	
Tolerance band	$\leq \pm 1 \% \text{ FSO}$
In compensated range	$-20 \dots 80^\circ \text{C}$
Permissible temperatures	
Medium	$-40 \dots 125^\circ \text{C}$
Electronics / environment	$-40 \dots 85^\circ \text{C}$
Storage	$-40 \dots 100^\circ \text{C}$
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	10 g RMS (20 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	100 g / 1 msec according to DIN EN 60068-2-27
Materials	
Pressure port	stainless steel 1.4404 (316L)
Housing	stainless steel 1.4404 (316L)
Seals	FKM EPDM others on request
Diaphragm	ceramic Al_2O_3 99.9 %
Media wetted parts	pressure port, seals, diaphragm
Miscellaneous	
Current consumption	max. 15 mA
Weight	min. 200 g
Installation position	any
Operational life	100 million load cycles
CE-conformity	EMC-directive: 2014/30/EU

Wiring diagram

IO-Link

supply +

supply -

signal

IO-Link Master

Pin configuration / electrical connection

Electrical connection	M12x1 / metal (4-pin)	<p>3 2</p> <p>4 1</p>
Supply +	1	
Supply -	3	
SIO / IO Link	4	
Shield	housing	

Dimensions / mechanical connection (mm / in)

M12x1

12 [0.48]

78 [3.07]

25 [0.98]

22 [0.87]

G 1 1/2"

65 [2.56]

28.5 [1.12]

34.5 [1.36]

SW 55

7 [0.28]

5 [0.2]

23

45

50.5

64

Clamp (DIN 32676)

dimensions in mm		
size	DN 25	DN 50
A	23	45
B	50.5	64
p _N [bar]	≤ 16	≤ 16

* higher pressure ranges on request

17 [0.67]

64 [2.52]

68 [2.68]

84 [3.31]

Varivent® DN 40/50

BDSENSORS www.bdsensors.de

Ordering code DCT 553P

DCT 553P

[illegible]

Pressure						
gauge absolute ¹⁾						2 9 8
Input [mH ₂ O] [bar]						2 9 6
0.4 0.04						0 4 0 0
0.6 0.06						0 6 0 0
1.0 0.10						1 0 0 0
1.6 0.16						1 6 0 0
2.5 0.25						2 5 0 0
4.0 0.40						4 0 0 0
6.0 0.60						6 0 0 0
10 1.0						1 0 0 1
16 1.6						1 6 0 1
25 2.5						2 5 0 1
40 4.0						4 0 0 1
60 6.0						6 0 0 1
100 10						1 0 0 2
160 16						1 6 0 2
200 20						2 0 0 2
customer						9 9 9 9
Output						
IO-Link / SIO						I O
Accuracy						
standard:						0.35 % FSO
option for p _N ≥ 0.6 bar:						0.25 % FSO
customer						consult
Electrical connection						
male plug M12x1 (4-pin) / metal customer						M 1 7 9 9 9
Mechanical connection						
G 1 1/2" DIN flush (DIN 3852)						M 0 0
Clamp DN 32 (DIN 32676)						C 6 2
Clamp DN 50 (DIN 32676)						C 6 3
Varivent® DN 40/50						P 4 1
customer						9 9 9
Seal						
FKM						1
EPDM						3
customer						9
Pressure port						
stainless steel 1.4404 (316L)						1
customer						9
Diaphragm						
ceramics Al ₂ O ₃ 99.9 %						C
customer						9
Special version						
standard						0 0 0
customer						9 9 9

¹ absolute pressure from 0.04 bar up to 0.25 bar on request

Varivent® is a brand name of GEA Tuchenhausen GmbH



DCT 163

OEM Pressure Transmitter with IO-Link Interface

Applications:

- ▶ mechanical and plant engineering
- ▶ general industrial applications

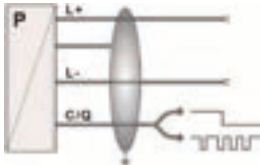

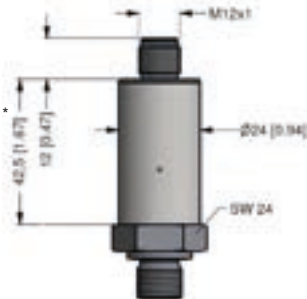
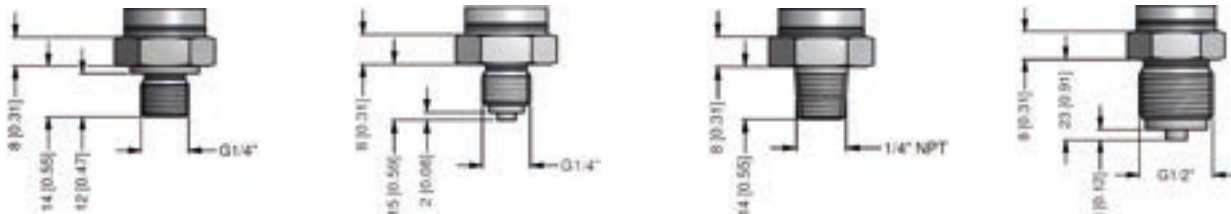
Characteristics:

