

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

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



DCT 561

Industrial Pressure Transmitter with RS485 Modbus RTU

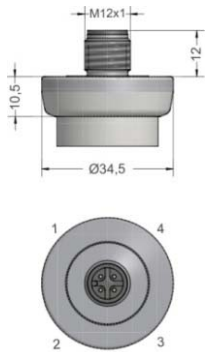
Technical Data

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										
Digital (pressure)		RS485 with Modbus RTU protocol								
Supply										
Direct current		V _S = 9 ... 32 V _{DC}								
Performance										
Accuracy ³		≤ ± 0.5 % FSO								
Long term stability		≤ ± 0.1 % FSO / year at reference conditions								
Measuring rate		500 Hz								
Delay time		500 msec								
³ 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		-25 ... 85 °C								
Permissible temperatures ⁴		medium: -25 ... 125 °C			electronics / environment: -25 ... 85 °C			storage: -40 ... 80 °C		
⁴ for pressure port of PVDF the minimum temperature is -30 °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 ₂ O ₃ 96 %								
Media wetted parts		pressure port, seal, diaphragm								
Miscellaneous										
Option oxygen application		for P _N ≤ 25 bar: O-ring in FKM Vi 567 (with BAM-approval); permissible maximum values are 25 bar / 150 °C								
Current consumption		max. 7 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) ⁵					
⁵ This directive is only valid for devices with maximum permissible overpressure > 200 bar										
Wiring diagrams										
RS 485 / Modbus RTU										

Pin configuration			
Electrical connection	M12x1 / metal (4-pin)	Binder 723 (5-pin)	cable colours (IEC 60757)
Supply +	1	1	WH (white)
Supply -	3	3	BN (brown)
A +	2	2	GN (green)
B -	4	4	YE (yellow)
Shield	plug housing	plug housing	GYNE (green-yellow)

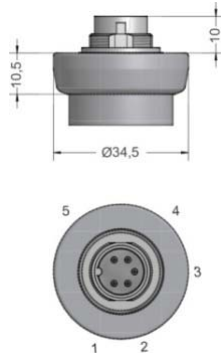
Electrical connections (dimensions in mm)

standard

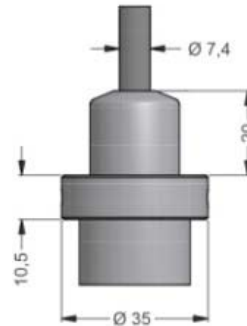


M12x1, 4-pin (IP 67)

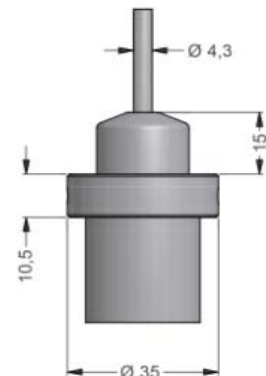
option



Binder Series 723, 5-pin (IP 67)



cable outlet with PVC cable (IP 67) ⁶ on request



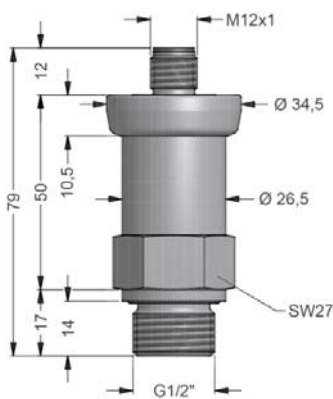
cable outlet, cable with ventilation tube (IP 68) ⁷ on request

⁶ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C)

⁷ different cable types and lengths available, permissible temperature depends on kind of cable

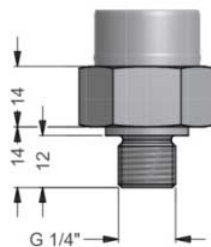
Mechanical connections (dimensions in mm)

standard

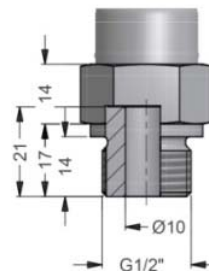


G1/2" DIN 3852 with M12x1

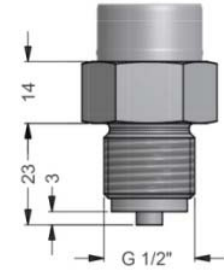
options



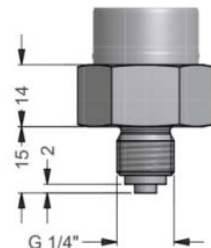
G1/4" DIN 3852



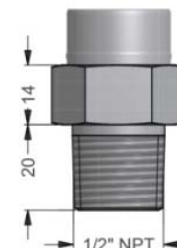
G1/2" open port



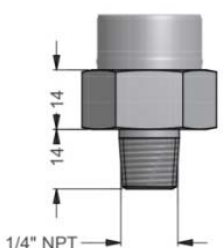
G1/2" EN 837



G1/4" EN 837



1/2" NPT



1/4" NPT

⇨ metric threads and other versions on request

© 2019 BDSENSORS GmbH - The specifications given in this document represent the state of engineering at the time of publishing. We reserve the right to make modifications to the specifications and materials.

Ordering code DCT 561

DCT 561

□□□ - □□□□ - □□ - □□ - □□□□ - □□□□ - □□ - □□ - □□□□

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					L5					
Accuracy										
0,5 % FSO					5					
customer					9					consult
Electrical connection										
male plug M12x1 (4-pin) / metal					M	1	3			
male plug Binder series 723 (5-pin)					T	0	7			
cable outlet with PVC cable (IP67) ¹					T	A	0			
cable outlet,										
cable with ventilation tube (IP68) ²					T	R	0			
customer					9	9	9			consult
Mechanical connection ³										
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
Seals										
FKM							1			
EPDM ⁴							3			
customer							9			consult
Pressure port										
stainless steel 1.4404 (316L)							1			
PVDF ⁵							B			
customer							9			consult
Diaphragm										
ceramics Al ₂ O ₃ 96%							2			
customer							9			consult
Special version										
standard							0	0	0	
oxygen application ⁶							0	0	7	
customer							9	9	9	consult

¹ standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70 °C); others on request

² code TR0 = PVC cable, cable with ventilation tube available in different types and lengths

³ metric threads and others on request

⁴ possible for nominal pressure range P_N ≤ 160 bar

⁵ PVDF only with G1/2" DIN 3852 open pressure port (up to 60 bar), minimum permissible temperature is -30 °C

⁶ oxygen application with FKM-seal up to 25 bar