

Differential Pressure Transmitter Model 891.34.2189

WIKA Data Sheet PV 17.18



DELTA-trans

Applications

- Suitable for all gaseous and liquid media that will not obstruct the pressure system
- Heating, climatic, ventilating, dust removing technology
- Technical building equipment, filter plants, drinking and service water treatment
- Monitoring and control of pumps in pressure boosting and fire extinguishing plants

Special Features

- Differential pressure measuring ranges from 0 ... 160 mbar
- High working pressure (static pressure) up to 25 bar
- Overpressure safety either side up to 25 bar
- Solid case construction for protection against external mechanical effects
- Integrated pressure equalising valve (option)



DELTA-trans with integrated 3½-digit LCD-display and compression fitting with ferrule (option)

Description

The differential pressure transmitters DELTA-trans are particularly intended for the measurement of very low differential pressures with high demands on one-sided overload.

Standard output signals of 4 ... 20 mA (2-wire system) or 0 ... 20 mA (3-wire system) can be provided from a non-stabilised DC supply of 10 ... 30 V.

Due to the solid and compact design of the instrument, the operation requires almost no maintenance even under arduous industrial service conditions.

As an option, the differential pressure transmitter DELTA-trans (in 2-wire design; 4 ... 20 mA) may be supplied with an integrated 3½-digit LCD-display.

Electrical connection is made by means of a cable box with cable gland M20 x 1.5.

Specifications

DELTA-trans Model 891.34.2189

Differential pressure range	bar	0 ... 0.16 to 0 ... 25
Max. working pressure (stat.)	bar	25
Overpressure safety	bar	Either side max. 25
Process connections	(wetted)	2x G ¼ female, lower mount (LM), in-line, axle base 26 mm (option: other pressure connections male or female or compression fitting with ferrule for pipe Ø 6, 8 or 10 mm respectively)
Media chamber	(wetted)	GD-AISI 12 (Cu) 3.2982, black lacquered (option GD-AISI 12 (Cu) HART-COAT-surface protection or stainless steel)
Press. element compress. spring	(wetted)	Stainless steel 1.4310 or FD SiCr EN 10270-2
Press. element separ. diaphragm	(wetted)	FPM/FKM fabric back stay (option: NBR)
Links	(wetted)	Stainless steel 1.4305, FPM/FKM (option: NBR)
Sealings	(wetted)	FPM/FKM (option: NBR)
Press. equalising valve (option)	(wetted)	Stainless steel and FPM/FKM
4-way valve manifold (option)	(wetted)	Cu-alloy or stainless steel, 1x pressure equalising valve, 2x gauge valve, 1x valve for purging or air bleeding
Power supply U_B	DC V	$10 < U_B \leq 30$ (option: LCD-display $14 < U_B \leq 30$)
Permissible residual ripple	% of span / 10 V	≤ 0.1
Supply voltage effect	% ss	≤ 10
Output signal and permissible max. load R_A		4 ... 20 mA, 2-wire system $R_A \leq (U_B - 10 \text{ V}) / 0.02 \text{ A}$ with R_A in Ohm and U_B in Volt 0 ... 20 mA, 3-wire system $R_A \leq (U_B - 10 \text{ V}) / 0.02 \text{ A}$ with R_A in Ohm and U_B in Volt
Effect of load	% of span	≤ 0.1
Response time	s	Approx. 1 (approx. 50 ms option)
Output signal adjustment		
■ Zero point, electrical	% of span	± 15
■ Span, electrical	% of span	± 30
Linearity	% of span	2.5 (limit point calibration)
(including hysteresis)		Option: 1.6 (limit point calibration)
Permissible		
■ Medium temperature	°C	+80 max.
■ Ambient temperature	°C	-10 ... +60 (option LCD-display 0 ... +50)
Compensated temperat. range	°C	-10 ... +60 (option LCD-display 0 ... +50)
Temperature coefficients in compensated temperat. range		
■ average T_K of zero point	% of span / 10 K	≤ 0.4
■ average T_K of span	% of span / 10 K	≤ 0.4
LCD-display (option)		Only with electrical output signal 4 ... 20 mA, 2-wire system
■ Voltage load	DC V	3.5
■ Display		3½-digit, height 12.7 mm
■ Ambient temperature	°C	0 ... +50
■ Storage temperature	°C	-10 ... +80
Wiring		Terminal box (screw terminals up to 2.5 mm ²)
Wiring protection		Protected against reverse polarity and overvoltage
EMC (electromagnetic compatibility)		Interference emission per EN 50 081 - 1 (March 93) and EN 50 081 - 2 (March 94), Interference immunity per EN 50 082 - 2 (March 95)
Ingress protection		IP 54 per EN 60 529 / IEC 529 (option: IP 65)
Weight	kg	Approx. 1.3
Dimensions	mm	See drawings

