



Flush Diaphragm Pressure Transmitters

Type S-11 - Vacuum to 8000 PSI

Tronic

(Previous model numbers 891.13.520, 891.23.520, 891.13.522, 891.23.522)

- Non-clogging stainless steel flat diaphragm
- Thirty standard ranges available from stock
- Positive ranges start at 0 - 50 inches water column
- 4-20 mA 2-wire output signal, others available
- Highly resistant to pressure spikes and vibration
- Stainless steel case and wetted parts



WIKA S-11 flush diaphragm pressure transmitters and transducers are precision engineered for industrial pressure measurement of slurry, sludge, viscous, or crystallizing media. Each unit undergoes extensive quality control testing and calibration to achieve an accuracy $\leq 0.25\%$ full scale. The printed circuit boards use state-of-the-art surface mount technology and are potted in silicone gel for protection against mechanical shock, vibration, and moisture. Each unit is temperature compensated to assure accuracy and long term stability when exposed to severe ambient temperature variations.

Flush diaphragm transmitters are suitable for the measurement of viscous fluids of media containing solids that may clog the pressure port of standard industrial transmitters. The compact design provides a rugged transmitter suitable for many applications in wastewater treatment, pulp and paper stock measurement, tank level measurement, and many process control operations.

STANDARD RANGES

RANGE	MAXIMUM*	BURST**	RANGE	MAXIMUM*	BURST**
30"-0 HgVac ¹	70 PSI	70 PSI	0-100 PSI (A)	500 PSI	500 PSI
30"-0-30 PSI	250 PSI	250 PSI	0-160 PSI	500 PSI	500 PSI
30"-0-60 PSI	500 PSI	500 PSI	0-200 PSI	500 PSI	500 PSI
30"-0-100 PSI	500 PSI	500 PSI	0-250 PSI (A)	1100 PSI	1100 PSI
30"-0-160 PSI	500 PSI	500 PSI	0-300 PSI	1100 PSI	1100 PSI
30"-0-200 PSI	1100 PSI	1100 PSI	0-400 PSI	1100 PSI	3600 PSI
0-50 INWC ¹	30 PSI	30 PSI	0-500 PSI (A)	1100 PSI	5800 PSI
0-100 INWC ¹	30 PSI	30 PSI	0-600 PSI	1100 PSI	5800 PSI
0-5 PSI ¹	30 PSI	30 PSI	0-750 PSI	1100 PSI	5800 PSI
0-10 PSI ¹	60 PSI	60 PSI	0-1000 PSI	1750 PSI	8000 PSI
0-15 PSI (A) ¹	70 PSI	70 PSI	0-1500 PSI	2900 PSI	11,600 PSI
0-25 PSI (A) ¹	145 PSI	145 PSI	0-2000 PSI	4600 PSI	14,500 PSI
0-30 PSI ¹	145 PSI	145 PSI	0-3000 PSI	4600 PSI	14,500 PSI
0-50 PSI (A)	250 PSI	250 PSI	0-5000 PSI	11,600 PSI	25,000 PSI
0-60 PSI	250 PSI	250 PSI	0-8000 PSI	17,400 PSI	35,000 PSI

Notes:

¹ Pressure ranges from 30" HgVac to 30 PSI are equipped with G1B process connections. See specifications for details.

* Maximum pressure, causing no permanent changes in specifications but may lead to adjustable zero and span shifts.

** Burst pressure, leading to destruction of transmitter.

(A) Standard ranges available with absolute pressure reference.

APE S-11
(APE 81.02)

