



# DMK 331 P

## Pressure Transmitter with Flush Diaphragm

- ▶ pressure port with flush stainless steel diaphragm
- ▶ thickfilm ceramic sensor
- ▶ for viscous and paste-like media
- ▶ accuracy:  
0.25 % FSO BFSL  
(0.5 % FSO IEC 60770)
- ▶ nominal pressure ranges from  
0 ... 1 bar up to 0 ... 400 bar

The DMK 331 P is a pressure transmitter for process measurement. It has a flush stainless steel diaphragm made of 1.4435 (316L). Pressure ports with inch threads are available.

All gaseous and liquid media compatible with stainless steel 1.4435 (316L) can be measured. Because of its flush diaphragm the DMK 331 P is suited also for viscous media. Inch threads are sealed as a standard with an O-ring made of FKM, for high pressure of NBR. Other O-ring materials are available on request.

Different pressure transmitting fluids are available: besides silicon oil, food compatible oil, and Halocarbon also other filling oils are available on request.

For use at higher temperatures a cooling element can be delivered optionally.

Different output signals and electrical connections make the DMK 331 P covering a wide field of applications.

Preferred areas of use are:

- ▶ process engineering
- ▶ chemical industry
- ▶ food industry
- ▶ paper industry

- ▶ small thermal effect
- ▶ good linearity
- ▶ good long term stability
- ▶ option Ex: II 1 G EEx ia IIC T4 (only for 4 ... 20 mA / 2-wire) (TÜV 03 ATEX 2006 X)
- ▶ customer specific versions:
  - variety of electrical and mechanical connections
  - other versions on request

Characteristics



**DMK 331 P**  
Pressure Transmitter

# DMK 331 P

## Pressure Transmitter

## Technical Data

### Input pressure range

Nominal pressure gauge [bar]	-1...0 <sup>1</sup>	1 <sup>1</sup>	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400
Nominal pressure abs. [bar]	-	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400
Permissible overpressure [bar]	3	3	7	7	12	12	25	50	50	120	120	250	500	500	600

### Output signal / Supply

Standard	2-wire:	4 ... 20 mA / $V_s = 12 \dots 36 V_{DC}$	Ex-protection:	$V_s = 14 \dots 28 V_{DC}$
Optional	3-wire:	0 ... 20 mA / $V_s = 14 \dots 36 V_{DC}$ 0 ... 10 V / $V_s = 14 \dots 36 V_{DC}$		

### Performance

Accuracy <sup>2</sup>	$\leq \pm 0.5 \% \text{ FSO}$	(BFSL: $\leq \pm 0.25 \% \text{ FSO}$ )
Permissible load	current 2-wire: current 3-wire: voltage 3-wire:	$R_{\max} = [(V_s - V_{s \min}) / 0.02] \Omega$ $R_{\max} = 500 \Omega$ $R_{\min} = 10 \text{ k}\Omega$
Influence effects	supply: load:	0.05 % FSO / 10 V 0.05 % FSO / k $\Omega$

### Thermal effects

Thermal error for offset and span	$\leq \pm 0.2 \% \text{ FSO} / 10 \text{ K}$
in compensated range	-25 ... 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
Option Ex-protection DX13-DMK 331 P	II 1 G EEx ia IIC T4 (only with 4 ... 20 mA / 2-wire) safety technical maximum values: $V_i = 28 \text{ V}$ , $I_i = 93 \text{ mA}$ , $P_i = 660 \text{ mW}$

### Mechanical stability

Vibration	10 g RMS (20 ... 2000 Hz)
Shock	100 g / 11 ms

### Permissible temperatures

Medium	-25 ... 135 °C <sup>3</sup>
Electronics / environment	-25 ... 85 °C
Storage	-40 ... 125 °C

