

Model IMTSIM Magnetic Flow Simulator



The Foxboro[®] brand Model IMTSIM Magnetic Flow Simulator is a hand-held instrument used to verify the calibration and operation of Models IMT25 and IMT25L Magnetic Flow Transmitters in the field. The IMTSIM produces an output signal similar to that of a 2800, 8300, 8000A, or 9300A Series Magnetic flowtube. This signal is used as an input to the transmitter being tested. Proper operation of the transmitter is determined by comparing the actual transmitter output created in response to the calibrated IMTSIM output signal.

FEATURES

- ▶ 8-position selector switch for output signal
- ▶ Polarity switch to simulate forward or reverse flow
- ▶ 1-turn potentiometer with wide scale output capability for troubleshooting transmitter functions
- ▶ Powered from the transmitter. No external power supply required
- ▶ Lightweight housing. Dust, rain, and chemically resistant.
- ▶ Can be suspended from tool belt using hook molded into pistol grip handle

DESCRIPTION

The IMTSIM output signal is a voltage which is proportional to the current being provided to the instrument from the transmitter being tested. The output voltage to input current ratio is in units of millivolt per ampere (mV/A) and is very precise and stable. A rotary switch (on the left in Figure 1) on the IMTSIM allows the user to select from seven possible output/input ratios (0.0, 0.25, 0.5, 1.0, 2.0, 4.0, and 8.0 mV/A). These settings are sufficient to test the transmitter over any desired span, for any size flowtube (1.6 to 914 mm/1/16 to 36 in). The IMTSIM can be used to test IMT25 or IMT25L Magnetic Flow transmitters. Transmitter operation/calibration is verified by comparing the actual transmitter response to the IMTSIM output.

The IMT25 or IMT25L produce an actual output signal, using the IMTSIM, which is within a specified error band around the expected output value. The error bands for the various settings are:

| Range Setting | Error Band |
|---------------|-------------------|
| 0.25 mV/A | 1.50 % of Reading |
| 0.50 mV/A | 0.75 % of Reading |
| 1.0 mV/A | 0.38 % of Reading |
| 2.0 mV/A | 0.25 % of Reading |
| 4.0 mV/A | 0.25 % of Reading |
| 8.0 mV/A | 0.25 % of Reading |

For example, if the 2.0 mV/A input should theoretically produce a 100 GPM signal, the IMT25 or IMT25L output will be 100 GPM \pm 0.25 GPM.

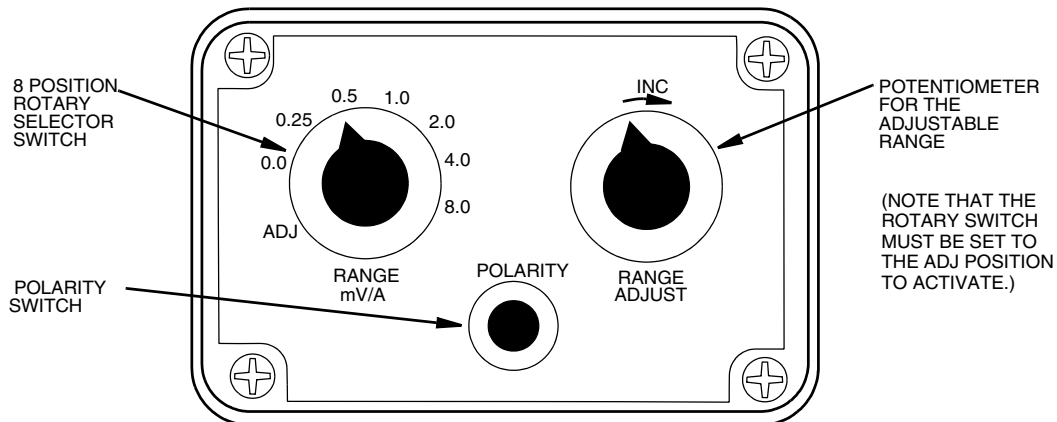
The first position on the rotary switch is labeled ADJ. Setting the rotary switch to this position activates the 1-turn potentiometer (on the right in Figure 1). This pot can adjust the output of the IMTSIM continuously over the range of 0 to 20 mV/A. This feature can be used for general purpose troubleshooting of the transmitter functions. It is not a precise output and cannot be used to verify the calibration of the transmitter. It can be used, for example, to test or set up the IMT25 alarm circuits.

