Pressure Transmitter with field case
Model F-20, standard version
Model F-21, flush diaphragm

Applications

- Chemical industry
- Food & Beverage
- Pharmaceutical industry
- Rough environments
- Mechanical engineering

Special Features

- Pressure ranges from 0 ... 0.1 bar to 0 ... 1000 bar
- All important standard signal outputs
- Compact size and robust construction
- All stainless steel design
- Optimal electrical connection

Fig. left Pressure transmitter F-20, standard version
Fig. right Pressure transmitter F-21, flush diaphragm

Description

Sturdy and compact
Due to its special design, this field case pressure transmitter can be used in the most aggrevating environments. As it does not have any rough surfaces, it is ideally suited for use in the food and allied industries as well as in the pharmaceutical market.

Comfortable electrical connection
The sophisticated design of this pressure transmitter renders electrical connection very easy. It is realised by the chamfered design of the instrument's head as well as the internal spring clip terminals, which provide easy access. The requested cable length can be customised on site.

Variable Structure
The all stainless steel case complies with IP 67.
All wetted parts are made of stainless steel and are hermetically welded. Therefore there is no need for additional sealing material, which could possibly react with the pressure medium.

The high variety of pressure connections enables use in a wide range of applications.
The encapsulated electronics and the small construction size of the transmitter offer optimal protection from shock and vibration.
The transmitters with output signal 4 ... 20 mA provide a test circuit connection, which makes it possible to check the measuring circuit free of interruptions.

The model F-21 with flush diaphragm is particularly suitable for the measurement of viscous fluids or media containing particulates that may clog the pressure connection of standard industrial transmitters.

Data Sheets for related models:
Pressure transmitter for general applications; model S-1X; see data sheet PE 81.01
Pressure transmitter for food industry; model SA-11; see data sheet PE 81.80
Universal transmitter UniTrans; model UT-1; see data sheet PE 86.01

Specifications — Model F-20 / F-21

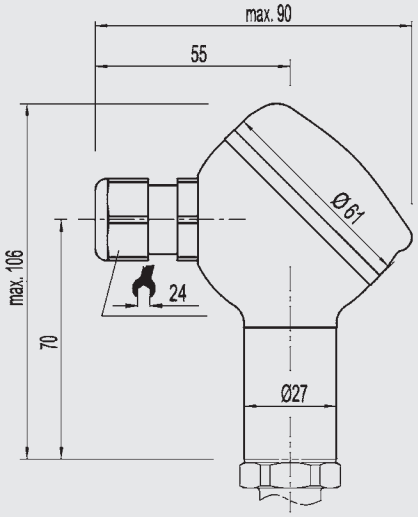
Pressure ranges *)	bar	0.1	0.16	0.25	0.4	0.6	1	1.6	2.5	4	6	10
Over pressure safety	bar	1	1.5	2	2	4	5	10	10	17	35	35
Burst pressure	bar	2	2	2.4	2.4	4.8	6	12	12	20.5	42	42
Pressure ranges *)	bar	16	25	40	60	100	160	250	400	600	1000 [1]	
Over pressure safety	bar	80	50	80	120	200	320	500	800	1200	1500	
Burst pressure	bar	96	96	400	550	800	1000	1200	1700 [2]	2400 [2]	3000	
	{Vacuum, gauge pressure, compound range, absolute pressure are available}											
	[1] Only model F-20.											
	[2] For model F-21: the value specified in the table applies only when sealing is realised with the sealing ring underneath the hex. Otherwise max. 1500 bar applies.											
Materials		(other materials see WIKA diaphragm seal program)										
■ Wetted parts												
» Model F-20 *)		Stainless steel										
» Model F-21		Stainless steel				O-ring: NBR {FPM/FKM}						
■ Case		Stainless steel										
■ Electrical connection		With internal spring clip terminal; cross section max. 2.5 mm², ground terminals										
		internal for brass nickel-plated and {stainless steel} and {stainless steel conduit}										
		threaded connection										
■ Internal transmission fluid [3]		Synthetic oil {Halocarbon oil for oxygen applications}										
	[3] Not for F-20 with pressure ranges > 25 bar											
Power supply U_B	U_B in VDC	$10 < U_B \leq 30$ (14 ... 30 with signal output 0 ... 10 V,										
		11 ... 30 with signal output 4 ... 20 mA)										
Signal output and	R_A in Ohm	4 ... 20 mA, 2-wire				$R_A \leq (U_B - 10\ V) / 0.02\ A$						
maximum ohmic load R_A		0 ... 20 mA, 3-wire				$R_A \leq (U_B - 3\ V) / 0.02\ A$						
		0 ... 5 V, 3-wire				$R_A > 5$ k						
		0 ... 10 V, 3-wire				$R_A > 10$ k						
Test circuit signal / max. load R_A		Only for instruments with 4 ... 20 mA signal output. $R_A < 15$ Ohm with 20 mA										
Adjustability zero/span	%	± 5 using potentiometers inside the instrument										
Response time (10 ... 90 %)	ms	≤ 1										
Insulation voltage	VDC	500										
Accuracy	% of span	≤ 0.25 {0.125} [4]				(BFSL)						
	% of span	≤ 0.5 {0.25} [4] [5]										
	[4] Accuracy { } for pressure ranges ≥ 0.25 bar											
	[5] Including non-linearity, hysteresis, zero point and full scale error (corresponds to error of measurement per IEC 61298-2)											
	Adjusted in vertical mounting position with lower pressure connection.											
Non-linearity	% of span	≤ 0.2				(BFSL) according to IEC 61298-2						
Non-repeatability	% of span	≤ 0.1										
1-year stability	% of span	≤ 0.2				(at reference conditions)						
Permissible temperature of												
■ Medium [6] *)		-30 ... +100 °C {-40 ... +125 °C} [7]						-22 ... +212 °F {-40 ... +257 °F} [7]				
■ Ambience [6]		-20 ... +80 °C {-30 ... +105 °C}						-4 ... +176 °F {-22 ... +221 °F}				
■ Storage [6]		-40 ... +100 °C						-40 ... +212 °F				
	[6] Also complies with EN 50178, Tab. 7, Operation (C) 4K4H, Storage (D) 1K4, Transport (E) 2K3											
	[7] Response time F-20: ≤10 ms at medium temperatures below <-30 °C (-22 °F) for pressure ranges up to 25 bar. Response time F-21: ≤ 10 ms at medium temperatures below <-30 °C (-22 °F).											
Compensated temp. range		0 ... +80 °C						32 ... +176 °F				
Temperature coefficients within compensated temp range												
■ Mean TC of zero	% of span	≤ 0.2 / 10 K (< 0.4 for pressure range ≤ 0.25 bar)										
■ Mean TC of range	% of span	≤ 0.2 / 10 K										
CE-conformitiy												
■ Pressure equipment directive		97/23/EC										
■ EMC directive		89/336/EEC emission (class B) and immunity according to EN 61 326										
Shock resistance	g	600 according to IEC 60068-2-27 (mechanical shock)										
Vibration resistance	g	10 according to IEC 60068-2-6 (vibration under resonance)										

