



TRONIC LINE

Pressure Transmitter

with PROFIBUS DP-Interface
for Precision Measurement

Standard Series • Model D-10-7
Flush Diaphragm Series • Model D-11-7

- PROFIBUS DP-Interface (EN 50 170)
- Intelligent sensor with calibration- and diagnostic services
- Baud rate up to 12 MBaud
- Accuracy 0.25 %, (optionally 0.1 %) Temperature Drift included
- Pressure ranges: 0 ... 250 mbar up to 0 ... 1,000 bar
- Compact size
- Hermetically welded High Performance Sensor Technology
- Excellent Long Term Stability and Repeatability



Description

The heart of the PROFIBUS-DP transmitter is a sensor head with integrated dynamic temperature compensation. Within the temperature range of 0 to +50 °C (+32 to +122 °F) it has an accuracy up to 0.1% without any additional temperature failure.

The standard measuring temperature range is -20 ... +80 °C (-4 ... +176 °F). With measuring ranges of 0 ... 250 mbar up to 0 ... 1,000 bar the transmitters can be used in a wide range of applications. Due to the completely welded, in-house manufactured thin-film and piezo sensors there is absolutely no need for extra sealing materials.

The WIKA-made sensors are already well known for their high resistance against load changes, pressure peaks and good reproducibility. Adequate EMC-procedures in combination with the integrated galvanic separation equipment guarantee a high grade of data security even at transmission rates up to 12 Mbaud.

Several diagnosis routines as well as the determination of the media temperature can be carried out via PROFIBUS DP services in compliance with to EN 50 170.

Locking plugs M 12 x 1 per IEC 60 947-5-2 for the data transmission (5-pins) and power supply (4-pins) up to IP 65 guarantee a simple and secure connection to the bus. A shock and vibration resistance level in compliance with the industrial standards guarantee an optimum operation for fieldbus applications in mechanical engineering, automation and test benches.



Model D-10-7



Model D-11-7

Supplementary data sheet:

- Pressure Transmitter with CANopen-Interface (see data sheet PE 81.31)
- Pressure Transmitter with CAN-Interface (see data sheet PE 81.34)
- Pressure Transmitter for Precision Measurement (see data sheet PE 81.32)

