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 BDSENSORS has concentrated on electronic pressure measurement technology from the beginning.

With our unremitting product and 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.

BD|SENSORS
pressure measurement

With 300 employees at 4 locations in Germany, the Czech Republic, Russia and China BD|SENSORS has solutions from 0.1 mbar to 6000 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.

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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.

PRODUCT MATRIX „PRESSURE MEASUREMENT DEVICES WITH DIGITAL INTERFACES“

	PRODUCT DIGITAL	PRODUCT ANALOG	ACCURACY	NOMINAL PRESSURE		SENSOR				OUTPUT SIGNAL		
		equivalent product with analog output signal	% FSO	minimal pressure bar	maximal pressure bar	piezoresistive stainless steel silicon sensor wMi	capacitive ceramics sensor (Ø 34,4 mm)	piezoresistive ceramic-thickfilm sensor	capacitive ceramics sensor (Ø 19 mm)	IO-LINK	MODBUS RTU	i2C
	PRESSURE MEASUREMENT DEVICES											
PRECISION	DCT 531i	DMP 331i	0.1	0... 0.4	0... 400	•					•	
INDUSTRY	DCT 531	DMP 321	0.25	0... 0.1	0... 400	•					•	
	DCT 532	DMP 321	0.25	0... 0.1	0... 400	•						•
	DCT 533	DMP 331	0.35	0... 0.1	0... 400	•				•		
	DCT 531P	DMP 331P	0.25	0... 0.1	0... 40	•					•	
	DCT 533P	DMP 331P	0.35	0... 0.1	0... 40	•				•		
	DCT 553P	DMK 351P	0.35	0... 0.04	0... 20		•			•		
	DCT 561	DMK 331	0.50	0... 0.6	0... 600			•			•	
	DCT 562	DMK 331	0.50	0... 0.4	0... 600			•				•
	DCT 563	DMK 331	0.50	0... 0.6	0... 600			•		•		
	DCT 571	DMK 387	0.35	0... 0.1	0... 60				•		•	

ANNOTATION PRODUCT CODE

DCx$_1$ 5x$_2$x$_3$ [x$_4$]

x$_1$ | VERSION
- L level probe
- T pressure transmitter

x$_2$ | PRESSURE SENSOR
- 3 piezoresistiv stainless steel silicon sensor (with media isolation)
- 5 capazitive ceramics sensor (Ø 34,4 mm)
- 6 piezoresistiv ceramics thick film sensor
- 7 capazitive ceramics sensor (Ø 19mm)

x$_3$ | COMMUNICATION INTERFACE
- 1 RS 485 Modbus
- 2 I²C
- 3 IO-Link

x$_4$ | SPECIAL FEATURES
- P process connections in hygienic design

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

CE ROHS REACH Modbus®

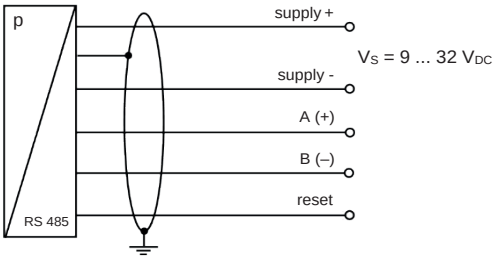
Input pressure range											
Nominal pressure gauge	[bar]	-1…0	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6
Nominal pressure absolute	[bar]	-	-	-	-	0.40	0.60	1	1.6	2.5	4	6
Overpressure	[bar]	5	0.5	1	1	2	5	5	10	10	20	40
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50

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		p_N ≥ 1 bar: unlimited vacuum resistance				p_N < 1 bar: on request				

Output signal	
Digital	RS485 with Modbus RTU protocol (pressure & temperature)
Supply	
Direct voltage	V_S = 9 … 32 V_{DC}
Performance	
Accuracy [1]	nominal pressure ≥ 0.25 bar: ≤ ± 0.10 % FSO nominal pressure < 0.25 bar: ≤ ± 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)	
Thermal error	≤ ± 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, p_N ≤ 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]

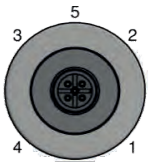
[3] Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point for pressure ranges p_N ≤ 1 bar.
[4] This directive is only valid for devices with maximum permissible overpressure > 200 bar.

Wiring diagram



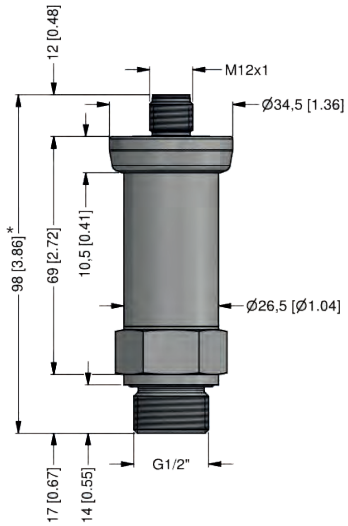
Pin configuration / electrical connection

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



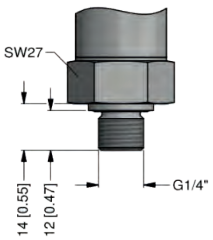
Dimensions (mm / in)

standard

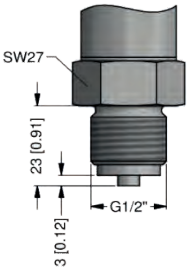


G1/2" DIN 3852
with M12x1

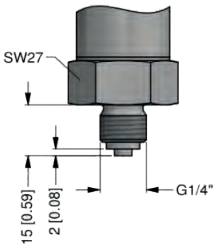
options



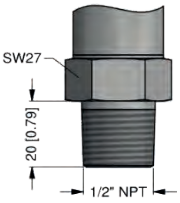
G1/4" DIN 3852



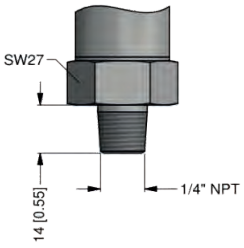
G1/2" EN 837



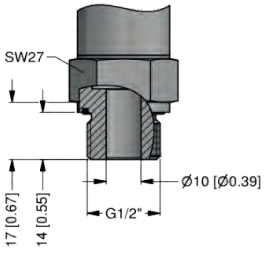
G1/4" EN 837



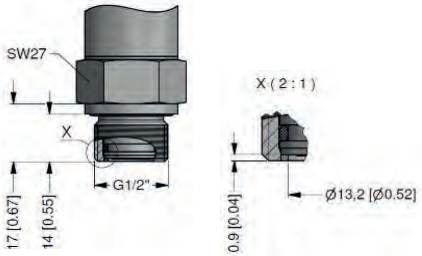
G1/2" NPT



G1/4" NPT



G1/2" DIN 3852
open port (p_N ≤ 40 bar)



G1/2" DIN 3852 with
semi-flush sensor (p_N ≤ 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 □□□-□□□□-□□-□-□□□-□□□-□-□□□

	Code	
Pressure		
gauge	D C 7	
absolute	D C 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	X 1 0 2	
customer	9 9 9 9	consult
Output		
RS485 Modbus RTU	L 5	
Accuracy		
standard for $p_N \geq 0.25$ 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	N 1 1	
customer	9 9 9	consult
Mechanical connection		
G1/2" DIN 3852	1 0 0	
G1/2" EN 837	2 0 0	
G1/4" DIN 3852	3 0 0	
G1/4" EN 837	4 0 0	
G1/2" DIN 3852 with 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	1 1 1	
customer	9 9 9	consult

[1] absolute pressure possible from 0.4 bar
[2] not possible for nominal pressure $p_N > 40$ bar
[3] welded version only with pressure ports according to EN 837, possible for $p_N \leq 40$ bar

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

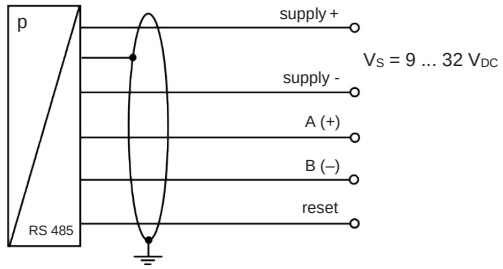
Modbus®

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 ≥	[bar]	50	120	120	210	420	1000	1000	1250	1250
Vacuum resistance		p_N ≥ 1 bar: unlimited vacuum resistance					p_N < 1 bar: on request			

