

SERIES W

Liquid Differential Pressure Transmitters

DESCRIPTION

The Series W pressure transmitters are designed to measure low differential pressures of liquids or gases. A wide selection of standard pressure ranges and electrical ratings is available.

These transmitters feature: no moving parts to wear out, proven long term stability of piezoresistive devices, only 316 stainless steel in contact with the fluid, and all welded construction.

Series W transmitters are an excellent choice for many HVAC, process and automation monitoring requirements. Typical applications include measurement of differential pressure across flow elements, heat exchangers, pumps, filters, liquid level monitoring and other demanding differential pressure measurement and control applications.

The transmitters are housed in a compact heavy duty gasketed cast aluminum enclosure designed to IP 65 of IEC 529 standards and NEMA 4. The die cast aluminum enclosure incorporates a recessed neoprene gasket to prevent ingress of moisture or dust. Wall mounting holes are enclosed in the cast aluminum box and concealed by the cover. The wall mounting holes and the cover attaching screws are outside the gasketed area. Access to the electrical terminals are made through knockouts on the front of the box. A choice of one or two knockouts and three hole sizes is available to accommodate usage of 1/2" conduit or metric sizes PG11 and PG13.

Pluggable terminal block connectors are provided with wire protection and captive terminal screws.

The Series W includes four models: Model W10, Model W20, Model W30 and Model W40.

These four models incorporate a variety of power and signal options (see table).

The span or zero adjustment is performed with a 20-turn potentiometer for fine resolution. A 50% adjustment in output is possible.

The Series W transmitters have been tested by an accredited laboratory and comply with the European requirements of Council Directive 89/336/EEC for emission measurements per EN50081-1 and immunity tests per EN50082-1.

W10	3-Wire DC Voltage In DC Voltage Out	W30	2-Wire DC Voltage In 4 - 20 mA Out
W20	4-Wire 24, 120, or 240 Vac In DC Voltage Out	W40	4-Wire 24, 120, 240 Vac In 4 - 20 mA Out

OPERATION

The pressure transmitter consists of two high accuracy piezoresistive sensors with stainless steel isolation diaphragms. Both sensors measure static pressure and the difference between these two measurements is computed electronically. The use of high accuracy and stable sensors makes this measurement possible. Since each sensor measures the full static pressure, there is no possibility of overpressurizing the transmitter if one sensor is disconnected from the line. No complex and expensive balancing valves are needed.



SPECIFICATIONS

Performance

Accuracy: $\pm 1/2\%$ of differential pressure range (includes non-linearity and hysteresis) or $\pm 1\%$ for 6 psid (50 kPa) range

Effect of static pressure on differential pressure measurement: less than $\pm 0.25\%$ for static pressure change from 0 to 100% or $\pm 0.5\%$ for 6 psid (50kPa) range

Calibration: (Traceable to N.I.S.T.)

Environmental

Process wetted surfaces are 316 stainless steel

Operating temperature range: 0°C to 50°C (32°F to 122°F)

Storage temperature: -30°C to 70°C (-20°F to 160°F)

Effect of temperature:

on zero: $\pm 0.05\%/^{\circ}\text{C}$ or $\pm 0.1\%/^{\circ}\text{C}$ for 6 psid (50 kPa) range

on span: $\pm 0.03\%/^{\circ}\text{C}$ or $\pm 0.06\%/^{\circ}\text{C}$ for 6 psid (50 kPa) range

Operating humidity range: 10% to 90% R.H. non-condensing

Shock Resistance: 10G (11ms)

Vibration resistance: 5G 3 to 50 Hz

Electrical Connectors

Polarized Euro plug/connectors

Connections: Pluggable terminal block for wire 14 to 26 AWG

Mating connector is supplied

Connection to enclosure ground is provided

Connector rating: 10 Amps/300 volts

Material: Glass-filled polyester

Physical

Dimensions: 3.56"x4.54"x2.18" (90x115x55 mm)