Model D-10-9

Model D-10-8

Model P-10 and D-10

Specifications		Model D-10-7 and Model D-11-7																		
Pressure ranges	bar	0.25	0.4	0.6	1	1.6	2.5	4	6	10	16	25	40	60	100	160	250	400	600	1000
Over pressure safety	bar	2	2	4	5	10	10	17	35	35	80	50	80	120	200	320	500	800	1200	1500
Burst pressure	bar	2	2	4	5	10	10	17	35	35	80	250	400	800	800	1000	1200	1700	2400	3000
		{absolute pressure: 0 ... 0.25 bar abs to 0 ... 16 bar abs}																		
		{special pressure range 800 ... 1200 mbar abs}																		
Pressure connection																				
• Model D-10-7		G ½ B per DIN 16 288 (G ¼ B, M 12 x 1.5, M 18 x 1.5 female / G ¼ male)																		
		{other connections on request}																		
• Model D-11-7		G1 B flush diaphragm with o-ring (ranges: 0 ... 0,25 up to 0 ... 1,6 bar)																		
		G ½ B flush diaphragm with o-ring (ranges: 0 ... 2,5 up to 0 ... 600 bar)																		
		{weld-on socket for flush diaphragm units with connection G ½ B, G 1 B}																		
Materials																				
• wetted parts		stainless steel 1.4571, 2.4711 (> 25 bar)																		
		(other materials see WIKA chemical seal program)																		
• o-ring		Only for flush diaphragm models: NBR {EPDM, Viton}																		
• case		stainless steel 1.4301																		
internal transmission fluid		Synthetical oil (only for pressure ranges up to 0 ... 16 bar or flush diaphragm units)																		
		{halocarbon oil for oxygen applications ¹⁾ }																		
		{listed by FDA for food industry}																		
Power supply U _R	DC V	10 ... 30																		
Power consumption	W	1.7																		
Output signal		PROFIBUS DP protocol in compliance with EN 50 170 / DIN 19 245																		
Sensor services		2-byte error coding for error of sensor or failure of electronics, min./max-value excess of temperature and pressure																		
Termination	Ω	internal termination can be activated via integrated DIP-switch																		
Sample rate	Hz	≤ 100																		
Warm-up time	min	< 10																		
Accuracy *	% of span	≤ 0.25 {0.10} within the temperature range 0 ... +50 °C																		
(included calibration error with zero, and span, hysteresis and linearity																				
Hysteresis	% of span	≤ 0.10 {0.04}																		
Repeatability	% of span	≤ 0.05 {0.03}																		
1-year stability	% of span	≤ 0.10 (at reference conditions)																		
Permissible temperature of																				
• medium	°C	-20 ... +80										-4 ... +176 °F								
• ambient	°C	-20 ... +80										-4 ... +158 °F								
• storage	°C	-40 ... +85										-40 ... +185 °F								
Compensated temp. range	°C	-20 ... +80										-4 ... +176 °F								
Temperature coefficients in compensated temp range:																				
• mean TC of zero	% of span/10K	≤ 0.20 {0.10}																		
• mean TC of range	% of span/10K	≤ 0.20 {0.10}																		
		(the temperature related deviations in the range 0 ... +50 °C (32 ... +122 °F) are already included in the accuracy)																		
CE -conformity		Interference emission and immunity see EN 61 326, declaration of conformity on request																		
Shock resistance	g	100 according to IEC 770 (mechanical shock)																		
Vibration resistance	g	5 according to IEC 770 (vibration under resonance)																		
Electrical connection per IEC 60 947-5-2		power supply: 5-pin locking plug male M 12 x 1 PROFIBUS DP: 5-pin locking plug female, acc. to general PROFIBUS connection with inverted mechanical coding M 12 x 1																		
Wiring protection		protected against polarity crossing and short circuiting																		
Degree of protection per EN 60 529 / IEC 529		IP 65																		
Weight	kg	approx. 0.4																		
Dimensions		see drawings																		
Items in curved brackets { } are optional extras for additional price.																				
Detailed information about interface services as well as about input and output data are given in the manual.																				

* calibrated in vertical mounting position with the pressure connection facing down

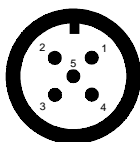
1) The oxygen version must not be operated under medium temperatures higher than 60 °C (140 °F)
The oxygen version cannot be manufactured for negative pressure ranges and for absolute pressure ranges < 1 bar abs

Device profile of D-10-7

#Profibus_DP		MaxTsdr_93.75	= 60
; Unit-Definition-List:		MaxTsdr_187.5	= 60
GSD_Revision ;	= 1	MaxTsdr_500	= 100
Vendor_Name	= „WIKÄ“	MaxTsdr_1.5M	= 150
Model_Name	= „D-1*-7“	MaxTsdr_3M	= 250
Revision	= „Rev 0.1“	MaxTsdr_6M	= 450
Ident_Number	= 0x04A5	MaxTsdr_12M	= 800
Protocol_Ident	= 0	24V_Pins	= 0
Station_Type	= 0	Implementation_Type	= „SPC3“
FMS_supp	= 1	Freeze_Mode_supp	= 0
Hardware_Release	= „01“	Sync_Mode_supp	= 0
Software_Release	= „01“	Auto_Baud_supp	= 1
9.6_supp	= 1	Set_Slave_Add_supp	= 0
19.2_supp	= 1	Min_Slave_Intervall	= 1
93.75_supp	= 1	Modular_Station	= 0
187.5_supp	= 1	Max_User_Prm_Data_Len	= 0
500_supp	= 1	Fail_Safe	= 0
1.5M_supp	= 1	Slave_Family	= 0
3M_supp	= 1	Max_Diag_Data_Len	= 16
6M_supp	= 1	;ORDERNUMBER	= „“
12M_supp	= 1	Module	= „8 Byte In, 3 Byte Out“ 0x17,0x22
MaxTsdr_9.6	= 60	1	
MaxTsdr_19.2	= 60	EndModule	