The polarity switch is located between the rotary switch and potentiometer and toggles the sign of the IMTSIM output to allow the user to simulate forward and reverse flow rates.

The IMT25 and IMT25L transmitters cannot be calibrated in the field. In the unlikely event that the transmitter calibration is determined to be out of specification, the transmitter must be returned to the factory.

The IMTSIM is not rated for use in hazardous areas. It should be used only in ordinary location areas or in Division 2 areas that are known to be nonhazardous at the time of use.

Figure 1. IMTSIM Control Panel



MODEL CODE

| <u>Description</u> | <u>Model</u> |
|--|--------------|
| I/A Series IMT Flowtube Simulator | IMTSIM |
| <u>Version</u> Standard | -1 |
| <u>Cable/Connector</u> 1 m (38-Inch) neoprene cable with four test probes having pin terminations | 1 |
| Example: IMTSIM-11 | |

SPECIFICATIONS

Input Signal (supplied by transmitter)

Bipolar current pulses
 ± 0.250 A nominal
 ± 0.500 A max.

Input Fusing

0.750 A

Output Signal (to transmitter)

Voltage proportional to input current. Output ranges specified in units of millivolts per ampere (mV/A)

Power Requirements

IMTSIM is completely powered by the Model IMT25 or Model IMT25L transmitter.

Temperature Limits

Operation: 0 and 60°C (32 and 140°F)

Storage: -40 and +70°C (-40 and +158°F)

Relative Humidity Limits

Operating: 5 and 100%

Storage: 0 and 100%

Materials of Construction

Housing is glass-filled Polyamid;

Front panel/plate is polyester.

Accuracy (mV output/Ampere input)

(Normal Operating Conditions IMTSIM only)

| Range Setting | Accuracy |
|---------------|--------------|
| 0.25 | $\pm 0.25\%$ |
| 0.50 | $\pm 0.10\%$ |
| 1.00 | $\pm 0.08\%$ |
| 2.00 | $\pm 0.08\%$ |
| 4.00 | $\pm 0.08\%$ |
| 8.00 | $\pm 0.08\%$ |

Wiring

The IMTSIM has a 1 m (38 inch) flexible neoprene cable with four test probes (red, green, white, black) which enters the housing at the base of the pistol grip. The test probes connect to the coil and input signal terminals in the transmitter (refer to IMTSIM instruction manual (MI 021-392) for more information). The flowtube wiring connections must be disconnected from the transmitter prior to connecting the IMTSIM test probes. The test probes have sturdy pin connectors.

Dimensions

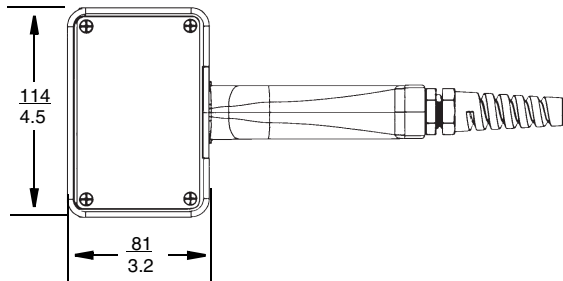
The square panel portion of the instrument is 114 x 81 x 86 mm (4.5 x 3.2 x 3.4 in). The overall length of the instrument (not including the cable) is 198 mm (7.8 in). See DIMENSIONS-NOMINAL section.