Enclosure material: Aluminum Alloy #A380

Cover screws: M4 Stainless Steel non-magnetic

Finish: Black epoxy paint

Knockout: Choice of 1 or 2 holes

Hole sizes are offered in a choice of 1/2" conduit or metric sizes of PG11 or PG13

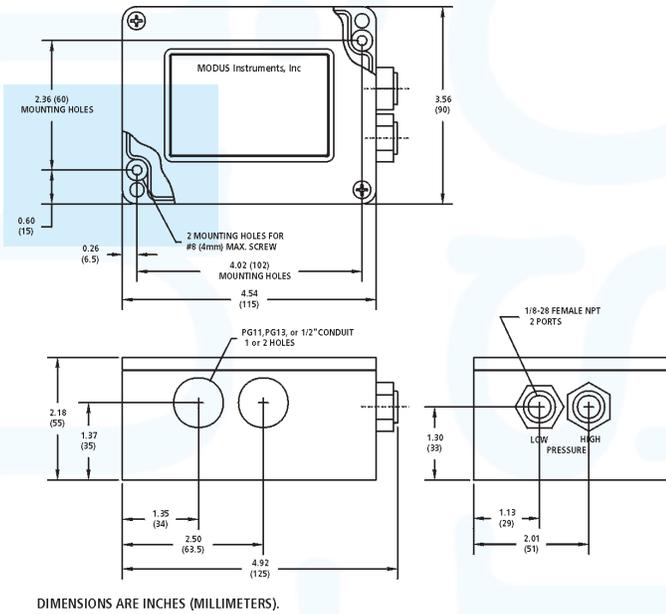
Cable glands not included

Pressure port connections: 1/8-28 female NPT

Weight: 1.2 lb (540g)

MODEL W10

DC Power Input/Voltage Output



DIMENSIONS ARE INCHES (MILLIMETERS).

SPECIFICATIONS

Electrical

Supply Voltage: 11 to 32 Vdc (14.5 to 32 Vdc for 10 Volts output)

Protected against reversal of polarity

Supply Current: 10mA

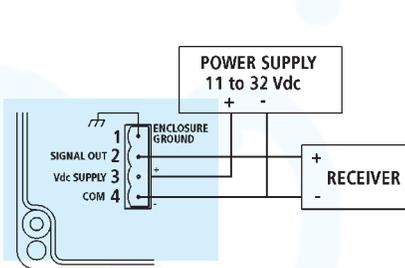
Output:

0 to 5 Volts, linear

0 to 10 Volts, linear

Sink or source 3.5mA

Protected against short circuit



Terminal 1 is enclosure ground.
Terminal 2 is positive signal voltage.
Terminal 3 is positive supply voltage.
Terminal 4 is common to both the DC power supply and the output signal.

ORDERING INFORMATION

Order Number (See Table below and Reference Table B on page 26)

W10 - PPP - V - KQ - KS

EXAMPLE: W10 - 31E - 5 - 1 - R

PPP = Pressure Range	V = Voltage Output	KQ = Knockout Quantity	KS = Knockout Size
See Reference Table B	5 = 0 to 5 Volts X = 0 to 10 Volts	1 = 1 Hole 2 = 2 Holes	R = 1/2" conduit S = PG 11 T = PG 13

MODEL W20

AC Power Input/Voltage Output

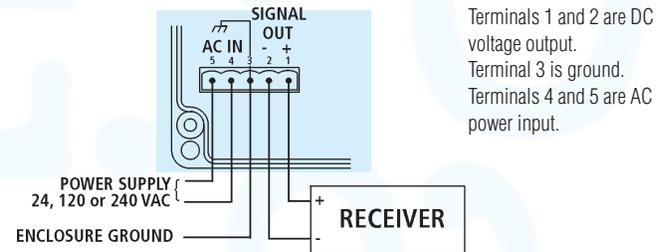
SPECIFICATIONS

Electrical

Nominal Input Voltage	Power Consumption	Operating Voltage Range
24 Vac, 50/60HZ	1.5W	20 to 30 Vac
120 Vac, 50/60Hz	1.5W	100 to 140 Vac
240 Vac, 50/60Hz	1.5W	200 to 260 Vac

Output voltage is 0 to 5 Volts or 0 to 10 Volts, and can sink or source 3.5 mA. Protected against short circuit

Transformer isolation between power supply and output is 2500 Vrms



Terminals 1 and 2 are DC voltage output.
Terminal 3 is ground.
Terminals 4 and 5 are AC power input.

