



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



Modbus®

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

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

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

Output signal	
Digital (pressure)	RS485 with Modbus RTU protocol
Supply	
Direct current	$V_S = 9 \dots 32 V_{DC}$

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

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

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

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

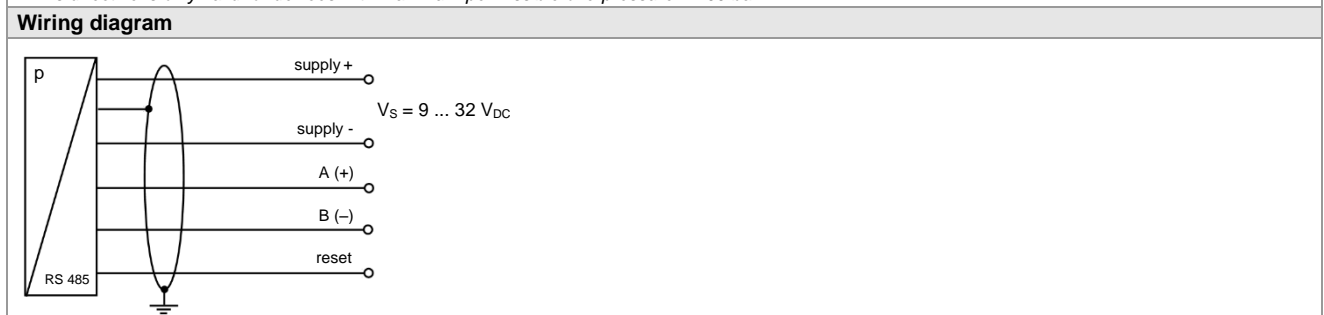
Electrical protection	
Short-circuit protection	permanent
Reverse polarity protection	no damage, but also no function
Electromagnetic compatibility	emission and immunity according to EN 61326

Mechanical stability	
Vibration	10 g RMS (25 ... 2000 Hz) according to DIN EN 60068-2-6
Shock	500 g / 1 msec according to DIN EN 60068-2-27

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

Miscellaneous	
Option oxygen application	for $p_N \leq 25 \text{ bar}$: O-ring in FKM Vi 567 (with BAM-approval); permissible maximum values are 25 bar / 150 °C
Current consumption	max. 10 mA
Weight	approx. 210 g
Installation position	any
Protection class	IP 67
Operational life	100 million load cycles
CE-conformity	EMC Directive: 2014/30/EU Pressure Equipment Directive: 2014/68/EU (module A) ⁴

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



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	options	
<p> 12 [0.48] M12x1 Ø34,5 [1.36] 98 [3.86] 69 [2.72] 10.5 [0.41] Ø26,5 [Ø1.04] 17 [0.67] 14 [0.55] G1/2" G1/2" DIN 3852 with M12x1 </p>	<p> SW27 14 [0.55] 12 [0.47] G1/4" G1/4" DIN 3852 </p>	<p> SW27 17 [0.67] 14 [0.55] G1/2" Ø10 [Ø0.39] G1/2" DIN 3852 open port </p>
	<p> SW27 23 [0.91] 3 [0.12] G1/2" G1/2" EN 837 </p>	<p> SW27 20 [0.79] 1/2" NPT 1/2" NPT </p>
	<p> SW27 15 [0.59] 2 [0.08] G1/4" G1/4" EN 837 </p>	<p> SW27 14 [0.55] 1/4" NPT 1/4" NPT </p>
⇒ 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

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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																		
	G1/2" DIN 3852							1	0	0								
	G1/2" EN 837							2	0	0								
	G1/4" DIN 3852							3	0	0								
	G1/4" EN 837							4	0	0								
	G1/2" DIN 3852 open pressure port							H	0	0								
	1/2" NPT							N	0	0								
	1/4" NPT							N	4	0								
	customer							9	9	9								consult
Seal																		
	FKM									1								
	EPDM ²									3								
	customer									9								consult
Pressure port																		
	stainless steel 1.4404 (316L)										1							
	PVDF ³										B							
	customer										9							consult
Diaphragm																		
	ceramics Al ₂ O ₃ 96%											2						
	customer											9						consult
Special version																		
	standard												0	0	0			
	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 ≤ 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

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