Approximate Weight

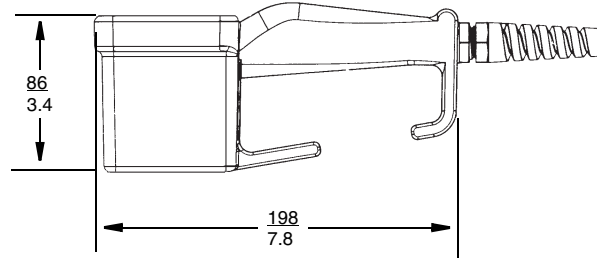
0.6 kg (1.4 lb)

DIMENSIONS-NOMINAL

mm
in

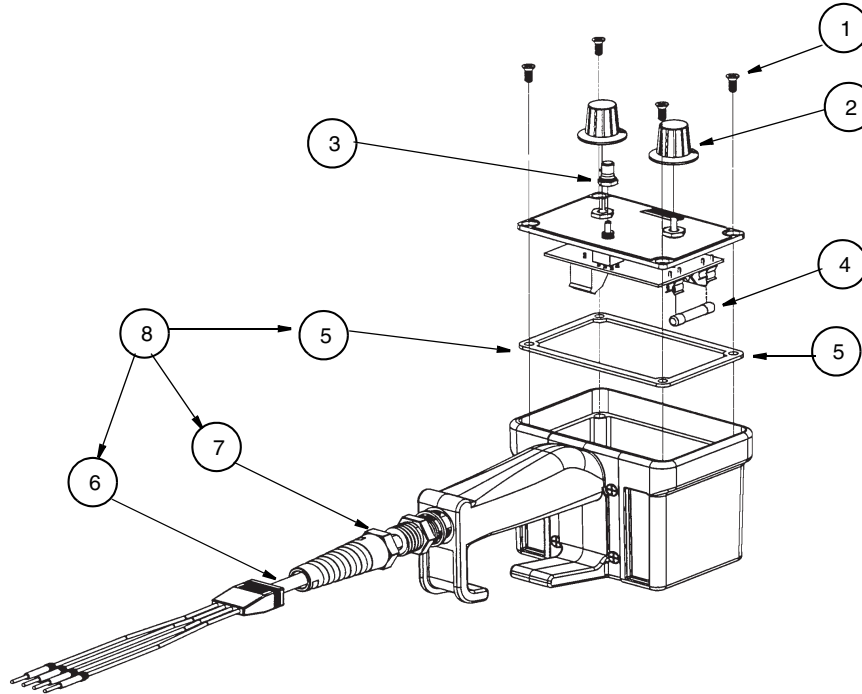


FRONT VIEW



SIDE VIEW

REPLACEMENT PARTS



| Item | Part No. | Qty. | Description |
|------|----------|------|--|
| 1 | X0173XY | 4 | M4 x 10 Screws |
| 2 | P0150KZ | 2 | Knob |
| 3 | Below | 1 | Seal, Switch, Boot |
| | P0150KY | | For Units having a Pushbutton Switch |
| | P0150LX | | For Units having a Toggle Switch |
| 4 | C3510KB | 1 | Fuse, 3 AG 0.750 Amp FB |
| 5 | D0158MH | 1 | Gasket - see Note |
| 6 | D0177BC | 1 | Cable Assembly - see Note |
| 7 | D0158KK | 1 | Cable Grip/Strain Relief - see Note |
| 8 | D0158KL | 1 | Cable Assembly Kit (includes Items 5, 6, and 7). |
| 9 | D0158KM | 1 | Bracket, Panel Mount (not shown) |

Note: Items 5, 6, and 7 are part of Cable Assembly Kit Item 8.

NOTES

ORDERING INSTRUCTIONS

- 1 Specify Model Number IMTSIM-11.

OTHER FOXBORO PRODUCTS

The Foxboro product lines offer a broad range of measurement and instrument products, including solutions for pressure, flow, analytical, temperature, positioning, controlling, and recording.

For a list of these offerings, visit our web site at:

www.fielddevices.foxboro.com