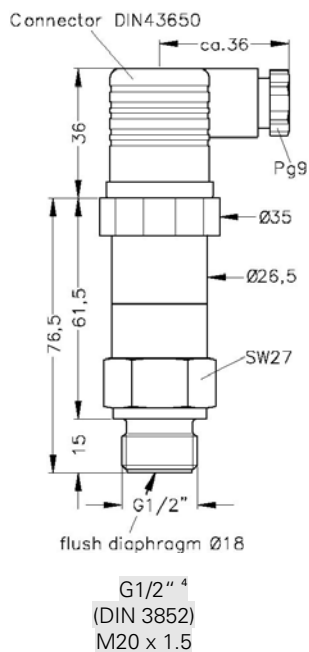
<sup>1</sup> pressure ranges  $P_N < 1.6 \text{ bar}$  not with mechanical connection G1/2"

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

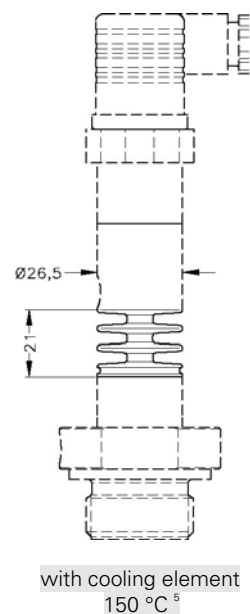
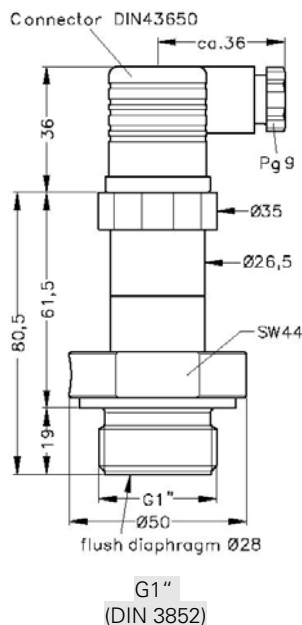
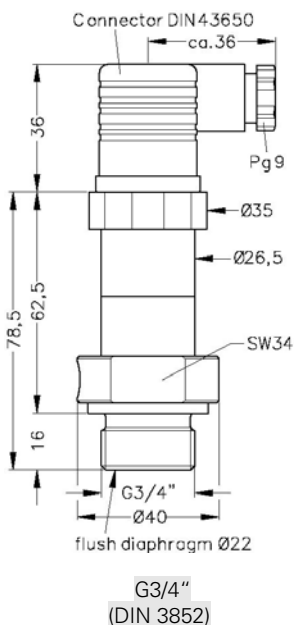
<sup>3</sup> with optional cooling element its maximum permissible temperature is valid

### Mechanical connection

#### Standard



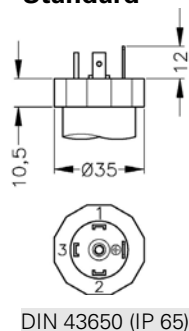
#### Optional



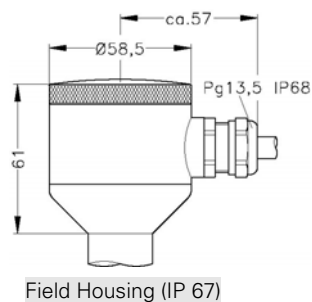
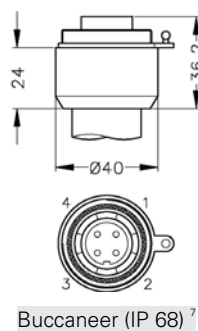
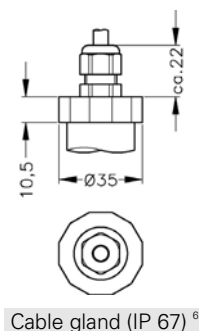
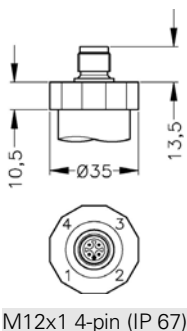
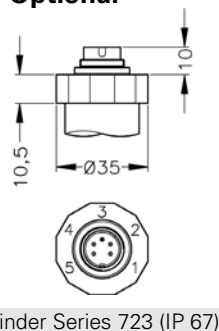
⇒ Ex-protection: total length increases by 26.5mm!