Output signal	
Digital	RS 485 with Modbus RTU protocol (pressure)
Supply	
Direct current	V_S = 9 … 32 V_{DC}
Performance	
Accuracy [1]	≤ ± 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	≤ ± 0.75 % FSO
in compensated range	-20 ... 85 °C
Permissible temperatures	
Medium	-40 ... 125 °C
Electronics / environment	-40 ... 85 °C
Storage	-40 ... 100 °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 ≤ 40 bar) others on request
Diaphragm	stainless steel 1.4435 (316 L)
Media wetted parts	pressure port, seal, diaphragm
[2] welded version only with pressure ports according to EN 837, p_N ≤ 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 ≤ 1 bar.	
[4] This directive is only valid for devices with maximum permissible overpressure > 200 bar	

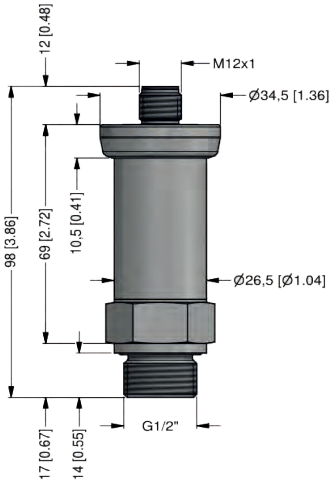
Wiring diagram



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)

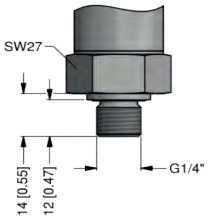
standard



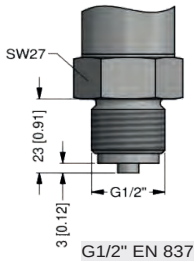
G1/2" DIN 3852
with M12x1

⇨ **metric threads and other versions on request**

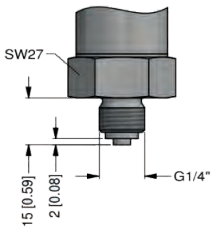
options



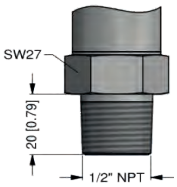
G1/4" DIN 3852



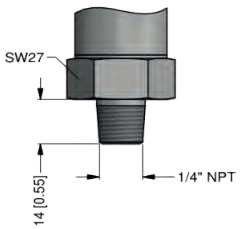
G1/2" EN 837



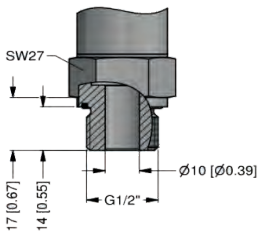
G1/4" EN 837



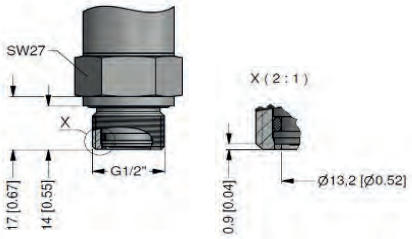
1/2" NPT



1/4" NPT



G1/2" DIN 3852
open port (p_N ≤ 40 bar)



G1/2" DIN 3852 with
semi-flush sensor (p_N ≤ 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 ☐☐☐ - ☐☐☐☐ - ☐☐ - ☐ - ☐☐☐ - ☐☐☐ - ☐ - ☐☐☐

Category	Option	Code	Remark
Pressure			
	gauge	D C 7	
	absolute [1]	D C 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	X 1 0 2	
	customer	9 9 9 9	consult
Output			
	RS485 Modbus RTU	L 5	
Accuracy			
	0.25 % FSO	2	
	customer	9	consult
Electrical connection			
	male plug M12x1 (5-pin) / metal	N 1 1	
	customer	9 9 9	consult
Mechanical connection			
	G1/2" DIN 3852	1 0 0	
	G1/2" EN 837	2 0 0	
	G1/4" DIN 3852	3 0 0	
	G1/4" EN 837	4 0 0	
	G1/2" DIN 3852 with 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	0 0 0	
	customer	9 9 9	consult

[1] absolute pressure possible from 0.4 bar
[2] not possible for nominal pressure p_N > 40 bar
[3] welded version only with pressure ports according to EN 837, possible for $p_N \leq 40$ bar

DCT 532

Industrial Pressure Transmitter with i²C interface

Stainless Steel Sensor

Accuracy according to IEC 60770:
≤ ± 0.25 % 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

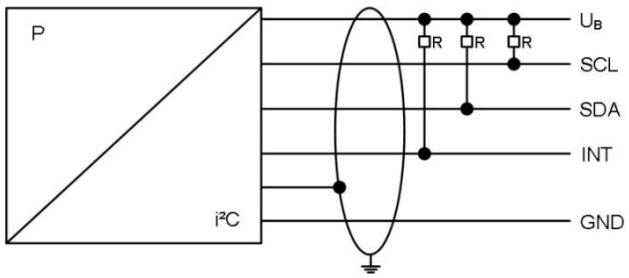
Input pressure range												
Nominal pressure gauge	[bar]	-1…0	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6
Nominal pressure abs.	[bar]	-	-	-	-	0.40	0.60	1	1.6	2.5	4	6
Overpressure	[bar]	5	0,5	1	1	2	5	5	10	10	20	40
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50

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 ≥ 1 bar: unlimited vacuum resistance p_N < 1 bar: on request								

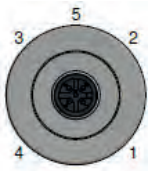
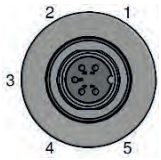
Output signal / Supply	
i²C	V_S = 3.5 ... 5.5 V_{DC}
Performance	
Accuracy [1]	≤ ± 0.25 % FSO
Max. I/O current	10 mA
Long term stability	≤ ± 0.1 % FSO / year at reference conditions
Response time	1.5 msec + transmission time (depending on bus frequency)
Measuring rate	500 Hz
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)	
Thermal effects (offset and span)	
Tolerance band	≤ ± 0.75 % 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 ≤ 40 bar) others on request
Diaphragm	stainless steel 1.4435 (316 L)
Media wetted parts	pressure port, seal, diaphragm
[2] welded version only with pressure ports according to EN 837, p_N ≤ 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 ≤ 1 bar.
[4] This directive is only valid for devices with maximum permissible overpressure > 200 bar

Wiring diagrams

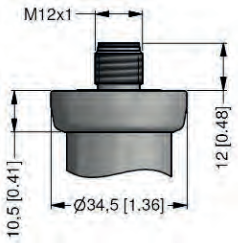


Pin configuration

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

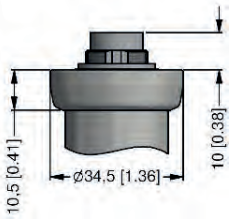
Electrical connections (dimensions mm / in)

standard



M12x1 (5-pin)

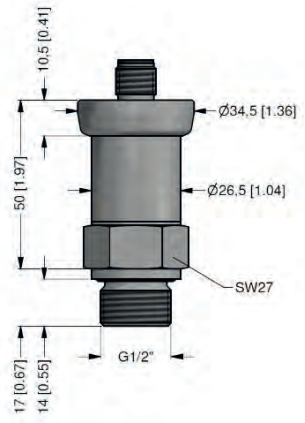
optionally



Binder Serie 723 (5-pin)

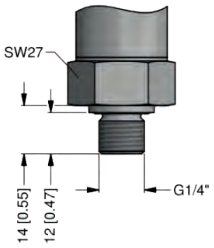
Dimensions (mm / in)

standard

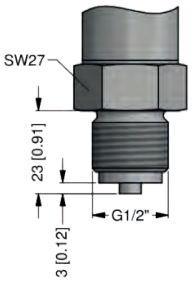


G1/2" DIN 3852
withM12x1

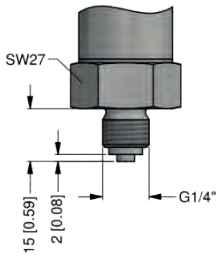
optionally



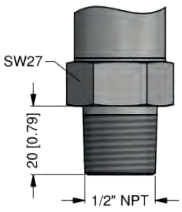
G1/4" DIN 3852



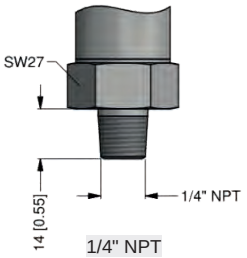
G1/2" EN 837



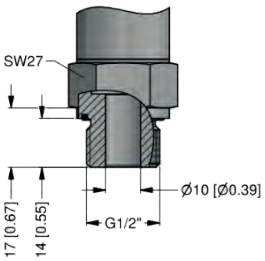
G1/4" EN 837



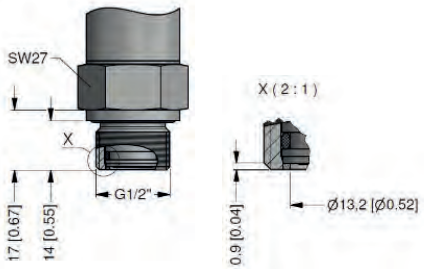
1/2" NPT



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 i²C-interface																	
Stand configuration	0	5	0	-	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)				-		-		-		-		-					

