WIRING AND CALIBRATION

2-Wire Transmitter Options W2 and W3

1.

Installation & Wiring

1.1 General

The transmitter board is fitted inside the enclosure of the flow meter, Option W2 provides a 4-20mA dc output in addition to a local mechanical analog indicator. Option W3 operates identically, but omits the local indication.

The transmitter measures differential pressure directly with a solid state strain gauge. The differential pressure measured is independent of the mechanical measurement provided by the local mechanical indicator. The output of the transmitter is linear with *differential pressure.* The output must be linearized in the receiving device to provide a flow measurement. The transmitter is powered by an external 24 volt dc power supply provided by the user. A rated capacity of 25mA minimum is required.

1.2 Installation

For NEMA-4, 4X or IP66 installation (Option D). Use CSA / UL approved watertight conduit or cable gland (not included)

For EMC (Electromagnetic Compatibility) installation (Option EM). Use AWG 18, 2 conductor shielded cable with drain wire. ***Important:*** Terminate shield inside outer housing but outside inner shield housing. See figure 3 for details.

For IS installation (Option IS). Option IS includes Option D and a locking screw on the lens. This screw must be loosened 1/2 turn to obtain access to the dial and pointer. See IS installation drawing #6440 for wiring and barrier installation. Atex installation must comply with EN 60079-14.

2.

CSA / NRTL: Ex ia IIC T3
Class I, Division I, Groups A, B, C, D
Class II, Division I, Groups E, F, G

CENELEC / LCIE: EEx ia IIC 1G
T3, Ta = 0 to 50°C
Atex Directive 94/9/EC, EN 13980:2002

Startup: Pressurize the pipeline and check the zero. Adjust the zero pot if necessary.

2.1 Test Equipment

Field Calibration (4-20mA dc)

Fluke 9600A digital multimeter or equivalent. All flow meters are factory calibrated. Connect multimeter in series with current loop. WARNING: Do not adjust span unless you are certain that the meter is reading incorrectly.

2.2 Procedure

With pipeline pressurized, adjust zero pot until current reads 4.00mA ± 0.02mA at no flow. Establish a known flow rate through the flow meter as close to 95% of F.S. as practical. Set span, span is set using the following formula: $I = 16 Q^2 + 4.00$; where I = current output in mA, Q = decimal % of full scale.

% FS	Current Output	% FS	Current Output
20	4.64	70	11.84
30	5.44	80	14.24
40	6.56	90	16.96
50	8.00	95	18.44
60	9.76	100	20.00

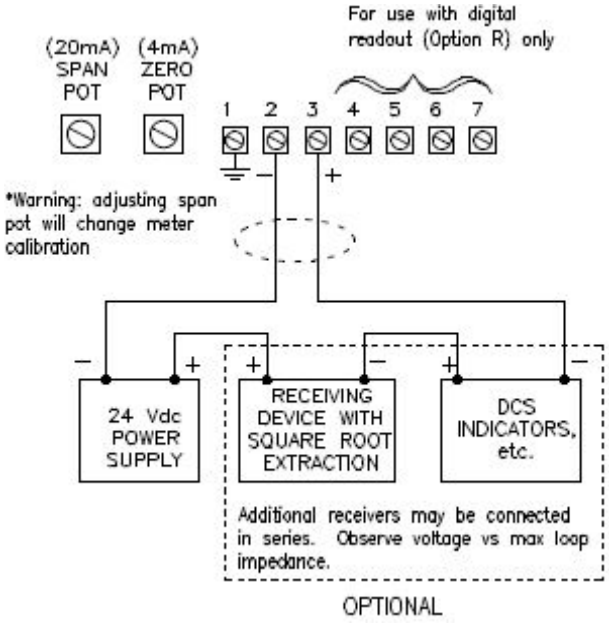


Figure 1
Connection Diagram

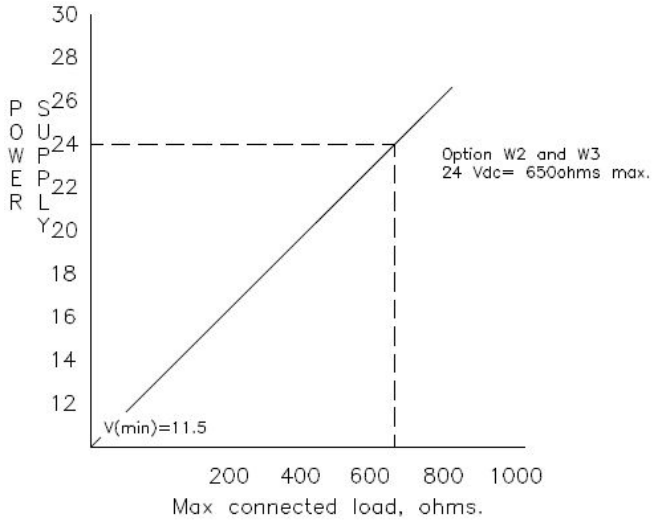
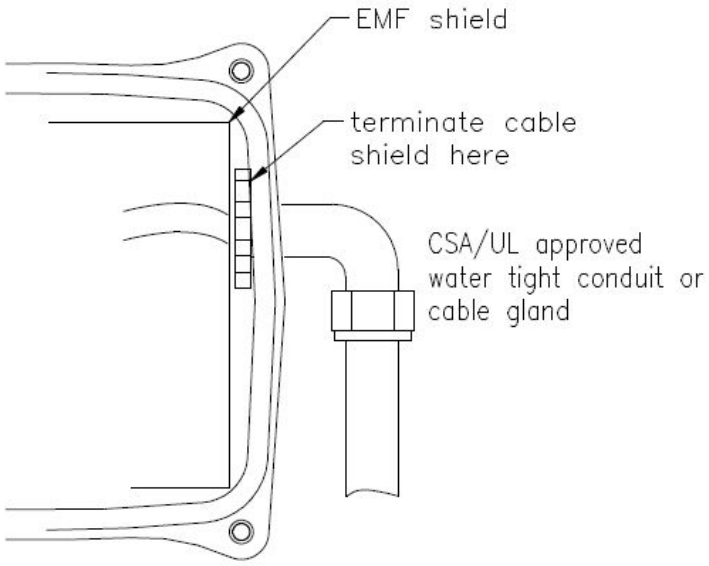


Figure 2
Loop Impedance versus Power Supply Voltage



Housing with rear cover removed
(rear view)

Figure 3
Conduit and Shield Connection Details
for IS and EM Options