

# DMK 351P

## Pressure Transmitter for the Process Industry

Ceramic Sensor

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

2-wire: 4 ... 20 mA  
3-wire: 0 ... 10 V  
others on request

### Special characteristics

- ▶ hygienic version
- ▶ different process connections (G1 1/2", diary pipe, clamp, etc.)
- ▶ high overpressure capability



### Optional versions

- ▶ IS-version  
Ex ia = intrinsically safe for gases and dusts
- ▶ diaphragm 99.9 % Al<sub>2</sub>O<sub>3</sub>
- ▶ customer specific versions  
e.g. special pressure ranges



The pressure transmitter DMK 351P has been designed for measuring small system pressure in the food industry and chemical industry.

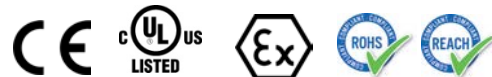
The DMK 351P is based on an own-developed capacitive ceramic sensor element. It features high overpressure resistance and high resistance against most of aggressive media. A variety of different process and electrical connections and an intrinsically safe version complete the range of possibilities.

### Preferred areas of use are

-  Food Industry
-  Chemical and Petrochemical Industry

### Preferred used for

-  Paint and Varnish
-  Viscous and Pasty Media



<b>Pressure ranges</b>																
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 absolut	[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
Permissible vacuum	[bar]	-0.2		-0.3		-0.5			-1							
<b>Output signal / Supply</b>																
Standard		2-wire: 4 ... 20 mA / $V_S = 9 \dots 32 V_{DC}$														
Option IS-protection		2-wire: 4 ... 20 mA / $V_S = 14 \dots 28 V_{DC}$														
Option 3-wire		3-wire: 0 ... 10 V / $V_S = 12.5 \dots 32 V_{DC}$														
<b>Performance</b>																
Accuracy <sup>1</sup>		standard: $\leq \pm 0.35 \% \text{ FSO}$ option for $P_N \geq 0.6 \text{ bar}$ : $\leq \pm 0.25 \% \text{ FSO}$														
Long term stability		$\leq \pm 0.1 \% \text{ FSO} / \text{year}$ at reference conditions														
Influence effects		supply: 0.05 % FSO / 10 V load: 0.05 % FSO / k $\Omega$														
Permissible load		current 2-wire: $R_{\max} = [(V_S - V_{S \min}) / 0.02 \text{ A}] \Omega$ voltage 3-wire: $R_{\min} = 10 \text{ k}\Omega$														
Turn-on time		700 msec														
Mean measuring rate		5 / sec														
Response time		mean response time: $\leq 200 \text{ msec}$ max. response time: 380 msec														
<sup>1</sup> accuracy according to IEC 60770 - limit point adjustment (non-linearity, hysteresis, repeatability)																
<b>Thermal errors (offset and span) / -Permissible temperatures</b>																
Thermal error		$\leq \pm 0.1 \% \text{ FSO} / 10 \text{ K}$ in compensated range - 20 ... 80°C														
Permissible temperatures		medium: -40 ... 125 °C electronics / environment: -40 ... 85 °C storage: -40 ... 100 °C														
<b>Electrical protection</b>																
Short-circuit protection		permanent														
Reverse polarity protection		no damage, but also no function														
Electromagnetic compatibility		emission and immunity according to EN 61326														
<b>Mechanical stability</b>																
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														
<b>Materials</b>																
Pressure port		stainless steel 1.4404 (316L)														
Housing		stainless steel 1.4404 (316L)														
Standard compact field housing		stainless steel 1.4435 (316L)														
Seal (media wetted)		FKM EPDM												others on request		
Diaphragm		ceramic Al <sub>2</sub> O <sub>3</sub> 96 %														
Standard Option		ceramic Al <sub>2</sub> O <sub>3</sub> 99.9 %														
Media wetted parts		pressure port, seals, diaphragm														
<b>IS-protection (only for 4 ... 20 mA / 2-wire)</b>																
Approval DX 14-DMK 351 P		<b>IBExU 05 ATEX 1070 X</b> zone 0: II 1G Ex ia IIC T4 Ga zone 20: II 1D Ex ia IIIC T85 °C Da														
Safety technical maximum values		$U_i = 28 \text{ V}$ , $I_i = 93 \text{ mA}$ , $P_i = 660 \text{ mW}$ , $C_i = 27 \text{ nF}$ , $L_i = 5 \text{ }\mu\text{H}$ , $C_{\text{gnd}} = 27 \text{ nF}$														
Max. permissible temperature for environment		zone 0: -20 ... 60 °C for $p_{\text{atm}} 0.8 \text{ bar}$ up to 1.1 bar zone 1: -25 ... 70 °C														
Connecting cables (by factory)		capacity: signal line / shield also signal line / signal line: 160 pF/m inductance: signal line / shield also signal line / signal line: 1 $\mu\text{H}/\text{m}$														
<b>Miscellaneous</b>																
Current consumption		max. 21 mA														
Weight		min. 200 g														
Installation position		any														
Operational life		$> 100 \times 10^6$ loading cycles														
CE-conformity		EMC-directive: 2014/30/EU														
ATEX Directive		2014/34/EU														