Pin configuration per IEC 60 947-5-2

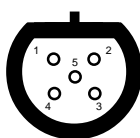
5-pin locking plug
male, M 12 x 1



Signals power supply

- 1 - U_{B+}
- 2 -
- 3 - U_{B-}
- 4 -
- 5 -

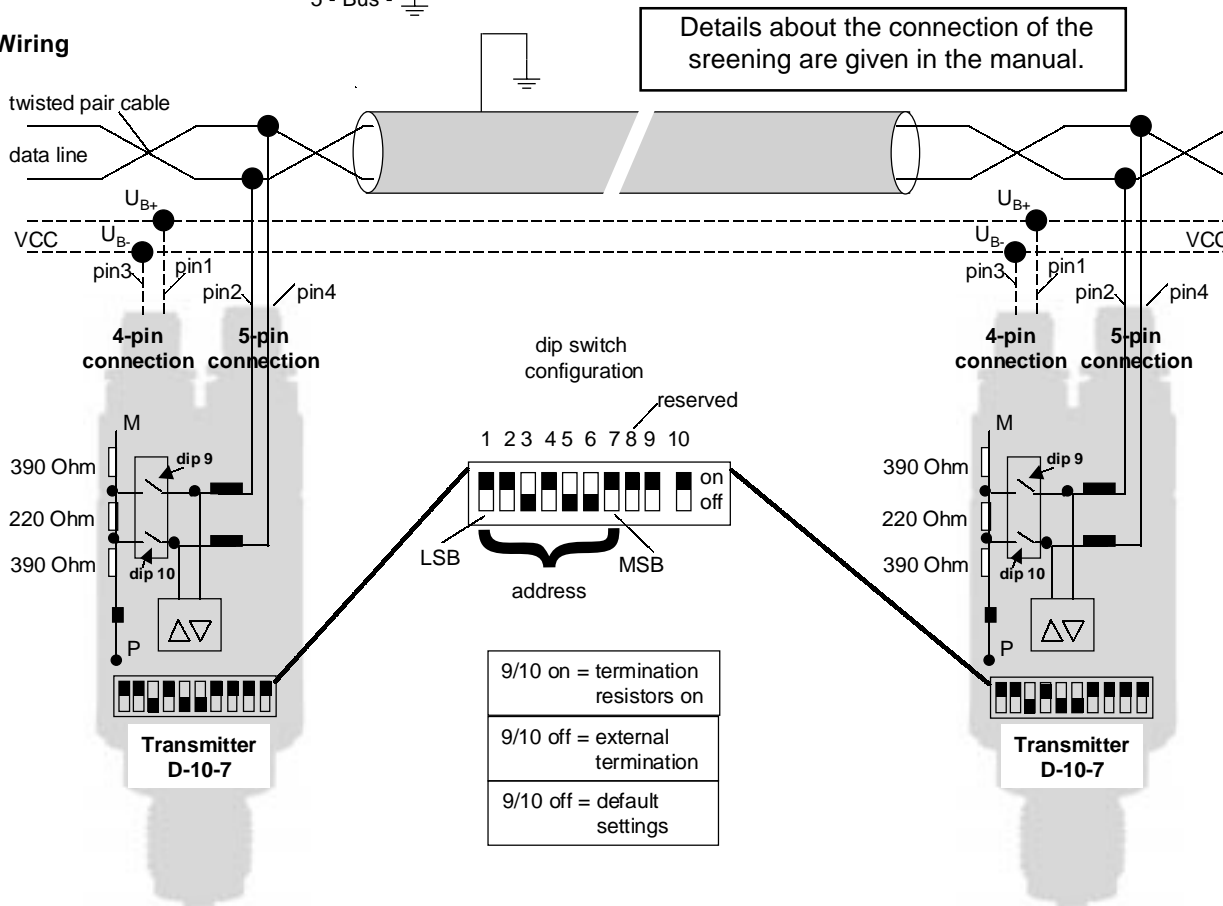
5-pin locking plug female acc. to general PROFIBUS
connection with inverted mechanical coding, M 12 x 1



Signals PROFIBUS DP

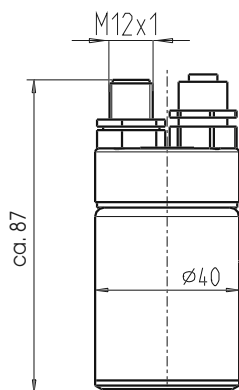
- 1 -
- 2 - Signal A / RxD/TxD-P
- 3 -
- 4 - Signal B / RxD/TxD-N
- 5 - Bus - \perp