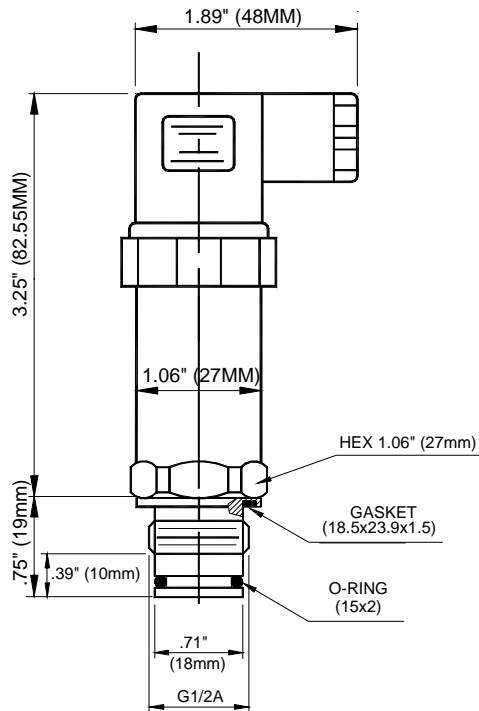
Specifications	Units	Type S-11
Sensing principle Pressure ranges Pressure reference	PSI	piezoresistive up to 300 PSI, thin film \geq 400 PSI standard ranges as listed {custom ranges available} relative pressure {absolute reference to 500 PSIA}
Pressure connection for ranges 50 INWC to 30 PSI: for ranges 50 PSI to 8000 PSI: Material: -wetted parts -O-ring and gasket -case -internal transmitting liquid		G1B flush diaphragm with O-ring G1/2B flush diaphragm with O-ring 1.4571 stainless steel (316 ss) {Teflon coated} {Hastelloy C-4} Buna-N {Viton} {Teflon} 1.4301 stainless steel (304 ss) silicone oil {halocarbon oil for oxygen service} {vegetable oil for food service}
Supply voltage U_B Output and load limitations: Output signal and maximum load Response time (10...90%) zero and span adjustment	DC Volts milliseconds %	10 - 30 (14 - 30 for 0 - 10 V output signal) 4-20 mA 2-wire system $R_A[\text{Ohm}] \leq (U_B[\text{V}] - 10\text{V}) / 0.02 \text{ A}$ {0-20 mA 3-wire system} $R_A[\text{Ohm}] \leq (U_B[\text{V}] - 10\text{V}) / 0.02 \text{ A}$ {0-5 V 3-wire system} $R_A > 5 \text{ kOhm (min)}$ {0-10 V 3-wire system} $R_A > 10 \text{ kOhm (min)}$ {other signal outputs available} ≤ 1 ± 10
Accuracy (linearity, including hysteresis and repeatability) Repeatability Hysteresis 1 year stability	% of span % of span % of span	$\leq 0.25\%$ (B.F.S.L.) {0.125%} ¹ (Calibrated in vertical mounting position with process connection down) ≤ 0.05 ≤ 0.1 ≤ 0.2 (under reference conditions)
Temperature Media Ambient Storage Compensated range Temperature error (reference 70°F) on zero point on span	 % of span	Standard with cooling extension ² -22°F to +212°F (-30°C to +100°C) {+14°F to +300°F (-10°C to +150°C)} -4°F to +176°F (-20°C to +80°C) {+14°F to +176°F (-10°C to +80°C)} -40°F to +212°F (-40°C to +100°C) {+14°F to +212°F (-10°C to +100°C)} +32°F to +176°F (0°C to +80°C) ≤ 0.2 per 18°F (10°C) change (≤ 0.4 per 18°F for ranges < 100 INWC) ≤ 0.2 per 18°F (10°C) change
CE conformity		Interference emission per EN 50 081-1 (March 1993) and EN50 081-2 (March 94), Interference immunity per EN 50 082-2 (March 1995)
Shock resistance Vibration resistance	g g	1000 per IEC 770 for mechanical shock 50 per IEC 770 for vibration under resonance conditions
Electrical connection Weight Dimensions Electrical protection Environmental protection	 lb	4-pin L-plug per DIN 43 650 with solderless screw terminal and PG 13 fitting {4- pin L-plug with 1/2" female conduit opening, 5 foot vented flying lead, 4 or 6 pin MIL plug} {custom plug and cable assemblies} approximately 0.4 (0.2 Kg) see drawing protected against reverse polarity, short circuit, and overvoltage IP 65 (NEMA 5) with 4 pin L-plug, MIL plugs {IP 67 (NEMA 4) with 5 foot flying lead} {IP 68 (NEMA 6) submersible with cable and special case}

Notes: Items in curved brackets { } are available as special order options.

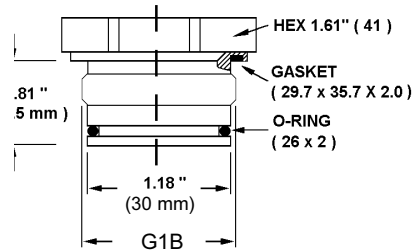
¹Improved accuracy available with pressure ranges \geq 100 INWC

²includes vegetable oil fill liquid. Lower temperatures to -22°F are available using a silicone oil fill.

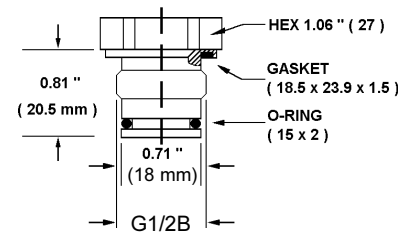
Process connections



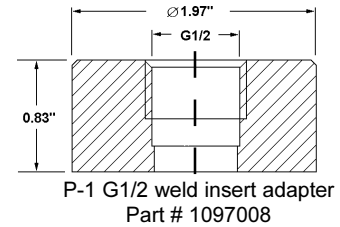
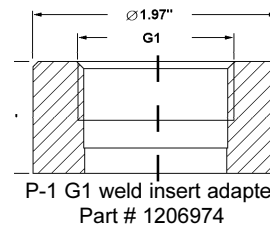
for ranges ≤ 30 PSI



for ranges
50 PSI to 8000 PSI



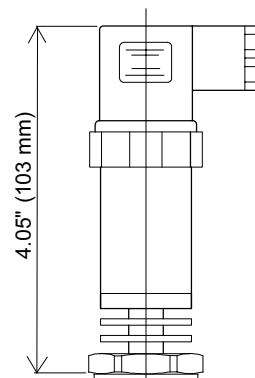
Matching P-1 weld insert adapters



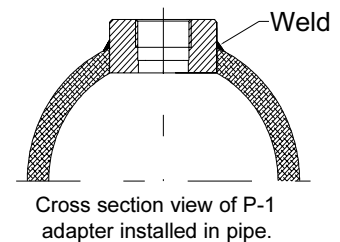
Key	Description	Dimension
A	Standard case	3.25" (82mm)
	Long case	4.33" (110mm)

Cooling extension adds .79" (20mm) to dimension A

Case length supplied depends upon special order options.



