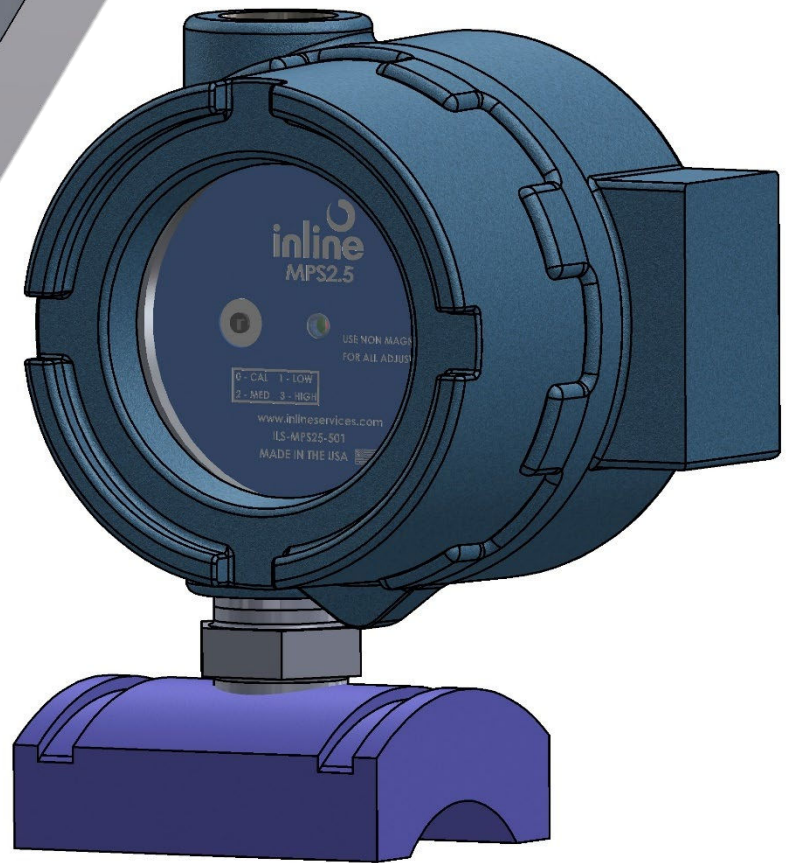


Inline Services

MPS 2.5 and MPS 2.5EX installation and user guide



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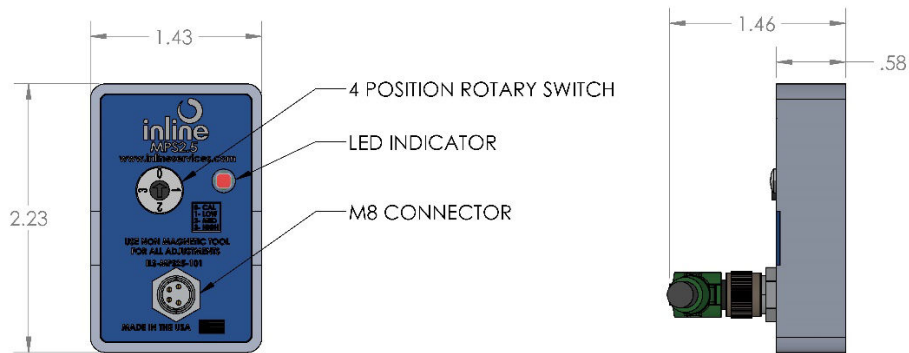
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1. General description

1.1. MPS 2.5

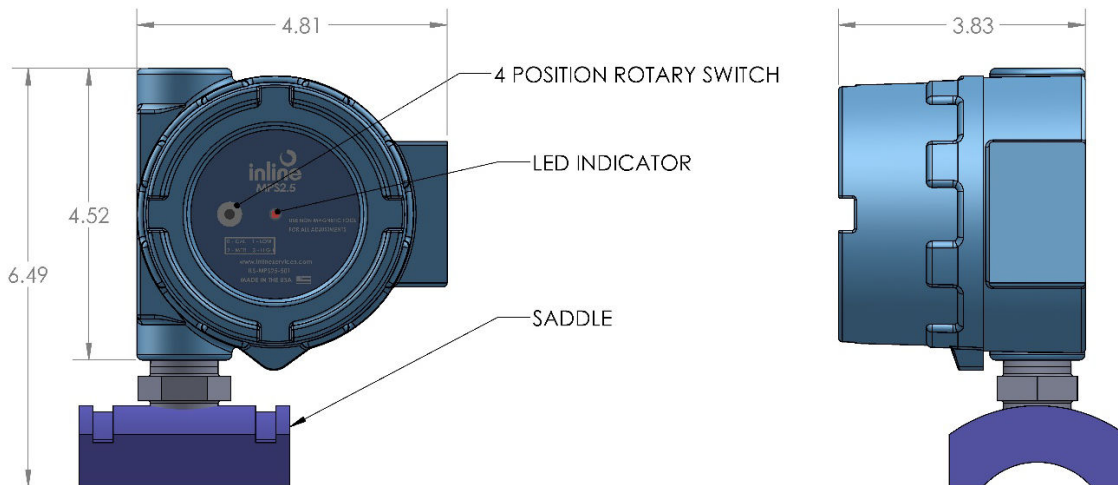
Inline model MPS 2.5 magnetic pig signalers are designed to detect a magnet molded into an inline process pig. The detectors are equipped with programmable, sensitive, multi-axis Hall effect sensors. Each unit can function stand alone using a built-in LED indicator or be integrated into an existing PLC logic system using the devices' solid state relay as an output