Ordering code DCT 532

DCT 532 □□□-□□□□-□-□-□□□-□□□-□-□□□

Pressure			
gauge		D C 0	
absolute	1	D C 1	
Input [bar]			
0.10	1	1 0 0 0	
0.16	1	1 6 0 0	
0.25	1	2 5 0 0	
0.40		4 0 0 0	
0.60		6 0 0 0	
1.0		1 0 0 1	
1.6		1 6 0 1	
2.5		2 5 0 1	
4.0		4 0 0 1	
6.0		6 0 0 1	
10		1 0 0 2	
16		1 6 0 2	
25		2 5 0 2	
40		4 0 0 2	
60		6 0 0 2	
100		1 0 0 3	
160		1 6 0 3	
250		2 5 0 3	
400		4 0 0 3	
-1 … 0		X 1 0 2	
customer		9 9 9 9	consult
Output			
i²C		IC	
Accuracy			
0.25 % FSO		2	
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 with flush sensor	2	F 0 0	
G1/2" DIN 3852 open pressure port	2	H 0 0	
1/2" NPT		N 0 0	
1/4" NPT		N 4 0	
customer		9 9 9	consult
Seals			
FKM		1	
EPDM		3	
without (welded version)	3	2	
customer		9	consult
Special version			
standard		0 0 0	
customer		9 9 9	consult

[1] absolute pressure possible from 0.4 bar
[2] not possible for nominal pressure p_N > 40 bar
[3] welded version only with pressure ports according to EN 837, possible for $p_N \leq 40$ bar

DCT 533

Industrial Pressure Transmitter with IO-Link Interface

Stainless Steel Sensor

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

Nominal pressure

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

Digital output signal

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

Special characteristic

- ► perfect thermal behaviour
- ► excellent long term stability

Optional versions

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

IO-Link is a digital interface for sensors and actuators, which is worldwide standardized by IEC 61131-9. IO-Link does not have a bus topology, but it is a powerful point-to-point communication, where the device can be parametrized, and the measured values transferred. The integration to the master is easy by using the IODD-file.

The sensor technology of the DCT 533 is the same as those of the proven pressure transmitter DMP 331 / DMP 333, whereby the DCT 533 is suitable for almost every industrial application, if medium is compatible with stainless steel 316L.

The modular concept of the pressure transmitter allows customized electrical or mechanical connections, so it is easy to adapt the DCT 533 to different conditions on-site.

Preferred areas of use are

- Plant and machine engineering
- Energy industry

Input pressure range											
Nominal pressure gauge	[bar]	-1…0	0.10	0.16	0.25	0.40	0.60	1	1.6	2.5	4	6
Nominal pressure abs.	[bar]	-	-	-	-	0.40	0.60	1	1.6	2.5	4	6
Overpressure	[bar]	5	0.5	1	1	2	5	5	10	10	20	40
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15	15	25	50

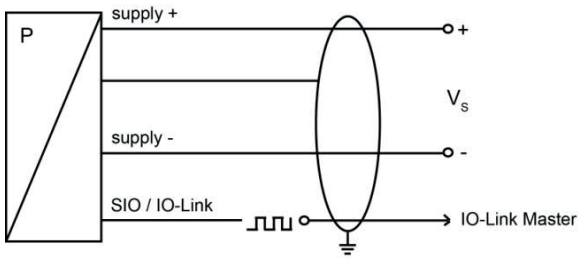
Nominal pressure gauge / abs.	[bar]	10	16	25	40	60	100	160	250	400
Overpressure	[bar]	40	80	80	105	210	600	600	1000	1000
Burst pressure ≥	[bar]	50	120	120	210	420	1000	1000	1250	1250
Vacuum resistance		p_N ≥ 1 bar: unlimited vacuum resistance				p_N < 1 bar: on request				

Output signal / Supply			
Standard	IO-Link (measured value transmission) 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 [1]	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		
[1] accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)			
Thermal effects (offset and span)			
Nominal pressure p_N [bar]	-1 … 0	< 0.40	≥ 0.40
Tolerance band [% FSO]	≤ ± 0.75	≤ ± 1	≤ ± 0.75
in compensated range [°C]	-20 ... 85	0 ... 70	-20 … 85
Permissible temperatures			
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 ≤ 40 bar)		others on request
Diaphragm	stainless steel 1.4435 (316 L)		
Media wetted parts	pressure port, seal, diaphragm		
[2] welded version only with pressure ports according to EN 837, p_N ≤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 ≤ 1 bar.

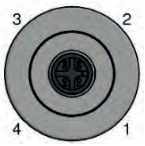
[4] This directive is only valid for devices with maximum permissible overpressure > 200 bar.

Wiring diagrams



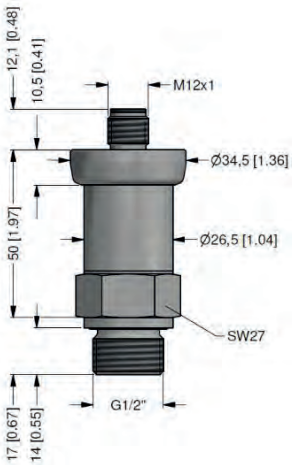
Pin configuration

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



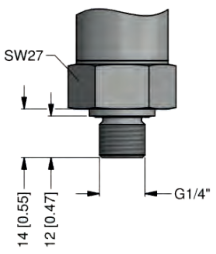
Dimensions (mm / in)

standard

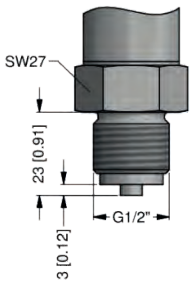


G1/2" DIN 3852
with M12x1

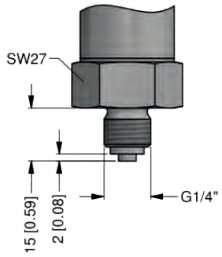
optionally



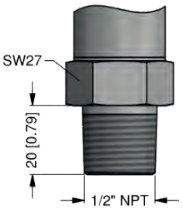
G1/4" DIN 3852



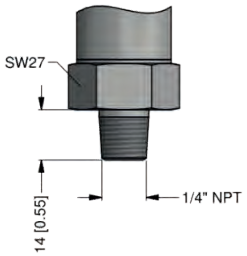
G1/2" EN 837



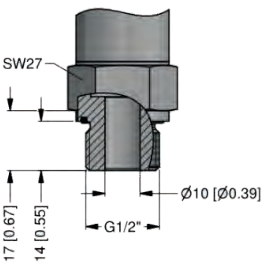
G1/4" EN 837



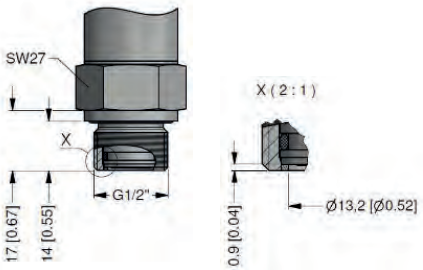
1/2" NPT



1/4" NPT



G1/2" DIN 3852 open port,
p_N ≤ 40 bar



G1/2" DIN 3852
with flush sensor, p_N ≤ 40 bar

⇨ **metric threads and other versions on request**

Ordering code DCT 533

DCT 533 ☐☐☐-☐☐☐☐-☐-☐-☐☐☐-☐☐☐-☐-☐☐☐

Section	Option	Note	Code	Remark
Pressure				
	gauge		D C 2	
	absolute	[1]	D C 3	
Input	[bar]			
	0.10	[1]	1 0 0 0	
	0.16	[1]	1 6 0 0	
	0.25	[1]	2 5 0 0	
	0.40		4 0 0 0	
	0.60		6 0 0 0	
	1.0		1 0 0 1	
	1.6		1 6 0 1	
	2.5		2 5 0 1	
	4.0		4 0 0 1	
	6.0		6 0 0 1	
	10		1 0 0 2	
	16		1 6 0 2	
	25		2 5 0 2	
	40		4 0 0 2	
	60		6 0 0 2	
	100		1 0 0 3	
	160		1 6 0 3	
	250		2 5 0 3	
	400		4 0 0 3	
	-1 … 0		X 1 0 2	
	customer		9 9 9 9	consult
Output				
	IO-Link / SIO		IO	
Accuracy				
standard for $p_N \geq 0.4$ bar	0.35 % FSO		3	
standard for $p_N < 0.4$ bar	0.50 % FSO		5	
option for $p_N \geq 0.4$ bar	0.25 % FSO		2	consult
	customer		9	consult
Electrical connection				
	male plug M12x1 (4-pin) / metal		M 1 7	
	customer		9 9 9	consult
Mechanical connection				
	G1/2" DIN 3852		1 0 0	
	G1/2" EN 837		2 0 0	
	G1/4" DIN 3852		3 0 0	
	G1/4" EN 837		4 0 0	
	G1/2" DIN 3852 with flush sensor	[2]	F 0 0	
	G1/2" DIN 3852 open pressure port	[2]	H 0 0	
	1/2" NPT		N 0 0	
	1/4" NPT		N 4 0	
	customer		9 9 9	consult
Seals				
	FKM		1	
	EPDM		3	
	without (welded version)	[3]	2	
	customer		9	consult
Special version				
	standard		0 0 0	
	customer		9 9 9	consult

