

Flush-mounted transmitter - TCF 050D - series



FEATURES

- **OVERLOAD-PROOF DESIGN ESPECIALLY FOR USE WITH SMALL PIPE WIDTHS SUCH AS KEG SYSTEMS**
- **OUTPUT SIGNAL 4...20mA, TURNDOWN 4**
- **ACCURACY $\leq \pm 0.4\%$ FS**
- **STANDARD PROCESS CONNECTIONS FOR INDUSTRIAL APPLICATIONS**
- **SIMPLE PARAMTERING VIA 2-KEY CONCEPT AND MULTIPLE-COLOUR STATUS LED**
- **SIMPLE CALIBRATION, EVEN WITHOUT DISCONNECTION OF THE TRANSMITTER, THROUGH SWITCHABLE POWER SUPPLY PLANT/ CALIBRATOR SUPPLY**
- **FOR PRESSURE MEASUREMENT WITH BASIC REQUIREMENTS**
- **STAINLESS-STEEL HOUSINGS IN THE PROTECTION CLASS IP67 AND IP 69K**

DESCRIPTION

The TCF050D pressure transmitter is suitable for measuring pressure in applications with pulsing pressure and the danger of pressure shocks and cavitation e.g. in barrel filling systems. The piezoresistive measurement cells with ceramic membrane is designed for measurement ranges from 0...1 bar to 0...100bar. The flush-mounted process connections with G1/2" / M22x1.5 are equipped with the TCF050D pressure transmitter with diaphragm seals and stainless steel membrane. These are ideal for flush-mounting in small pipe nominal widths. High-temperature versions for constant temperatures of up to 200°C are also available. The stainless steel field housing in IP 67 and IP 69K are resistant to all common cleaning procedures.

The 050D series pressure transmitters are equipped with a micro-processor controlled electronics system and an accuracy of $\leq \pm 0.4\%$ FS. They are parametrised with a simple and user-friendly operating concept via 2 keys and a multi-colour status LED.

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TECHNICAL DATA

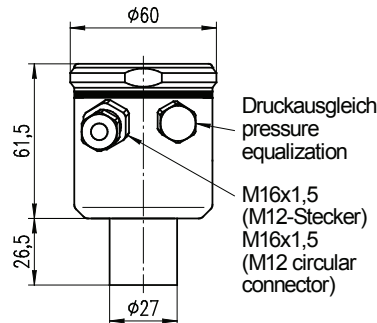
General details								
Device type/measuring principle	TCF050D: piezoresistive							
Input								
Measuring ranges	TCF050D							
Standard nominal measuring range [bar]	Relative	OP	Absolute	OP	Relative	OP	Absolute	OP
OP = overload protection [bar]	-1/0 to 1	2	0 to 1	2	-1/0 to 20	40	0 to 20	40
Special measuring ranges are available on request.	-1/0 to 2	4	0 to 2	4	-1/0 to 50	100	0 to 50	100
All measurement cells are vacuum safe	-1/0 to 5	10	0 to 5	10			0 to 100	200
	-1/0 to 10	20	0 to 10	20			0 to 200	400
Recommended minimum temperature range	2.5 bar							
Setting the measuring ranges	via the 2 keys within the transmitter							
Setting ranges	Measuring range begin	zero:	0 to 75%	of the sensor's nominal measuring span		TD=4		
	Measuring span	span:	25 to 100%	of the sensor's nominal measuring span				
Burst pressure DIN16086	≥ 4-fold nominal measuring range							
Output								
Output signal	2-wire: 4 to 20mA with a test circuit connection in the device							
Fault signal	22mA							
Current limitation	3.8mA and 21mA (normal operation, cannot be set)							
Measuring accuracy								
Reference conditions	acc. to DIN IEC 770							
Linearity, hysteresis and repeatability acc. to the limit point method DIN IEC 770	≤ ± 0.4% of the sensor nominal measuring range							
Activation time	< 2 s (The device will carry out a self-test.)							
Setting time	< 1s							
Long-time drift	≤ 0.2% of the span per year							
Thermal hysteresis	≤ ± 0.2% from sensor nominal measuring range / 10K (-20...+80°C) from 4bar							
Conditions of use								
Installation position / calibration position	Any position / standing vertically							
Medium temperature	G2 / G6: -40...+125°C (140°C for max. an hour) G7 / M9: -40...+200°C (high-temperature version)							
Ambient storage temperature	-40...+85°C (below -20 °C danger of cable breakage)							
Protection class acc. to EN60529	IP 67 and IP 69K							
Electromagnetic compatibility	acc.to EN 61326-1							
Construction								
Electrical connection	<ul style="list-style-type: none"> - Standard: cable screw connection M16x1.5, nickel-plated brass (stainless steel available on request) - Optional: round plug-in connector M12x1, nickel-plated brass (stainless steel available on request) - Optional: angle plug acc. to EN 175301-803 - Optional: reference cable 							
Process connection	<ul style="list-style-type: none"> - All standard flush-mounted process connections and those commonly used by the manufacturer - Membrane, flush-welded on the front, CrNiSt, other materials available on request - EPDM process seal (with a G6 process connection) - FPM process seal (with G7 and M9 process connections) 							
Construction								
Materials	<ul style="list-style-type: none"> - Field housing / lid: CrNiSt 1.4301 (304) - Electronics cast: Silgel - Housing seal: FPM (Viton®) - Pressure compensation element: Polyamide - Process connection / connection adapter: CrNiSt 1.4404 (304) - Process membrane: Ceramic (96% Al2O3) / CrNiSt 1,4435/1,4404 (316L) - Reference cable, 5-wire with reference tube: PUR (recommended: 80 m maximum) 							
Filling fluid	Silicon oil (FDA)							
Display and operation								
Display	Multiple-colour status LED							
Operation	2-key concept							
Auxiliary energy resources								
Power supply / burden	12...30V DC, max. burden: (V _{supply} - 12V) / 22mA							
Accessories series 050D								
Certificates	Calibration certificate Declaration of conformity Material certificate acc. to EN 10204							
Process connection adapter	See order information							