Additional or deviating specifications

Pressure ranges	bar	0 ... 0.25 to 0 ... 10		
Output signal		4 ... 20 mA, 2-wire or 0 ... 20 mA, 3-wire, current limit I < 32 mA		
Permissible ambient temperatur	°C	-10 ... +70		
EMC (electromagnetic compatibility)		Interference emission per EN 50 081 - 1 (March 93) and EN 50 081 - 2 (March 94), Interference immunity per EN 50 082 - 2 (March 95)		
ESD	kV	±8	contact discharge	IEC 1000-4-2
Electromagnetic fields	V/m	10	80 % AM, 1 kHz, 0.01 ... 1000 MHz	IEC 1000-4-3
Burst	kV	±2	coupling clamp	IEC 1000-4-4
Conducted HF-disturbance	V	3	80 % AM, 1 kHz, 0.01 ... 1000 MHz	IEC 1000-4-6
Surge	kV	±0.5	symmetrically	IEC 1000-4-5
		±1	asymmetrically, R _i = 42 Ohm	
		±1	symmetrically	
Conducted NF-disturbance	V _{eff.}	3	asymmetrically, R _i = 42 Ohm, with surge protection only e.g. MM-DS/x-NFE(L), firm Dehn & Söhne, or equivalent	IEC 945
			0.05 ... 10 kHz	
Vibration test Fc				
2 ... 25 Hz, ±1.6 mm	%	< 2.5	error	IEC 68-2-6
25 ... 100 Hz, 4 g	%	< 2.5	error	

Design and operating principle

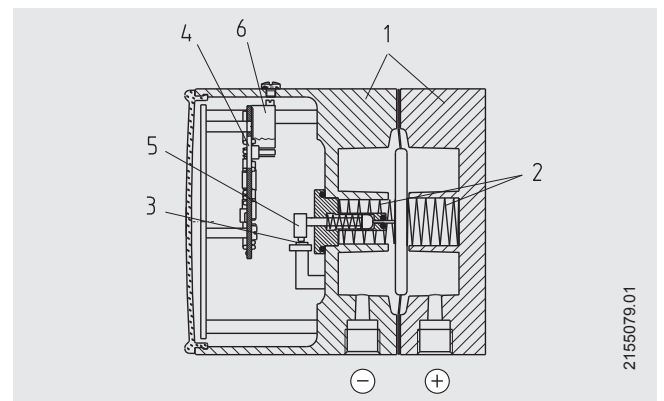
The differential pressure transmitter consists mainly of a mechanical measuring system (1) with elastic pressure element (2), magnetic-field-dependent sensor (3) with signal processing board (4) and case with the connecting parts for the electronics.

A magnet (5) rigidly coupled to the pressure element influences the electromagnetic field of the HALL sensor. The resulting signal is amplified to a standard output signal via the signal processing board.

For recalibration, zero and span can be adjusted by means of easily accessible potentiometers (6).¹⁾

Pressure entries identified,
⊕ high pressure, ⊖ low pressure

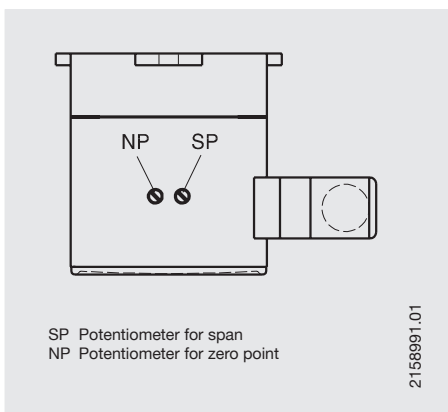
Illustration of operating principle



1) Restriction: If an LCD display is integrated, it must be noted that the zero point and span adjustment is to be used only for recalibration of the measuring range. Changes of the measuring range made by the user by means of the zero and span adjustment will not be taken into account by the display. If zero / span adjustments are to be applied during use, we recommend a display 0 ... 100 %.

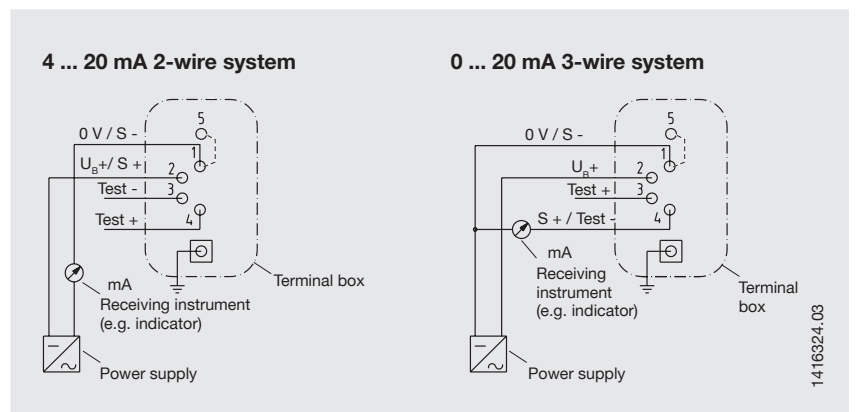
Position of the potentiometer

The potentiometers are accessible after unscrewing the screw plugs in the top of the casing.