[1] absolute pressure possible from 0.4 bar
[2] not possible for nominal pressure $p_N > 40$ bar
[3] welded version only with pressure ports according to EN 837, possible for $p_N \leq 40$ bar

DCT 531P

Industrial Pressure Transmitter with RS485 Modbus RTU

Process Connections with Flush Welded Stainless Steel Diaphragm

accuracy according to IEC 60770:
≤ ± 0.25 % 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

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Input pressure range [1]									
Nominal pressure gauge	[bar]	-1…0	0.10	0.16	0.25	0.40	0.60	1	1.6
Nominal pressure absolute	[bar]	-	-	-	-	0.40	0.60	1	1.6
Overpressure	[bar]	5	0.5	1	1	2	5	5	10
Burst pressure ≥	[bar]	7.5	1.5	1.5	1.5	3	7.5	7.5	15

Nominal pressure gauge / absolute	[bar]	2.5	4	6	10	16	25	40
Overpressure	[bar]	10	20	40	40	80	80	105
Burst pressure ≥	[bar]	15	25	50	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	RS485 with Modbus RTU protocol / V_S = 9 … 32 V_{DC}
Performance	
Accuracy [2]	≤ ± 0.25 % FSO
Long term stability	≤ ± 0.1 % FSO / 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) [3]	
Tolerance band	≤ ± 0.75 % FSO
in compensated range [4]	-20 ... 85 °C
[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, type of seal and installation
[7] also for p_{abs} ≤ 1 bar

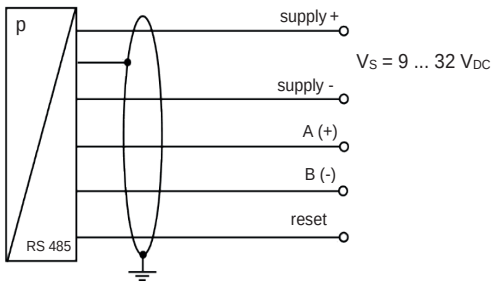
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	on supply connection no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326

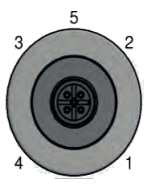
Mechanical stability		
Vibration	according to DIN EN 60068-2-6	G 1/2": 20 g RMS (25...2000 Hz) others: 10 g RMS (25…2000 Hz)
Shock	according to DIN EN 60068-2-27	G 1/2": 500 g / 1 msec others: 100 g / 1 msec

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

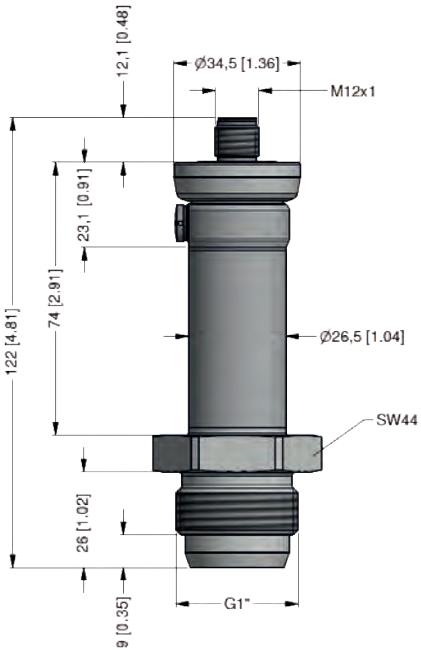
Materials	
Housing / electrical connection	stainless steel 1.4404 (316 L)
Pressure port	stainless steel 1.4435 (316 L)
Diaphragm	stainless steel 1.4435 (316 L)
Seal	standard: FKM (recommended for medium temperatures ≤ 200 °C) option: FFKM (recommended for medium temperatures < 260 °C) Clamp, Varivent®: 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	

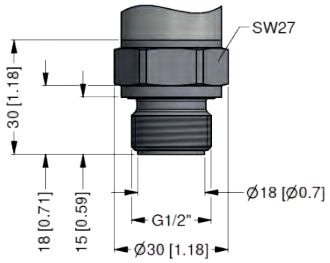
RS 485 / Modbus RTU



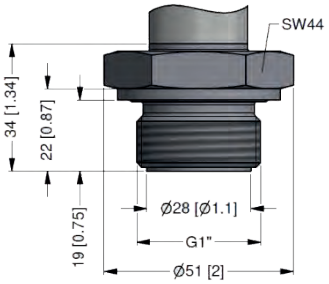
Pin configuration / electrical connection		
Electrical connection	M12x1 / metal (5-pin), IP 67	
Supply +	1	
Supply –	3	
A (+)	2	
B (–)	4	
Reset	5	
Shield	plug housing	

Dimensions / mechanical connection (mm / in)

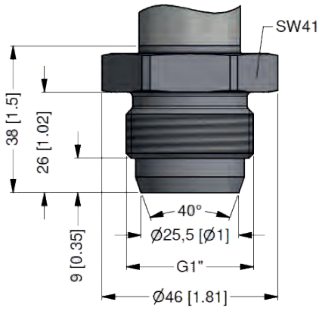




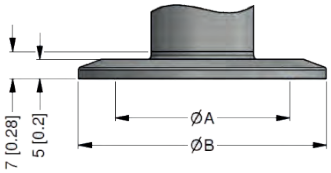
G1/2" DIN 3852 flush, $p_N \geq 1$ bar



G1" DIN 3852 flush

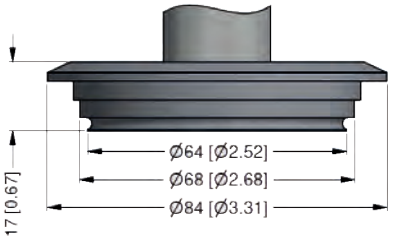


G1" cone

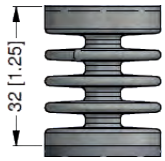


Clamp (DIN 32676)

dimensions in mm		
size	DN 25	DN 32
A	23	32
B	50.5	50.5
p_N [bar]	≤ 16	≤ 16
** higher pressure ranges on request*		



Varivent® DN 40/50



cooling element up to 300 °C [6]

⇨ **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 □□□-□□□□-□□-□-□□□-□□□-□-□-□-□□□

Category	Option	Code	
Pressure			
	absolute	5 0 1	
	gauge	5 0 2	
Input	[bar]		
	0.10 [1]	1 0 0 0	
	0.16 [1]	1 6 0 0	
	0.25 [1]	2 5 0 0	
	0.40	4 0 0 0	
	0.60	6 0 0 0	
	1.0	1 0 0 1	
	1.6	1 6 0 1	
	2.5	2 5 0 1	
	4.0	4 0 0 1	
	6.0	6 0 0 1	
	10	1 0 0 2	
	16	1 6 0 2	
	25	2 5 0 2	
	40	4 0 0 2	
	-1 … 0	X 1 0 2	
	customer	9 9 9 9	consult
Output			
	RS485 Modbus RTU	L 5	
Accuracy			
	0.25 % FSO	2	
	customer	9	consult
Electrical connection			
	male plug M12x1 (5-pin) / metal	N 1 1	
	customer	9 9 9	consult
Mechanical connection			
	G1/2" DIN 3852 flush ($p_N \geq 1$ bar)	Z 0 0	
	G1" DIN 3852 flush	Z S 1	
	G 1" cone	K S 1	
	Clamp DN 25 DIN 32676 ($p_N \leq 16$ bar)	C 6 1	
	Clamp DN 32 DIN 32676 ($p_N \leq 16$ bar)	C 6 2	
	Varivent® DN 40/50	P 4 1	
	customer	9 9 9	consult
Diaphragm			
	stainless steel 1.4435 (316L)	1	
	customer	9	consult
Seal			
	for clamp, Varivent®: without	0	
	for inch thread - standard: FKM	1	
	for inch thread - option: FFKM	7	
	customer	9	consult
Filling fluid			
	silicone oil	1	
	food compatible oil (FDA)	2	
	customer	9	consult
Special version			
	standard	0 3 P	
	with cooling element up to 300°C	2 3 P	
	customer	9 9 9	consult