Specifications		Model F-20 / F-21
Wiring protection		
■ Overvoltage protection	VDC	36
■ Short-circuit proofness		Sig+ towards UB-
■ Reverse polarity protection		UB+ towards UB-
Weight	kg	Approx. 0.35

*) In an oxygen version model F-21 is not available. In an oxygen version model F-20 is only available in gauge pressure ranges ≥ 0.25 bar with media temperatures between -20 … +60 °C / -4 … +140 °F and using stainless steel or Elgiloy® wetted parts.
{ } Items in curved brackets are optional extras for additional price

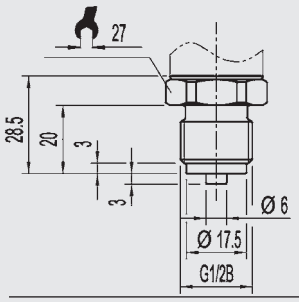
Dimensions in mm

Electrical connections

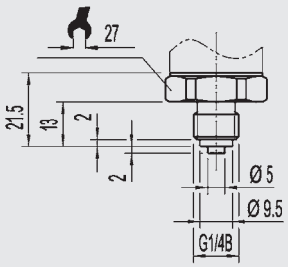


Pressure connections F-20

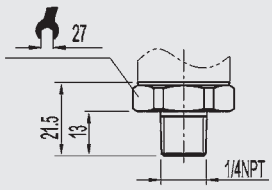
G 1/2
EN 837



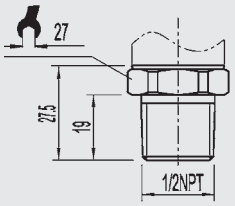
G 1/4
EN 837



1/4 NPT
per „Nominal size for US standard tapered pipe thread NPT“



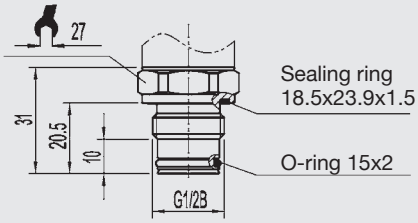
1/2 NPT
per „Nominal size for US standard tapered pipe thread NPT“



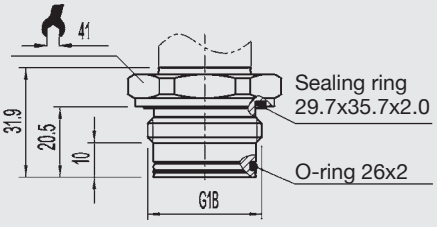
Others on request

Pressure connections F-21

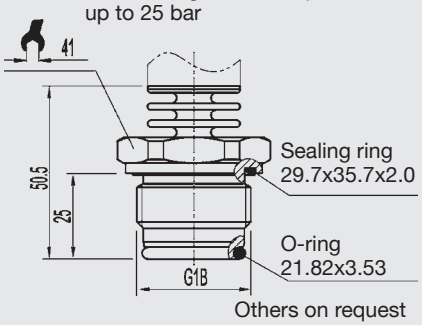
G 1/2 B
0 ... 2.5 bis 0 ... 600 bar



G 1B
0 ... 0.1 bis 0 ... 1.6 bar



G 1B
acc. EHEDG *)
with cooling element, up to 150 °C
up to 25 bar



Others on request

For installation and safety instructions see the operating instructions for this product.
For tapped holes and welding sockets please see Technical Information IN 00.14 for download at www.wika.de

*) European Hygienic Equipment Design Group

Wiring details

	Field case (with internal spring clip terminals)				
					
2-wire	UB = 1	0V = 2	Test+ = 3	Test- = 4	screen = 5
3-wire	UB = 1	0V = 2	Sig+ = 3	screen = 5	
Wire gauge	7-13 mm				
Ingress protection per IEC 60 529	IP 67				
	The ingress protection classes specified only apply while the pressure transmitter is connected with female connectors that provide the corresponding ingress protection.				

Field casing for applications in hazardous environments

Fig. Model IS-2X-F see data sheet PE 81.50

Further information

You can obtain further information (data sheets, instructions, etc.) via our internet address www.wika.de

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