ORDERING INFORMATION

Order Number (See Table below and Reference Table B on page 26)

W20 - PPP - SV - V - KQ - KS

EXAMPLE: W20 - 34P - C - X - 2 - S

PPP = Pressure Range	SV = Supply Voltage	V = Voltage Output	KQ = Knockout Quantity	KS = Knockout Size
See Reference Table B	C = 24 Vac D = 120 Vac E = 240 Vac	5 = 0 to 5 Volts X = 0 to 10 Volts	1 = 1 Hole 2 = 2 Holes	R = 1/2" conduit S = PG 11 T = PG 13

MODEL W30

Two Wire / 4-20mA Output

SPECIFICATIONS

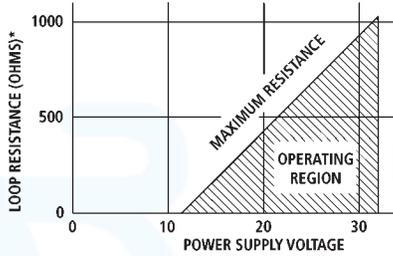
Electrical

Supply Voltage: 11 to 32 Vdc

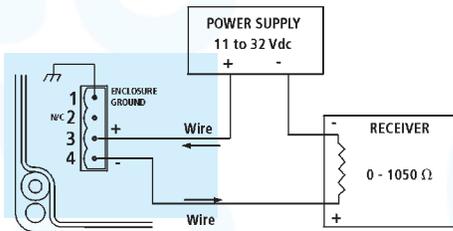
(See diagram below for maximum loop resistance)

Protected against reversal of polarity

Output limited to approx 3.85mA at low end of span and approx. 25mA at upper end of span



* Loop resistance = Wire res. + Receiver res.



ORDERING INFORMATION

Order Number (See Table below and Reference Table B on page 26)

W30 - PPP - KQ - KS

EXAMPLE: W30 - 35M - 1 - T

PPP = Pressure Range	KQ = Knockout Quantity	KS = Knockout Size
See Reference Table B	1 = 1 Hole 2 = 2 Holes	R = 1/2" Conduit S = PG 11 T = PG 13

MODEL W40

AC Power Input / 4-20mA Output

SPECIFICATIONS

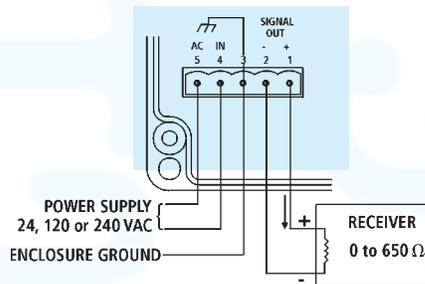
Electrical

Nominal Input Voltage	Power Consumption	Operating Voltage Range
24 Vac, 50/60Hz	1.5W	20 to 30 Vac
120 Vac, 50/60Hz	1.5W	100 to 140 Vac
240 Vac, 50/60Hz	1.5W	200 to 260 Vac

Transformer isolation between power supply and output is 2500 Vrms

Receiver resistance can be from 0 to 600 Ohms

Output limited to approx. 27mA at the upper end of span



Terminals 1 and 2 are 4-20 mA current output. Terminal 3 is the enclosure ground. Terminals 4 and 5 are AC power input.

ORDERING INFORMATION

Order Number (See Table below and Reference Table B on page 26)

W40 - PPP - SV - KQ - KS

EXAMPLE: W40 - 33E - D - 2 - R

PPP = Pressure Range	SV = Voltage Output	KQ = Knockout Quantity	KS = Knockout Size
See Reference Table B	C = 24 Vac D = 120 Vac E = 240 Vac	1 = 1 Hole 2 = 2 Holes	R = 1/2" Conduit S = PG 11 T = PG 13

