

# 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 <sup>1</sup>										
Nominal pressure gauge	[bar]	-1...0 <sup>2</sup>	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 <sup>3</sup>
Overpressure	[bar]	50	120	120	200	400	400	650	800
Burst pressure ≥	[bar]	75	150	180	300	500	750	1000	1100

<sup>1</sup> PVDF pressure port possible for nominal pressure ranges up to 60 bar

<sup>2</sup> accuracy ≤ 1 % FSO

<sup>3</sup> nominal pressure 600 bar without UL certification

## Output signal

Digital (pressure)	RS485 with Modbus RTU protocol
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## Supply

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

Accuracy <sup>4</sup>	≤ ± 0.5 % FSO
Long term stability	≤ ± 0.1 % FSO / year at reference conditions
Measuring rate	500 Hz
Delay time	500 msec

<sup>4</sup> 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 <sup>5</sup>	medium: -25 ... 125 °C      electronics / environment: -25 ... 85 °C      storage: -40 ... 80 °C

<sup>5</sup> 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 (media wetted)	standard: FKM options: EPDM (for $P_N \leq 160$ bar)      others on request
Diaphragm	ceramic Al <sub>2</sub> O <sub>3</sub> 96 %
Media wetted parts	pressure port, seal, diaphragm

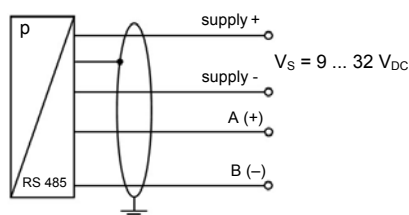
## Miscellaneous

Option oxygen application	for $P_N \leq 25$ 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) <sup>6</sup>

<sup>6</sup> 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 colour (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)

**Elektrische Anschlüsse (Maße in mm)**

standard	option		
<p>M12x1, 4-pin (IP 67)</p>	<p>Binder Series 723, 5-pin (IP 67)</p>	<p>cable outlet with PVC cable (IP 67)<sup>7</sup> on request</p>	<p>cable outlet, cable with ventilation tube (IP 68)<sup>8</sup> on request</p>

<sup>7</sup> standard: 2 m PVC cable without ventilation tube (permissible temperature: -5 ... 70°C)  
<sup>8</sup> different cable types and lengths available, permissible temperature depends on kind of cable

**Mechanical connections (dimensions in mm)**

standard	options			
<p>G1/2" DIN 3852 with M12x1</p>	<p>G1/4" DIN 3852</p>	<p>G1/2" open port</p>	<p>G1/2" EN 837</p>	
	<p>G1/4" EN 837</p>	<p>1/2" NPT</p>	<p>1/4" NPT</p>	

⇒ metric threads and other versions on request

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