Wiring

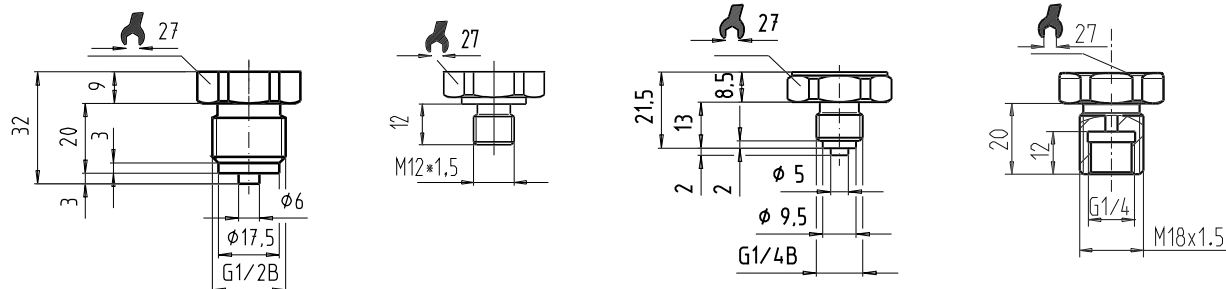


Dimensions in mm

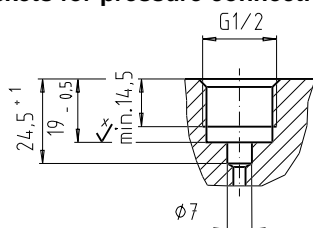
5-pin locking plug male, M 12 x 1
5-pin locking plug female, M 12 x 1



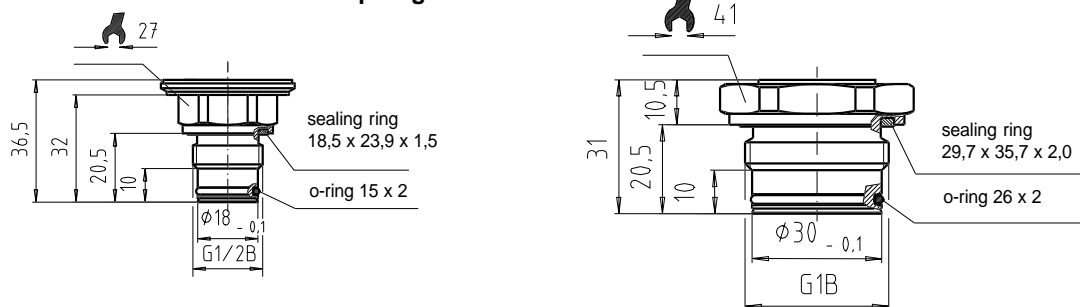
Pressure connection



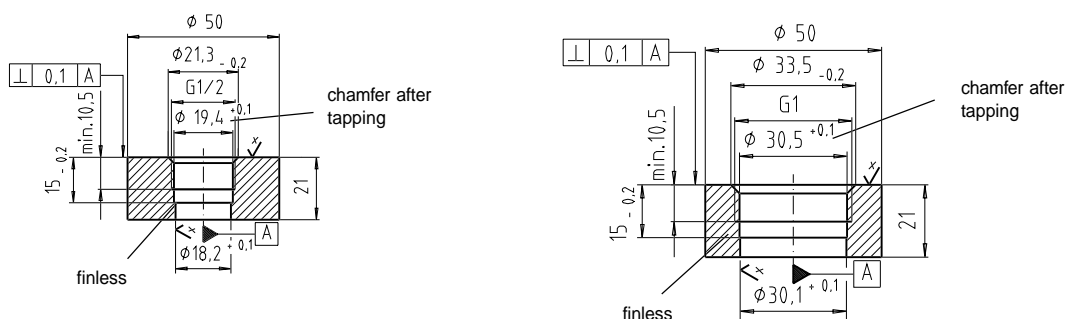
Sockets for pressure connections



Pressure connection with flush diaphragm



Weld-on adaptors resp. sockets for flush diaphragm pressure connection



Specifications and dimensions given in this document represent the state of engineering at the time of printing. Modifications may be carried out and materials specified may be replaced by others without prior notice.



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