P-TCF050D-EN-14-1/2

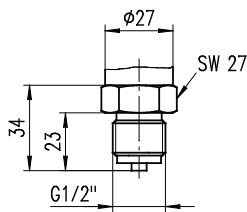
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DIMENSIONAL DRAWINGS (dimensions in mm)

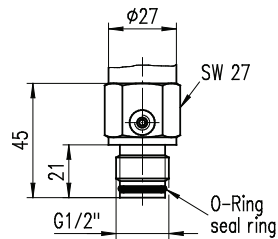
TCF 050D ... _K(M)



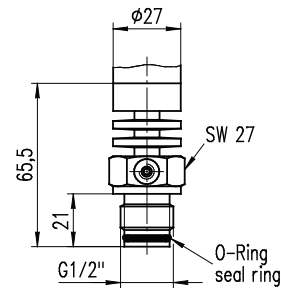
Prozessanschlüsse (weitere Ausführungen auf Anfrage)
process-connections (other constructions on request)



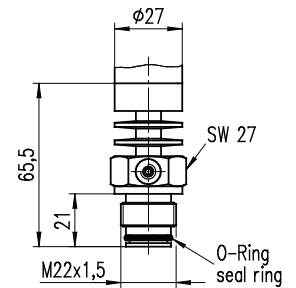
Einschraubgewinde EN 837
- G1/2" (G2)
external thread EN 837
- G1/2" (G2)



Einschraubgewinde ISO 228
- G1/2" (G6)
external thread ISO 228
- G1/2" (G6)

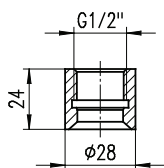


Einschraubgewinde ISO 228
- G1/2" - HT (G7)
external thread ISO 228
- G1/2" - HT (G7)

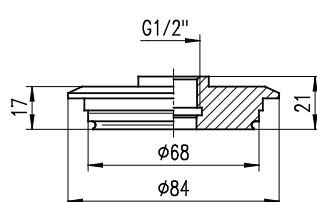


Einschraubgewinde DIN 13
- M22x1,5 - HT (M9)
external thread DIN 13
- M22x1,5 - HT (M9)

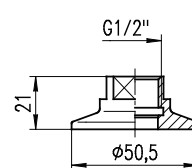
Adapter für Prozessanschluss G6 und G7
(Einschraubgewinde ISO 228 - G1/2")
adapters for process-connection G6 and G7
(external thread ISO 228 - G1/2")



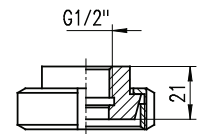
PEM1FPG6
Einschweißmuffe
welded socket



PVA6FPG6
VARIVENT-Flansch $\phi 68$
VARIVENT-flange $\phi 68$



PCL4FPG6
Clamp DIN 32676 - DN25-40



PNM2FPG6
Kegelstutzen DIN 11851 - DN25
conical nozzle DIN 11851 - DN25

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ORDER INFORMATION for TCF

Process connection

G2	EN837 G $\frac{1}{2}$ " screw-in thread, sensor inside (pressure gauge connection)
G6	G $\frac{1}{2}$ ", screw-in thread, flush-mounted with O-ring seal
G7	G $\frac{1}{2}$ ", screw-in thread, flush-mounted with O-ring seal in high-temperature version up to 200°C
S9	Alternative process connection available on request

Sensor measuring range / pressure type

E	1bar	max. overload 2bar
F	2bar	max. overload 4bar
J	5bar	max. overload 10bar
K	10bar	max. overload 20bar
L	20bar	max. overload 40bar
O	50bar	max. overload 100bar
Q	A	100bar max. overload 200bar
R	A	200bar max. overload 400bar
R	Relative pressure, overpressure (0...xxxbar)	
N	Relative pressure, overpressure (0...xxxbar)	
A	Absolute pressure	

Electrical connection

K	Cable screw connection M16x1.5
M	Round plug-in connector M12x1
R05	Reference cable 5m, permanently connected
R10	Reference cable 10m, permanently connected
R15	Reference cable 15m, permanently connected
R20	Reference cable 20m, permanently connected
R25	Reference cable 25m, permanently connected
RXX	Reference cable, length over 25m, please specify in plain text (max. 80m)

TCF050D



Nominal measurement area
if deviates from the sensor measurement area

ORDERING INFORMATION for TCF ACCESSORIES

Process connection adapter (please order separately)	Article number
G $\frac{1}{2}$ welded-in lug fro, 1,4404 (316L)	PEM1FPG6
Clamp DIN 32676, DN40, 1,4404 (316L)	PCL4FPG6
VARIVENT® flange Ø 68mm, DN40-125/PN40, 1,4404 (316L)	PVA6FPG6
Conical coupling with DIN 11851 groove union nut, DN40/PN40, 1,4404 (316L)	PMN4FPG6

Please observe the permissible nominal pressure of the process connection selected.
All specifications and certifications specified are only guaranteed when Hengesbach original components are used.
Our devices are subject to constant development; subject to technical modification.