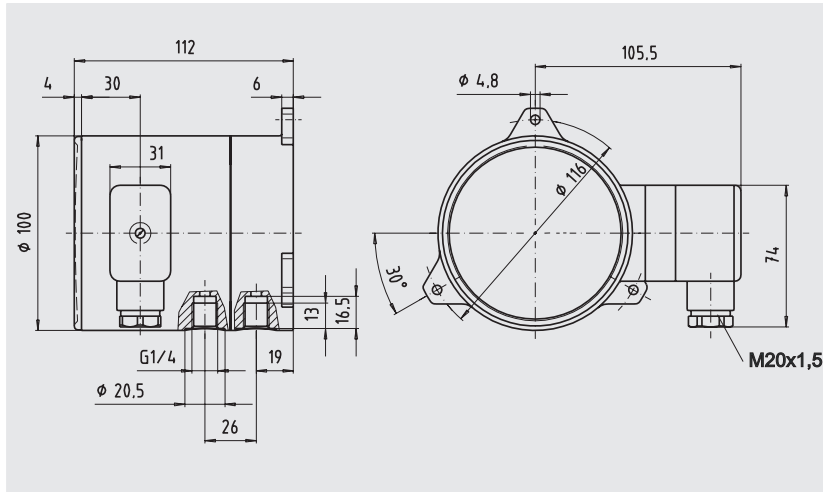
Connection details

The terminal 1 and 5 are bridged internally in the terminal box providing two terminals for the 0 V / S - connection.

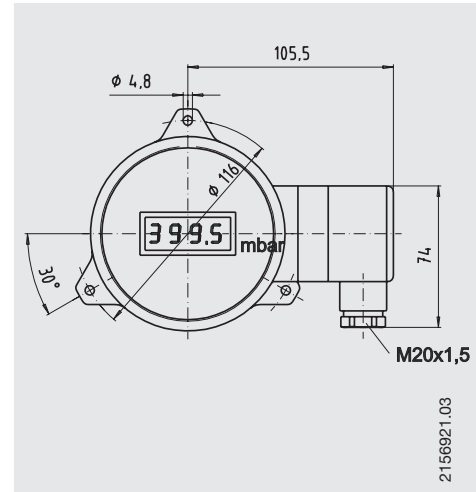


Dimensions in mm

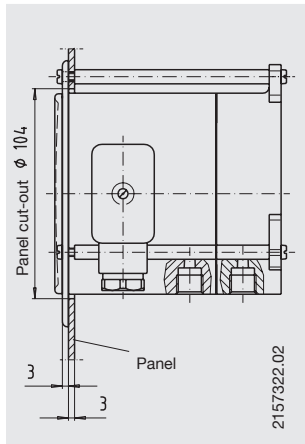
Standard version



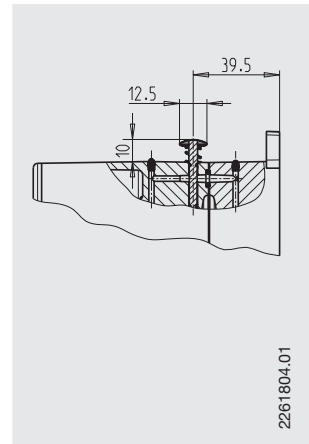
Option LCD-display



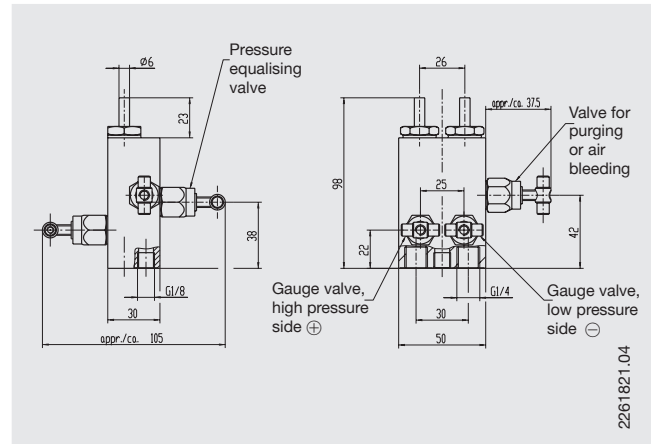
Option Panel mounting



Option Integrated pressure equalising valve



Option 4-way valve manifold



Ordering information

Model / Measuring range / Output signal / Process connection / Material of media chamber / Material of separation diaphragm and sealings / Options

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



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