[1] absolute pressure possible from 0.4 bar

Varivent® is a brand name of GEA Tuchenhagen GmbH

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 [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) V_S = 18 ... 30 V_{DC} SIO (switching output)
IO-Link	V 1.1 / slave / smart sensor profile
Data transfer	COM 2 38.4 kbit/sec
Mode	SIO / IO-Link
Standard	IEC 61131-9
Performance	
Accuracy [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

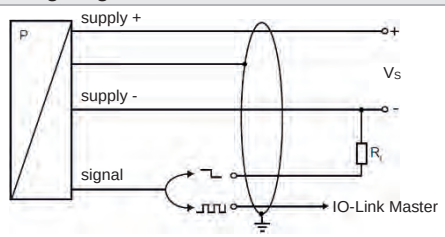
Permissible temperatures		
Filling fluid	silicone oil	food compatible oil
Medium [5]	-40 ... 125 °C	-10 ... 125 °C
Medium with cooling element [6]	overpressure: -40 ... 300 °C vacuum: -40 ... 150 °C [7]	overpressure: -10 ... 250 °C vacuum: -10 ... 150 °C [7]
Electronics / environment	-40 ... 85 °C	
Storage	-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

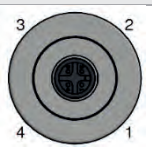
Miscellaneous	
EHEDG certificate Type EL Class I (in preparation)	EHEDG conformity is only ensured in combination with an approved seal. This is e.g. for - Clamp (C61, C62): T-ring-seal from Combifit International B.V. - Varivent® (P41): EPDM-O-ring which is FDA-listed
Weight	approx. 200 g
Current consumption	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

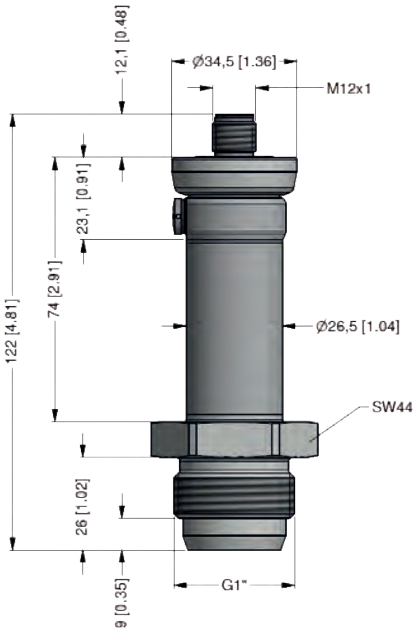


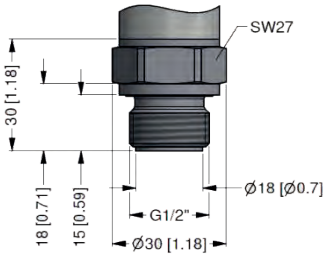
Pin configuration / electrical connection

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

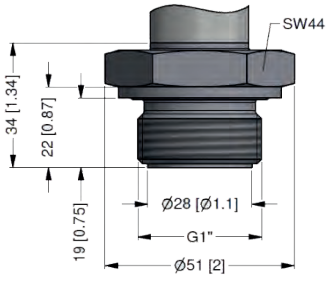


Dimensions / mechanical connection (mm / in)

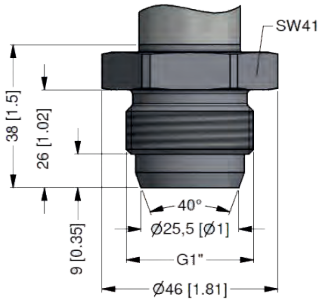




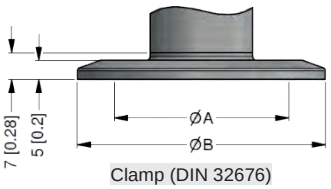
G1/2" DIN 3852 flush, $p_N \geq 1$ bar



G1" DIN 3852 flush



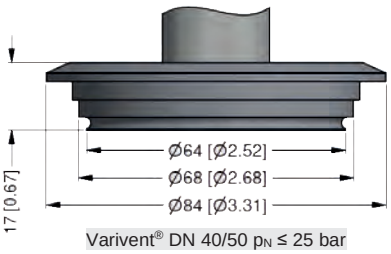
G1" cone



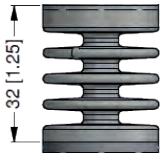
Clamp (DIN 32676)

dimensions in mm		
size	DN 25	DN 32
A	23	32
B	50.5	50.5
p_N [bar]	≤ 16	≤ 16

** higher pressure ranges on request*



Varivent® DN 40/50 $p_N \leq 25$ bar



cooling element up to 300 ° C [6]

⇨ 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 ☐☐☐ - ☐☐☐☐ - ☐☐ - ☐ - ☐☐☐ - ☐☐☐ - ☐ - ☐ - ☐ - ☐☐☐

Section	Option	Code	
Pressure			
	gauge	D C H	
	absolute	D C G	
Input	[bar]		
	0.10 [1]	1 0 0 0	
	0.16 [1]	1 6 0 0	
	0.25 [1]	2 5 0 0	
	0.40	4 0 0 0	
	0.60	6 0 0 0	
	1.0	1 0 0 1	
	1.6	1 6 0 1	
	2.5	2 5 0 1	
	4.0	4 0 0 1	
	6.0	6 0 0 1	
	10	1 0 0 2	
	16	1 6 0 2	
	25	2 5 0 2	
	40	4 0 0 2	
	-1 … 0	X 1 0 2	
	customer	9 9 9 9	consult
Output			
	IO-Link / SIO	I O	
Accuracy			
standard for $p_N \geq 0.4$ bar	0.35 % FSO	3	
standard for $p_N < 0.4$ bar	0.50 % FSO	5	
option for $p_N \geq 0.4$ bar	0.25 % FSO	2	consult
	customer	9	consult
Electrical connection			
	male plug M12x1 (4-pin) / metal	M 1 7	
	customer	9 9 9	consult
Mechanical connection			
	G1/2" DIN 3852 flush ($p_N \geq 1$ bar)	Z 0 0	
	G1" DIN 3852 flush	Z S 1	
	G 1" cone	K S 1	
	Clamp DN 25 DIN 32676 ($p_N \leq 16$ bar)	C 6 1	
	Clamp DN 32 DIN 32676 ($p_N \leq 16$ bar)	C 6 2	
	Varivent® DN 40/50 ($p_N \leq 25$ bar)	P 4 1	
	customer	9 9 9	consult
Diaphragm			
	stainless steel 1.4435 (316L)	1	
	customer	9	consult
Seal			
for clamp, Varivent®:	without	0	
for inch thread - standard:	FKM	1	
for inch thread - option:	FFKM	7	
	customer	9	consult
Filling fluid			
	silicone oil	1	
	food compatible oil (FDA)	2	
	customer	9	consult
Special version			
	standard	0 3 P	
	with cooling element up to 300°C	2 3 P	
	customer	9 9 9	consult

[1] absolute pressure possible from 0.4 bar

Varivent® is a brand name of GEA Tuchenhagen GmbH

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

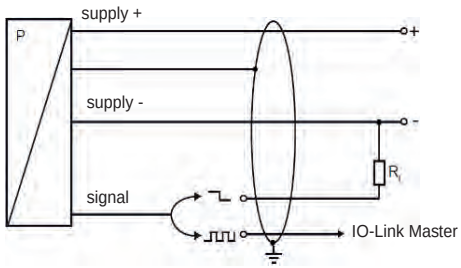
- ► inspection certificate 3.1 according to EN 10204
- ► test report 2.2 according to EN 10204

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 ≥	[bar]	-0.2		-0.3		-0.5				-1						

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 [1]	standard: option for p_N ≥ 0.6 bar:	≤ ± 0.35 % FSO ≤ ± 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	
[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		
Medium	-40 ... 125 °C	
Electronics / environment	-40 ... 85 °C	
Storage	-40 ... 100 °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	