- ▶ ceramic sensor
- ▶ accuracy 0.5 % FSO according to IEC 60770
- ▶ nominal pressure ranges from 0 ... 1 bar up to 0 ... 400 bar
- ▶ option: oil and grease free version

Technical Data



Input pressure range																
Nominal pressure gauge	[bar]	-1...0	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400
Nominal pressure abs.	[bar]	-	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400
Overpressure	[bar]	3	3	5	5	12	12	20	50	50	120	120	200	400	400	650
Burst pressure ≥	[bar]	4	4	7	7.5	15	18	30	70	75	150	180	300	500	750	1000
Vacuum resistance		unlimited														
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/s														
Mode		SIO / IO-Link (COM x)														
Standard		IEC 61131-2, IEC 61131-9														
Performance																
Accuracy ¹		≤ ± 0.5 % 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														
Switch-on time		SIO-Modus: ca. 20 msec														
Response time		SIO-Modus: < 4 msec														
Measuring rate		400 Hz														
¹ accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)																
Thermal effects (offset and span)																
Thermal error		≤ ± 0.2 % FSO / 10 K														
in compensated range		0 ... 85 °C														
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 protection	emission and immunity according to EN 61326	
Mechanical stability		
Vibration	10 g, 25 Hz ... 2 kHz	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 1.4301 (304)	
Seals (media wetted)	FKM, EPDM	others on request
Diaphragm	ceramics Al ₂ O ₃ 96 %	
Media wetted parts	pressure port, seal, diaphragm	
Miscellaneous		
Option oxygen application	for p _N ≤ 25 bar: O-ring in FKM Vi 567 (with BAM-approval); permissible maximum values are 25 bar / 150° C	
Weight	approx. 95 g	
Current consumption	max. 15 mA	
Operational life	100 million load cycles	
Installation position	any	
Ingress protection	IP 67	
CE-conformity	EMC Directive: 2014/30/EU	Pressure Equipment Directive: 2014/68/EU (module A) ²
² this directive is only valid for devices with maximum permissible overpressure > 200 bar		
Wiring diagram		
		
Pin configuration		
Electrical connection	M12x1 (4-pin), metal	
(L+) Supply +	1	
(L-) Supply -	3	
C/Q SIO / IO-Link	4	
Shield	housing	
Dimension (mm / in)		
 <p>* pressure range p_N = 400 bar: total length increases by 13.5 mm</p>		
Mechanical connections (dimensions mm / in)		
		
G1/4" DIN 3852		
G1/4" EN 837		
1/4" NPT		
G1/2" EN 837		

Ordering code DCT 163

DCT 163						-		-		-				-				
Input	[bar]																	
	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
Pressure																		
	gauge					R												
	absolute					A												
Output																		
	IO-Link / SIO					IO												
	customer					9												consult
Accuracy																		
	0.5 % FSO					5												
	customer					9												consult
Electrical connection																		
	male plug M12x1 (4-pin) / metal						M	2	7									
	customer						9	9	9									consult
Mechanical connection																		
	G1/4" DIN 3852							3	0	0								
	G1/4" EN 837							4	0	0								
	1/4" NPT							N	4	0								
	G1/2" EN 837							2	0	0								
	customer							9	9	9								consult
Seals																		
	FKM									1								
	EPDM									3								
	customer									9								consult
Special version																		
	standard											0	0	0				
	oxygen application ²											0	0	7				
	oil and grease free											0	0	8				
	customer											9	9	9				consult

¹ metric threads and others on request

² oxygen application with FKM seal up to 25 bar possible

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COMPETENCE

**Industrial pressure measurement technology
from 0.1 mbar up to 6000 bar**

- > **pressure transmitters, electronic pressure switches or hydrostatic level probes**
- > **OEM or high-end products**
- > **standard products or customized solutions**

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pressure measurement at the highest level

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laboratory techniques



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food and beverage



vehicles and mobile hydraulics



oil and gas industry



pharmaceutical industry



marine / shipbuilding / offshore



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sewage



aggressive media



colours



gases



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Status 07/2024
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