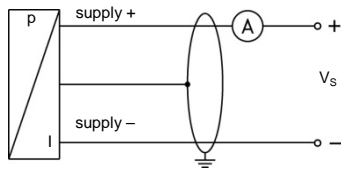
# DMK 351P

Process Pressure Transmitter

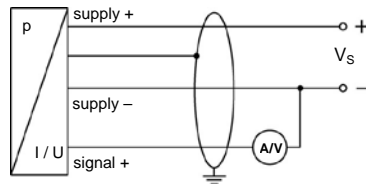
Technical Data

## Wiring diagram

2-wire-system (current)



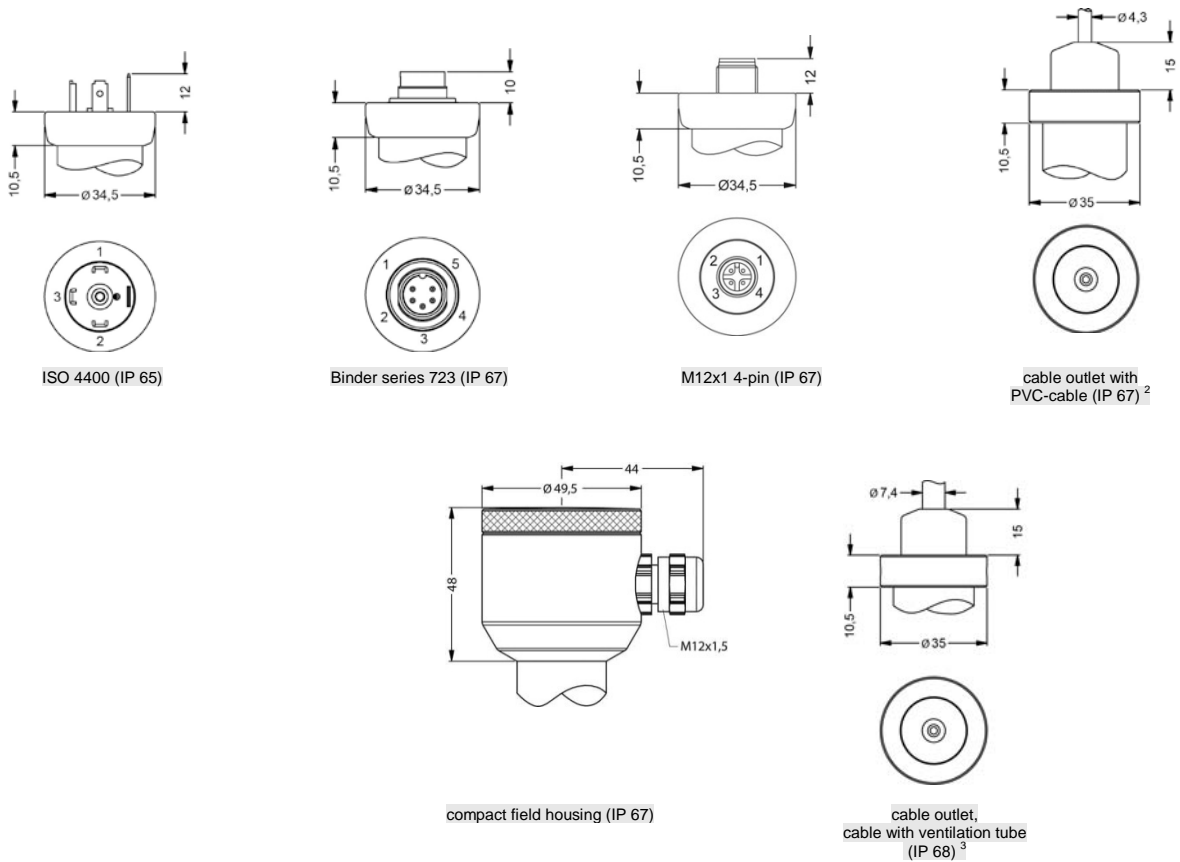
3-wire-system (current / voltage)



## Pin configuration

Electrical connection	ISO 4400	Binder 723 (5-pin)	M12x1 (4-pin)	field housing	cable colour (IEC 60757)
Supply +	1	3	1	IN +	wh (white)
Supply -	2	4	2	IN -	bn (brown)
Signal + (only 3-wire)	3	1	3	OUT +	gn (green)
Shield	ground pin	5	4	⏏	gnye (green-yellow)