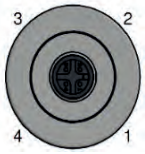
Wiring diagram

IO-Link

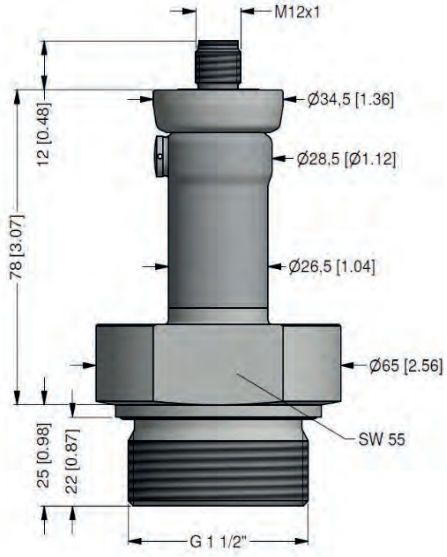


Pin configuration / electrical connection

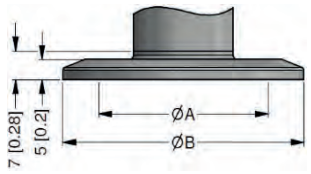
Electrical connection	M12x1 / metal (4-pin)
Supply +	1
Supply –	3
SIO / IO Link	4
Shield	housing



Dimensions / mechanical connection (mm / in)

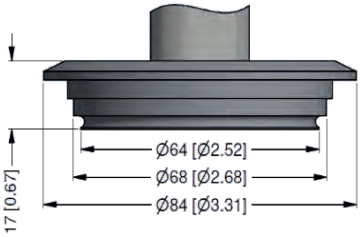


G 1 1/2" flush (DIN 3852)



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*		



Varivent® DN 40/50 (p_N ≤ 10 bar)

Ordering code DCT 553P

DCT 553P □□□ - □□□□ - □□ - □ - □□□ - □□□ - □ - □ - □ - □□□

Section	Option		Code	
Pressure				
	gauge		298	
	absolute [1]		296	
Input	**[mH_2O]**	**[bar]**		
	0.4	0.04	0400	
	0.6	0.06	0600	
	1.0	0.10	1000	
	1.6	0.16	1600	
	2.5	0.25	2500	
	4.0	0.40	4000	
	6.0	0.60	6000	
	10	1.0	1001	
	16	1.6	1601	
	25	2.5	2501	
	40	4.0	4001	
	60	6.0	6001	
	100	10	1002	
	160	16	1602	
	200	20	2002	
	customer		9999	consult
Output				
	IO-Link / SIO		IO	
Accuracy				
standard:	0.35 % FSO		3	
option for $p_N \geq 0.6$ bar:	0.25 % FSO		2	
	customer		9	consult
Electrical connection				
	male plug M12x1 (4-pin) / metal		M17	
	customer		999	consult
Mechanical connection				
	G 1 1/2" DIN flush (DIN 3852)		M00	
	Clamp DN 32 (DIN 32676)		C62	
	Clamp DN 50 (DIN 32676)		C63	
	Varivent® DN 40/50 ($p_N \leq 10$ bar)		P41	consult
	customer		999	consult
Seal				
	FKM		1	
	EPDM		3	
	customer		9	consult
Pressure port				
	stainless steel 1.4404 (316L)		1	
	customer		9	consult
Diaphragm				
	ceramics Al_2O_3 99.9 %		C	
	customer		9	consult
Special version				
	standard		000	
	customer		999	consult

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

Varivent® is a brand name of GEA Tuchenhagen GmbH

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

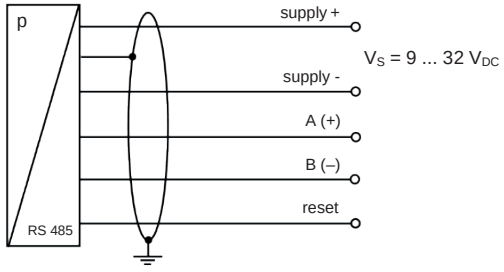
Input pressure range [1]									
Nominal pressure gauge [bar]	-1 … 0	0.6	1	1.6	2.5	4	6	10	16
Nominal pressure absolute [bar]	-	0.6	1	1.6	2.5	4	6	10	16
Overpressure [bar]	3	2	3	5	5	12	12	20	50
Burst pressure ≥ [bar]	4	4	4	7	7.5	15	18	30	70

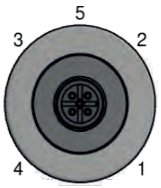
Nominal pressure gauge / absolute [bar]	25	40	60	100	160	250	400	600
Overpressure [bar]	50	120	120	200	400	400	650	800
Burst pressure ≥ [bar]	75	150	180	300	500	750	1000	1100
Vacuum resistance	unlimited vacuum resistance							

[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 … 32 V_{DC}
Performance	
Accuracy [2]	≤ ± 0.5 % FSO
Long term stability	≤ ± 0.3 % FSO / 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	≤ ± 0.2 % FSO / 10 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 ≤ 160 bar) others on request
Diaphragm	ceramic Al_2O_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. 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	

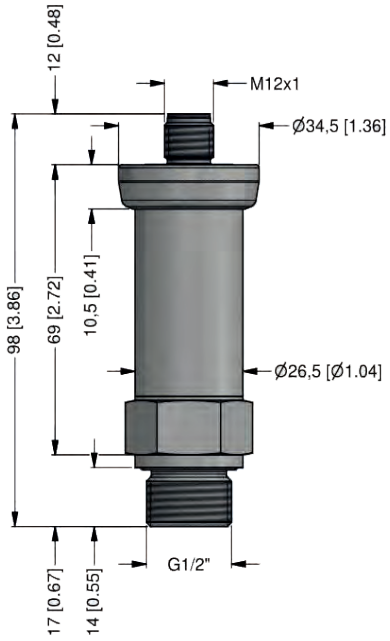
Wiring diagram



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

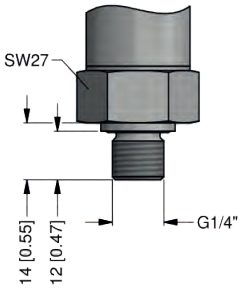
Dimensions (mm / in)

standard

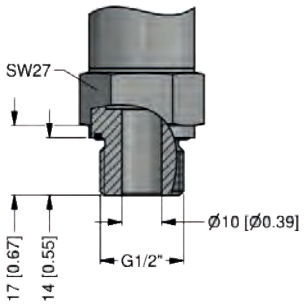


G1/2" DIN 3852
with M12x1

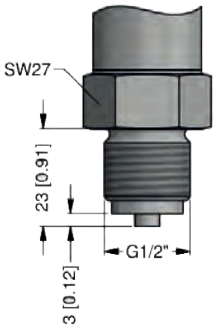
options



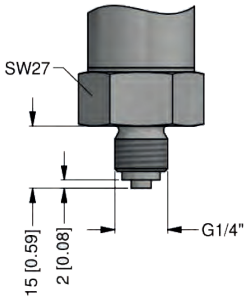
G1/4" DIN 3852



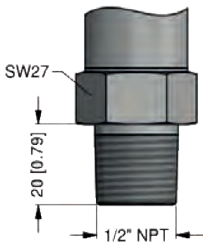
G1/2" DIN 3852
open port



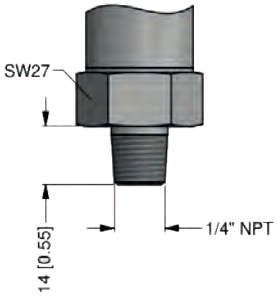
G1/2" EN 837



G1/4" EN 837



1/2" NPT



1/4" NPT

⇨ **metric threads and other versions on request**

Configuration 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 561

DCT 561 ☐☐☐ - ☐☐☐☐ - ☐☐ - ☐ - ☐☐☐ - ☐☐☐ - ☐ - ☐ - ☐ - ☐☐☐

	Code	
Pressure		
gauge	2 5 0	
absolute	2 5 1	
Input [bar]		
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		
RS485 Modbus RTU	L 5	
Accuracy		
0.5 % FSO	5	
customer	9	consult
Electrical connection		
male plug M12x1 (5-pin) / metal	N 1 1	
customer	9 9 9	consult
Mechanical connection [1]		
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_2O_3 96%	2	
customer	9	consult
Special version		
standard	0 0 0	
oxygen application [4]	0 0 7	
customer	9 9 9	consult

[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.

