WIRING AND CALIBRATION

2-Wire Loop Powered 4-20mA Transmitter
Options W2-1 and W3-1 w/HART

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 using a piezoresistive wet/wet differential pressure sensor. The differential pressure measured is independent of the mechanical measurement provided by the local mechanical indicator. The output of the transmitter is linear with flow rate. 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 Construction

It has integrated construction, high static pressure, stable and reliable. The high and low pressure sides are protected by isolated stainless steel diaphragm. It can be used for measuring liquids and gases and conductive flow media that are compatible with stainless steel and Viton™ seals.

Electric Performance

Power supply: 2-wire 15 ~ 28VDC

Output signal: 2-wire loop powered 4 ~ 20mADC

Response time (10% ~ 90%) : ≤1ms
Electric connection: 100mm silicon rubber flexible wires
Max. Static pressure: 20MPa

DP Sensor Construction Specification

DP Sensor Housing: Brass or Stainless Steel 316L (dependent on meter construction)
Diaphragm material: Stainless Steel 316L
Pin: silicon rubber flexible wire
O-ring: Viton™
Fill In: Silicon Oil
Media compatibility: the gas or media which is compatible with stainless steel and Viton™

Environment Condition

Position effect: deviate 90° from any orientation, zero change ≤0.2%FS

Shock: ≤1% at 3gRMS, 30 ~ 2000Hz

Impact: ≤1% at 100g, 10ms

Cycling Life: 1×108 pressure cycles

Basic Specification

Specification*	Min.	Typ.	Max.	Units
Accuracy		±0.25%FS	≤ ±0.5%FS	
Zero Thermal Error		±1.0	±1.2	%FS, @ 25°C
Span Thermal Error		±1.0	±1.2	%FS, @ 25°C
Compensated Temp. Range	0 ~ 50			°C
Working Temp. Range	-40 ~ 120			°C
Storage Temp. Range	-40 ~ 120			°C
Long Term Stability		±0.3	±0.5	%FS / year
*Testing at basic condition				

2.1 Wiring & Test Equipment

2.

Flow to Output (4-20mA dc)

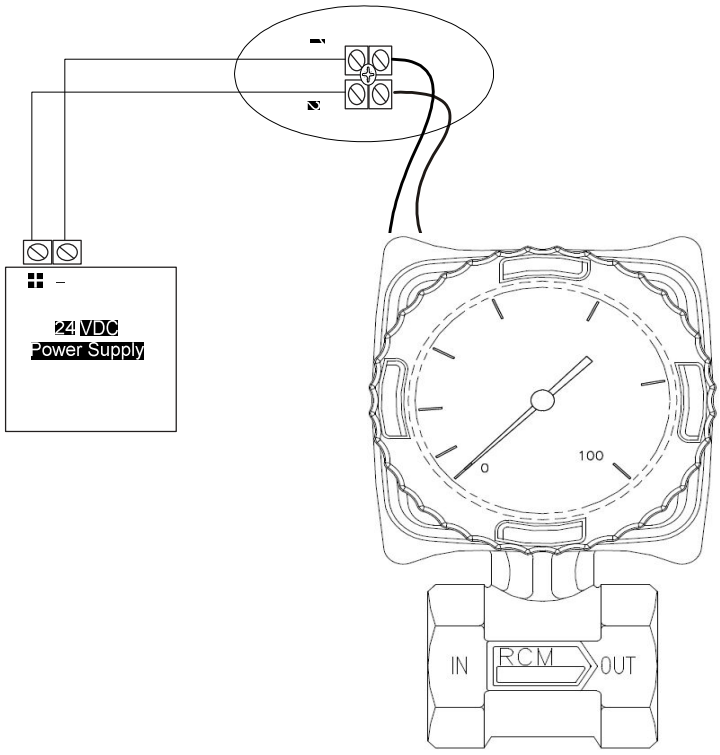
Fluke 9600A digital multimeter or equivalent. All flow meters are factory calibrated. Connect multimeter in series with current loop. Using a 24Vdc power supply connect – to terminal 1 and + to terminal 2. Power supply not included option PS-24.

2.2 Flow % to Output mA

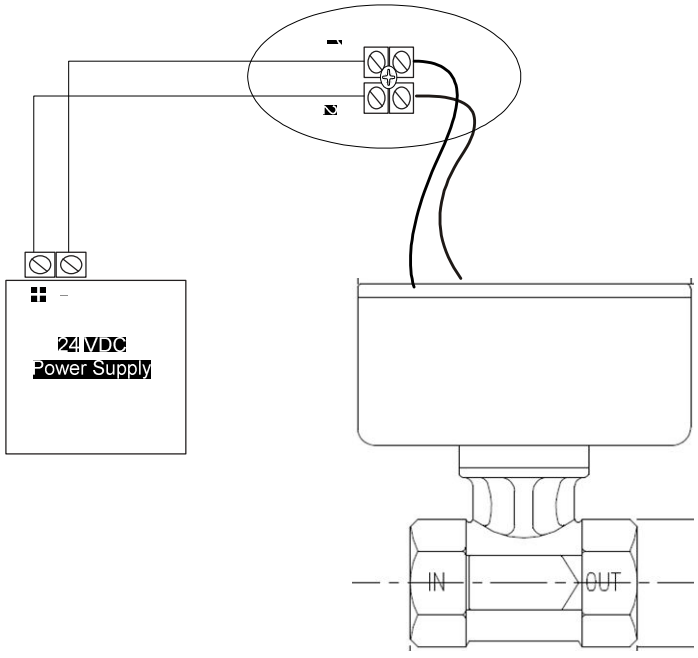
Using the following formula: I = 16X + 4.00; where I = current output in mA, X = decimal % of full scale.

% Flow to Output Chart

% FS	Current Output	% FS	Current Output
20	7.20	70	15.20
30	8.80	80	16.80
40	10.40	90	18.40
50	12.00	95	19.20
60	13.70	100	20.00



W2 i Option Wiring



W3 i Option Wiring