S-11-C with optional
integral cooling extension
for media to 300°F



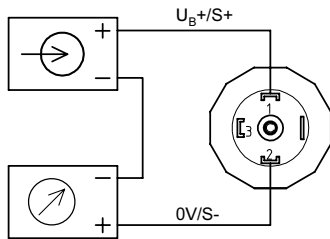
Electrical connections

	Standard	Attachable LCD Display	Vented cable with free ends	Snap Cap™ with terminal block	MIL plug
Type	DIN 43 650 plug	Attachable LCD Display	Vented cable with free ends	Snap Cap™ with terminal block	MIL plug
Protection	IP 65 / NEMA 5	IP 65 / NEMA 5	IP 67 / NEMA 4	IP 67 / NEMA 4	IP 65 / NEMA 5
Description and part numbers	PG9 cable gland (standard) Part # 1006711 1/2" NPT female conduit opening Part # 1632159	Loop powered programmable 4-20 mA 3.5 digit Part # 4210069	5 foot - #9744479 10 foot - #9838915 20 foot - #4239904 30 foot - #4239921 50 foot - #4293348	PG 11 cable gland, 4-20 mA Part # 2130017 1/2 NPT female conduit, 4-20 mA Part # 4260261	4 - pin PT02E-8-4P Part # 8990935 6 - pin PT02E-10-6P Part # 9744460

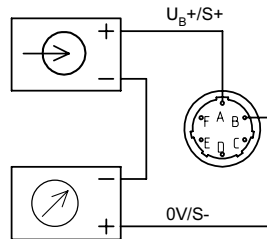
Wiring

2-wire system

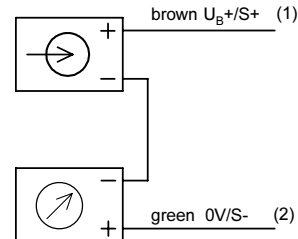
DIN 43 650 plug



MIL-plug PT 02 E-10-6P

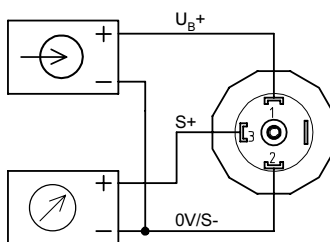


flying lead

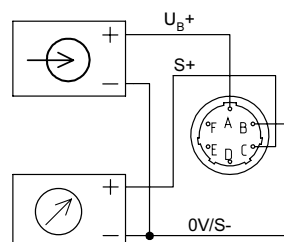


3-wire system

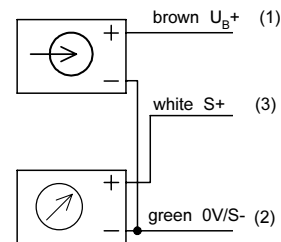
DIN 43 650 plug



MIL-plug PT 02 E-10-6P



flying lead



2-wire system

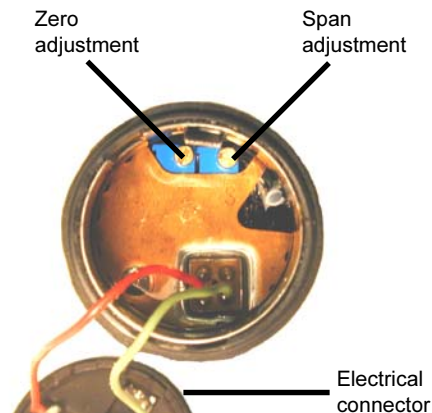
Wire	Coding	DIN Plug	Wire Color
Supply +	$U_B + / S +$	pin 1	brown
Signal -	$0V / S -$	pin 2	green

3-wire system

Wire	Coding	DIN Plug	Wire Color
Supply +	$U_B +$	pin 1	brown
Supply - Signal -	$0V / S -$	pin 2	green
Signal +	$S +$	pin 3	white

Calibration

Remove the electrical connector and retaining ring. Carefully pull the connector plate from the transmitter body. Attach a meter and power supply to the electrical connector. For gauge ranges the zero potentiometer can be adjusted to produce a null output when no pressure is applied. Span adjustment requires the use of a reference pressure source. Compound and absolute ranges require a vacuum and pressure source. When calibrated, reassemble connector, taking care not to pinch the wires between the case and connector plate.



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Total Performance™

Ordering Information:

State computer part number (if available) / type number / range / output / process connection / electrical connection / other required options.

Specifications given in this data sheet represent the state of engineering at the time of printing. Modifications may take place and the specified materials may change without prior notice

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