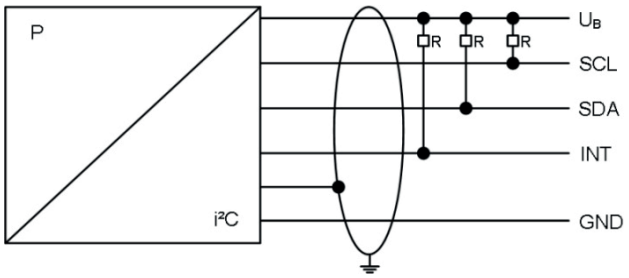
Preferred areas of use are

- 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 ≥ 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	
i²C	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 ≤ 160 bar) others on request
Diaphragm	ceramic Al_2O_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

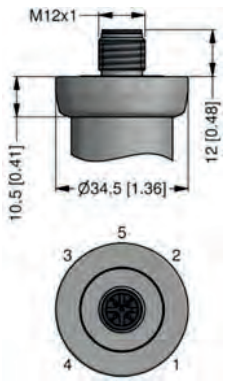


Pin configuration

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

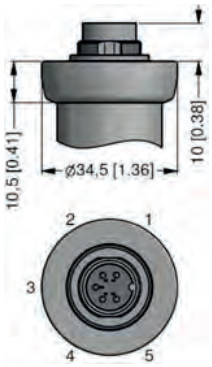
Electrical connections (dimensions mm/in)

Standard



M12x1 (5-pin)

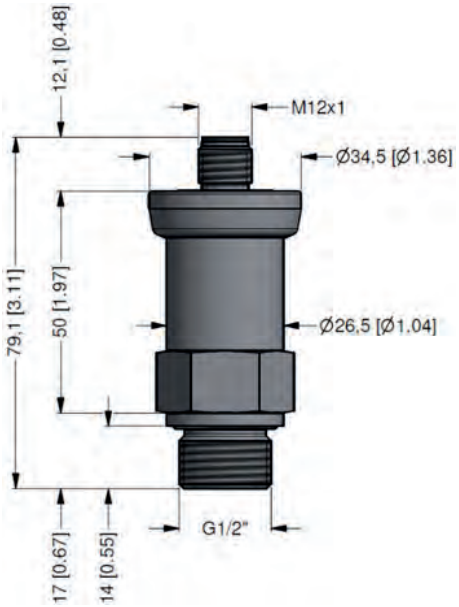
Optional



Binder Serie 723 (5-pin)

Dimensions / mechanical connections (dimensions in mm)

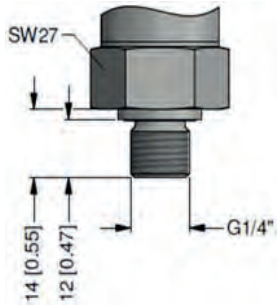
standard



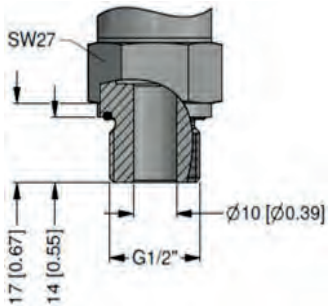
G1/2" DIN 3852 with male plug M12x1

Mechanical connections (dimensions mm/in)

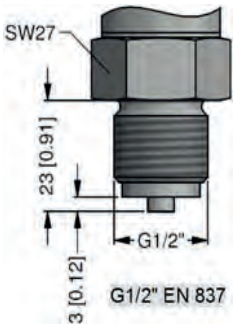
option



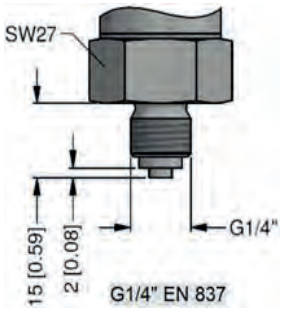
G1/4" DIN 3852



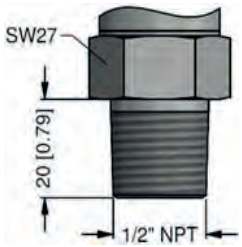
G1/2" DIN 3852 open port



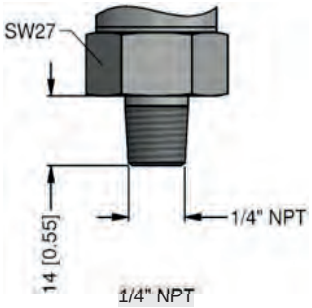
G1/2" EN 837



G1/4" EN 837



1/2" NPT



1/4" NPT

⇨ **metric threads and other versions on request**

Configuration i²C-interface																	
Stand configuration	0	5	0	-	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)				-		-		-		-		-					

Ordering code DCT 562

DCT 562 ☐☐☐-☐☐☐☐-☐☐-☐-☐☐☐-☐☐☐-☐-☐-☐-☐☐☐

	Pressure	Input	Output	Accuracy	Electrical connection	Mechanical connection	Seal	Pressure port	Diaphragm	Special version	
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											
i²C			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 [1]											
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_2O_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

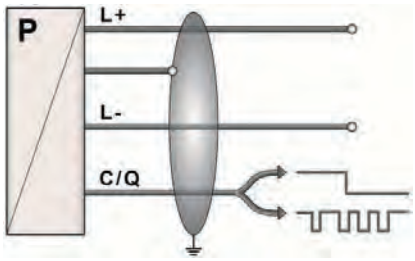
Input pressure range [1]										
Nominal pressure gauge	[bar]	-1…0 [2]	0.6	1	1.6	2.5	4	6	10	16
Nominal pressure abs.	[bar]	-	0.6	1	1.6	2.5	4	6	10	16
Overpressure	[bar]	3	2	3	5	5	12	12	20	50
Burst pressure ≥	[bar]	4	4	4	7	7.5	15	18	30	70

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							

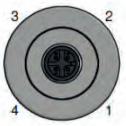
[1] PVDF pressure port possible for nominal pressure ranges up to 60 bar
[2] accuracy ≤ 1 % FSO

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_2O_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	

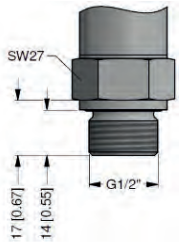
Wiring diagram



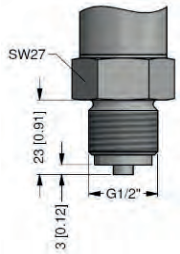
Pin configuration

Electrical connection		M12x1 / metal (4-pin)	
(L+)	Supply +	1	
(L-)	Supply –	3	
(C/Q)	SIO / IO Link (COMx)	4	
	Shield	housing	

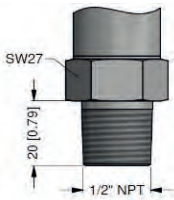
Dimensions (mm / in)



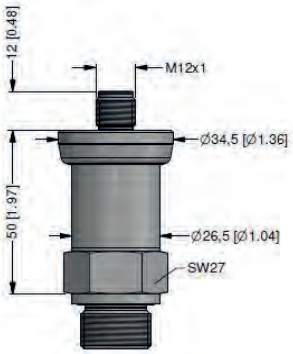
G1/2" DIN 3852

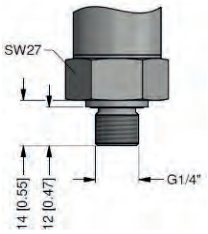


G1/2" EN 837

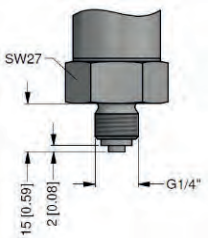


1/2" NPT

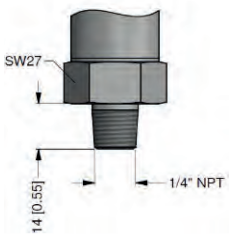




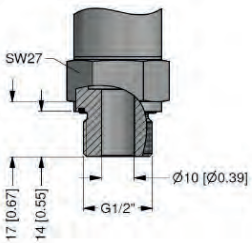
G1/4" DIN 3852



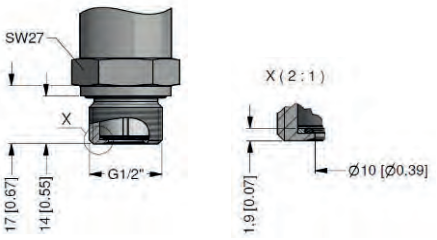
G1/4" EN 837



1/4" NPT



G1/2" DIN 3852
open port



G1/2" DIN 3852
with flush sensor [6]