### Electrical connection

#### Standard



#### Optional



<sup>4</sup> for nominal pressure  $P_N \geq 1.6$  bar

<sup>5</sup> for max. 100 bar

<sup>6</sup> different cable types and lengths available; standard: 2 m PVC cable (without ventilation tube), optionally cable with ventilation tube

<sup>7</sup> for gauge pressure  $P_N \leq 40$  bar cable with ventilation tube required

# DMK 331 P

## Pressure Transmitter

## Technical Data

### Filling Fluids

Standard	Silicon oil
Option	food compatible oil Halocarbon
others	on request

### Materials

Pressure port	stainless steel 1.4571 (316Ti)
Housing	stainless steel 1.4301 (304) / Field housing: 1.4305 (303) with cable gland: brass, nickel plated
Seals (media wetted)	$P_N < 100$ bar: FKM $P_N \geq 100$ bar: NBR others : on request
Diaphragm	stainless steel 1.4435 (316L)
Media wetted parts	pressure port, seals, diaphragm

### Miscellaneous

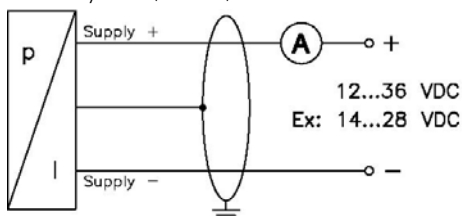
Current consumption	signal output current: max. 25 mA signal output voltage: max. 7 mA
Weight	approx. 200 g
Installation position	any <sup>8</sup>

### Pin configuration

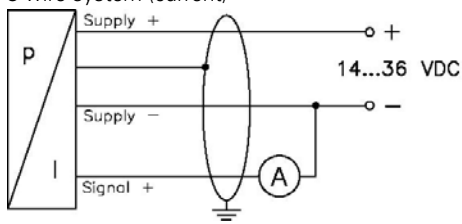
Electrical connection		DIN 43650	Binder 723 (5-pin)	M12x1 (4-pin)	Buccaneer (4-pin)	Cable colours (DIN 47100)
2-wire-system	Supply +	1	3	1	1	white
	Supply -	2	4	2	2	brown
	Ground	ground pin	5	4	4	yellow / black
3-wire-system	Supply +	1	3	1	1	white
	Supply -	2	4	2	2	brown
	Signal +	3	1	3	3	green
	Ground	ground pin	5	4	4	yellow / black

### Wiring diagrams

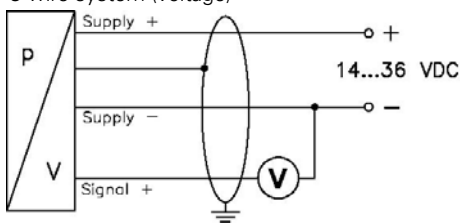
2-wire-system (current)



3-wire-system (current)



3-wire-system (voltage)



<sup>8</sup> Pressure transmitters are calibrated in a vertical position with the pressure connection down. If this position is changed on installation there can be slight deviations in the zero point for pressure ranges  $P_N \leq 1$  bar.

**Ordering code DMK 331P**

# DMK 331 P

[illegible]

<sup>1</sup> Nominal pressure absolute not possible for  $P_N \leq 0.6$  bar

<sup>2</sup> different cable types and lengths deliverable, standard: 2 m PVC cable (without ventilation tube), optionally cable with ventilation tube

<sup>3</sup> for gauge pressure up to 40 bar cable with ventilation tube required

<sup>4</sup> Name of oil: Mobil DTE FM 32; Category Code: H1; NSF Registration No.: 130662

<sup>5</sup> cooling element up to 150°C not with pressure range  $P_N \geq 100$  bar