## Electrical connections (dimensions in mm)



⇒ universal stainless steel field housing 1.4404 with cable gland M20x1.5 (ordering code 880) and other versions on request

<sup>2</sup> standard: 2 m PVC-cable without ventilation tube (permissible temperature: -5 ... 70 °C)

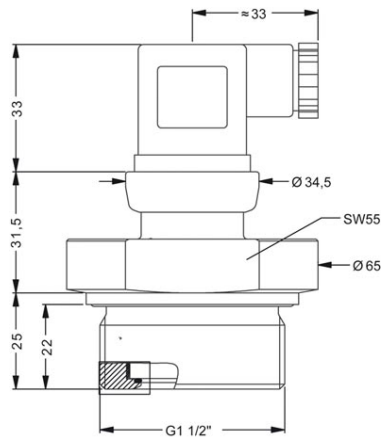
<sup>3</sup> different cable types and lengths available, permissible temperature depends on kind of cable

# DMK 351P

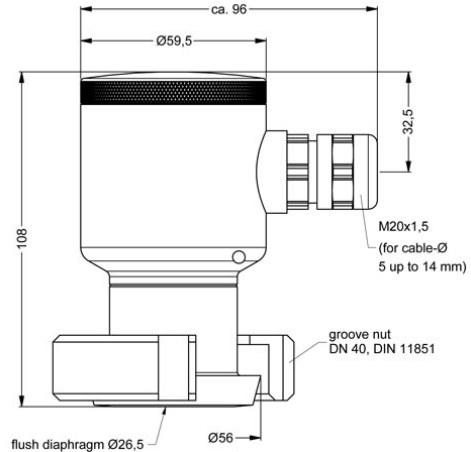
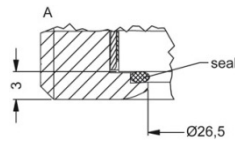
Process Pressure Transmitter

Technical Data

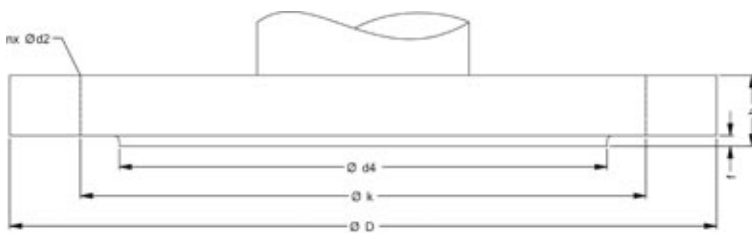
## Dimensions (in mm)



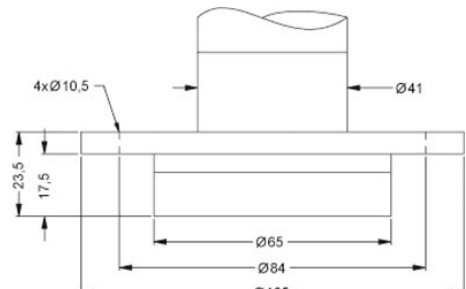
G1 1/2" DIN 3852



field housing  
with dairy pipe (DIN 11851)

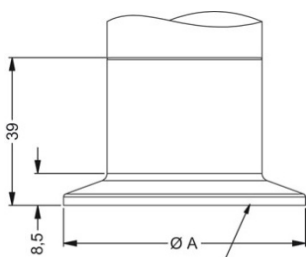


flange (DIN 2501)



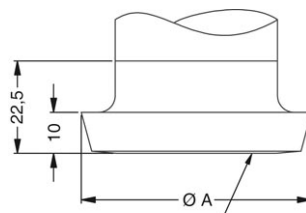
flange DRD<sup>4</sup>

dimensions in mm			
size	DN25	DN50	DN80
D	115	165	200
k	85	125	160
d4	68	102	138
b	18	20	20
f	2	3	3
n	4	4	8
d2	14	18	18
P <sub>N</sub> [bar]	≤ 40	≤ 40	≤ 16



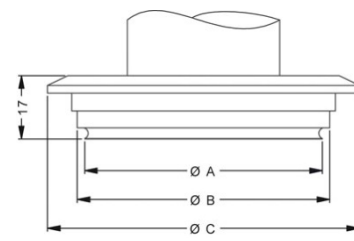
flush diaphragm Ø=26,5mm  
Clamp (DIN 32676)

dimensions in mm		
size	DN32	DN50
A	50,5	64
P <sub>N</sub> [bar]	≤ 16	≤ 16



flush diaphragm Ø=26,5mm  
dairy pipe (DIN 11851)

dimensions in mm		
size	DN40	DN50
A	56	68,5



Varivent  
P<sub>N</sub> ≤ 10 bar

dimensions in mm	
size	DN40/50
A	64
B	68
C	84

<sup>4</sup> mounting flange is included in the delivery (already pre-assembled)

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