⇨ metric threads and other versions on request

[6] possible for nominal pressure ranges p_N ≤ 25 bar; absolute pressure ranges on request

Ordering code DCT 563

DCT 563 [ ][ ][ ] - [ ][ ][ ][ ] - [ ] - [ ] - [ ][ ][ ] - [ ][ ][ ] - [ ] - [ ] - [ ] - [ ][ ][ ]

	Code	
Pressure		
gauge	DC5	
absolute	DC6	
Input [bar]		
0.6	6000	
1.0	1001	
1.6	1601	
2.5	2501	
4.0	4001	
6.0	6001	
10	1002	
16	1602	
25	2502	
40	4002	
60	6002	
100	1003	
160	1603	
250	2503	
400	4003	
600	6003	
-1 … 0	X102	
customer	9999	consult
Output		
IO-Link (COMx) / SIO	IO	
Accuracy		
0.5 % FSO	5	
customer	9	consult
Electrical connection		
male plug M12x1 (4-pin) / metal	M17	
customer	999	consult
Mechanical connection [1]		
G1/2" DIN 3852	100	
G1/2" EN 837	200	
G1/4" DIN 3852	300	
G1/4" EN 837	400	
G1/2" DIN 3852 with semi-flush sensor [2]	F00	
G1/2" DIN 3852 open pressure port	H00	
1/2" NPT	N00	
1/4" NPT	N40	
customer	999	consult
Seals		
FKM	1	
EPDM [3]	3	
customer	9	consult
Pressure port		
stainless steel 1.4404 (316L)	1	
PVDF [4]	B	
customer	9	consult
Diaphragm		
ceramics Al_2O_3 96%	2	
customer	9	consult
Special version		
standard	000	
oxygen application [5]	007	
customer	999	consult

[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 ... 60 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

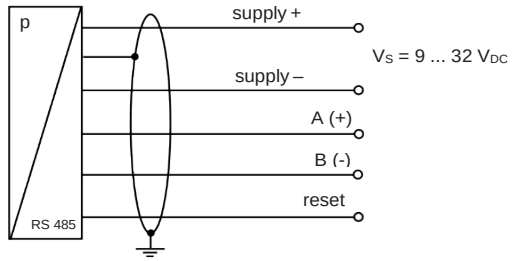
CE ROHS REACH Modbus®

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	60
Level	[mH_2O]	1	1.6	2.5	4	6	10	16	25	40	50	100	160	250	400	600
Overpressure	[bar]	3	4	5	5	5	7	7	12	12	20	20	20	40	70	70
Burst pressure ≥	[bar]	4	6	8	8	7	9	9	18	18	25	30	30	45	80	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: option:	≤ ± 0.35 % FSO ≤ ± 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 or PP-HT the operation medium temperature is -30 … 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: option for G3/4" flush: others on request	stainless steel 1.4404 (316 L) PVDF, PP-HT on request
Housing	stainless steel 1.4404 (316 L) others on request	
Seals (O-rings)	standard: options: others on request	FKM EPDM FFKM
Diaphragm	ceramics Al_2O_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	

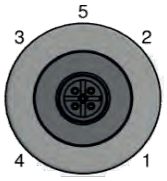
Wiring diagram

Modbus RTU



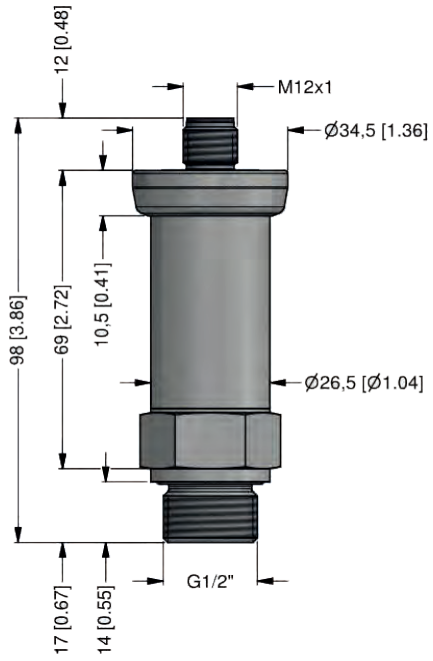
Pin configuration / electrical connection

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



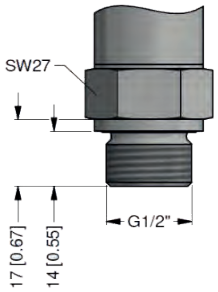
Dimensions / mechanical connection (mm / in)

standard

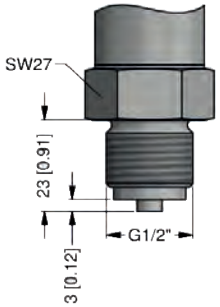


G1/2" DIN 3852
with male plug M12x1

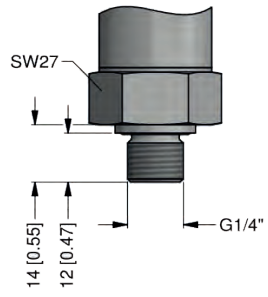
options



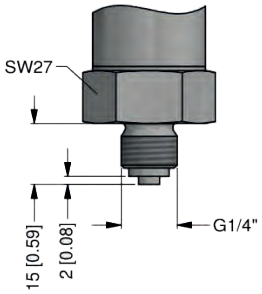
G1/2" DIN 3852



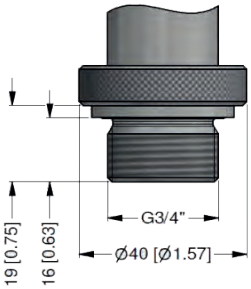
G1/2" EN 837



G1/4" DIN 3852



G1/4" EN 837



G3/4" DIN 3852 flush

⇨ **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)		-		-	

BD|SENSORS
pressure measurement

Ordering code DCT 571

DCT 571 ☐☐☐-☐☐☐☐-☐☐-☐-☐☐☐-☐☐☐-☐-☐-☐-☐☐☐

		Code	
Pressure			
	gauge in bar	2 8 5	
	gauge in mH_2O	2 8 6	
Input [mH_2O]	[bar]		
1.0	0.1	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	
250	25	2 5 0 2	
400	40	4 0 0 2	
600	60	6 0 0 2	
	customer	9 9 9 9	consult
Output			
	RS485 Modbus RTU	L 5	
Accuracy			
standard	0.35 % FSO	3	
option	0.25 % FSO	2	
	customer	9	consult
Electrical connection			
	male plug M12x1 (5-pin) / metal	N 1 1	
	customer	9 9 9	consult
Mechanical connection [1]			
	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	consult
Seal			
	FKM	1	
	EPDM	3	
	FFKM	7	
	customer	9	consult
Pressure port			
	stainless steel 1.4404 (316L)	1	
	PVDF [2]	B	consult
	PP-HT [2]	R	consult
	customer	9	consult
Diaphragm			
	ceramics Al_2O_3 99,9 %	C	
	customer	9	consult
Special version			
	standard	0 0 0	
	customer	9 9 9	consult

[1] metric threads and others on request
[2] only for mechanical connection G3/4"; for pressure port in PVDF or PP-HT the operation medium temperature is -30 … 60 °C

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

BD|SENSORS has the right pressure measuring device at the right price.

PRICE / PERFORMANCE

pressure measurement at the highest level

The concentration on electronic pressure transmitter has led to extraordinary efficiency and economical pricing.

BD|SENSORS is certain to be one of the most economical suppliers on the world market, given equal technical and commercial conditions.

RELIABILITY

projectable delivery times and strict observance of deadlines

Short delivery times and firm deadlines, even for special designs, make BD|SENSORS a reliable partner for our customers.

BD|SENSORS reduces the level of your stock-keeping and increases your profitability.

FLEXIBILITY

We have special solutions for your individual requirement

We solve your problem in industrial pressure measurement quickly and economically, not only with large-scale production lines, but also for smaller requirements.

BD|SENSORS is especially flexible when technical support and quick assistance are required in service case as well as for rush orders.

INDUSTRIES

- plant and machine engineering
- chemical and biochemical industry
- energy industry
- renewable energy
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- HVAC
- hydraulics
- refrigeration
- calibration techniques
- laboratory techniques
- medical technology
- food and beverage
- vehicles and mobile hydraulics
- oil and gas industry
- pharmaceutical industry
- marine / shipbuilding / offshore
- heavy industry
- environmental industry
- packaging and paper industry

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- aggressive media
- colours
- gases
- fuels and oils
- pasty and viscous media
- oxygen
- water

BD|SENSORS
pressure measurement

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