The MPS 2.5 is machined from 6061 aluminum for durability and can be powered using 9 to 24VDC. The unit uses a phoenix contact M8 connector with 4 terminals for power and signal.

1.2. MPS 2.5EX

Inline model MPS 2.5EX is built to operate like the MPS 2.5 but encased in an explosion proof housing for hazardous and outdoor locations (see specification for ratings). In addition, the unit can be powered using either 120VAC or 9-32VDC.



2. Specifications

	MPS 2.5	MPS 2.5EX
Input voltage	9-32VDC	9-32VDC OR 120VAC
Power consumption	Less than 50mA	Less than 50mA
Output	LED and solid-state relay w 1 Form A output, 250V (AC/DC), up to 250mA	LED and solid-state relay w 1 Form A output, 250V (AC/DC), up to 250mA
Electrical classification	Waterproof / non-hazardous - indoor	Indoor/outdoor (TYPE 4X), explosion proof Class I, Div.1 GRPS B,C,D; Dust-ignition proof Class II/III, Div.1, GRPS E,F,G, hazardous (classified) locations

3. Installation

3.1. Location

The MPS 2.5 should be located directly above the pig for a “parked” signal or at any location where the pig will make a complete passing. 4 factors play an important role when choosing a location.

3.1.1. **Expected location** – sensors should be located as close as possible to the magnet end of a pig with magnets in one end or the center of a pig with magnets on both ends.

3.1.2. **Undesired magnetic sources** – Sensors should be placed as far away from magnetic sources as possible (e.g., safety cap magnets, fittings, welds, etc.) Other magnetic sources are best determined by facility engineers with experience in similar processes.

3.1.3. **Null areas** – Occasionally null areas are observed above pigs. In these instances, reliable detection can be achieved by moving the sensor backward or forward on the Pig Launcher/Receiver.

3.1.4. **Maintenance access** – Consideration should be given to easy access by maintenance personnel.

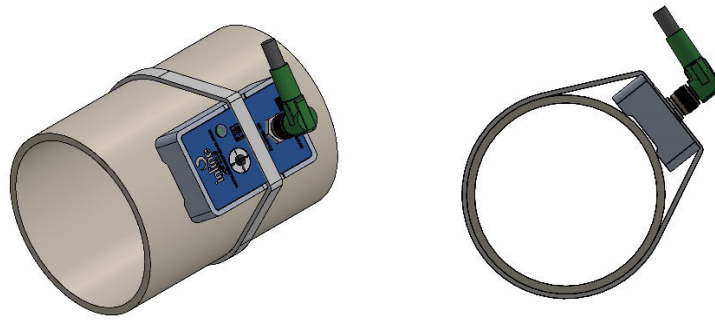
3.2. Local electrical codes

Sensor assemblies should be installed in accordance with all local electrical codes. Use appropriate conduit seals/breathers/drains if required

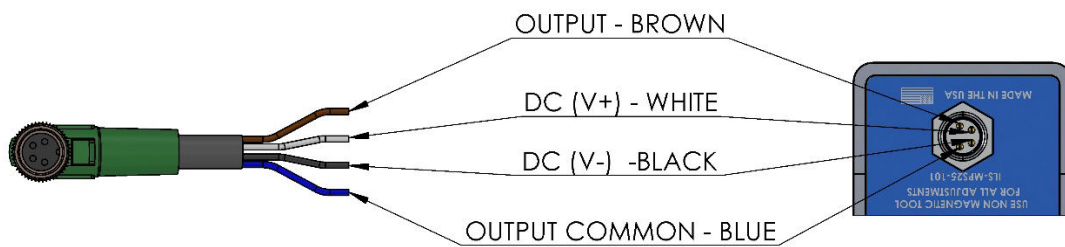
3.3. Installation procedure

3.3.1. MPS 2.5

Securely mount the unit to the launcher/receiver or pipe with the supplied non-metallic strap (zip-tie). Take note which way the unit is oriented as the cable will only plug in one way perpendicular to the sensor. For the MPS 2.5, the sensor will be located on the side opposite of the plug approximately.

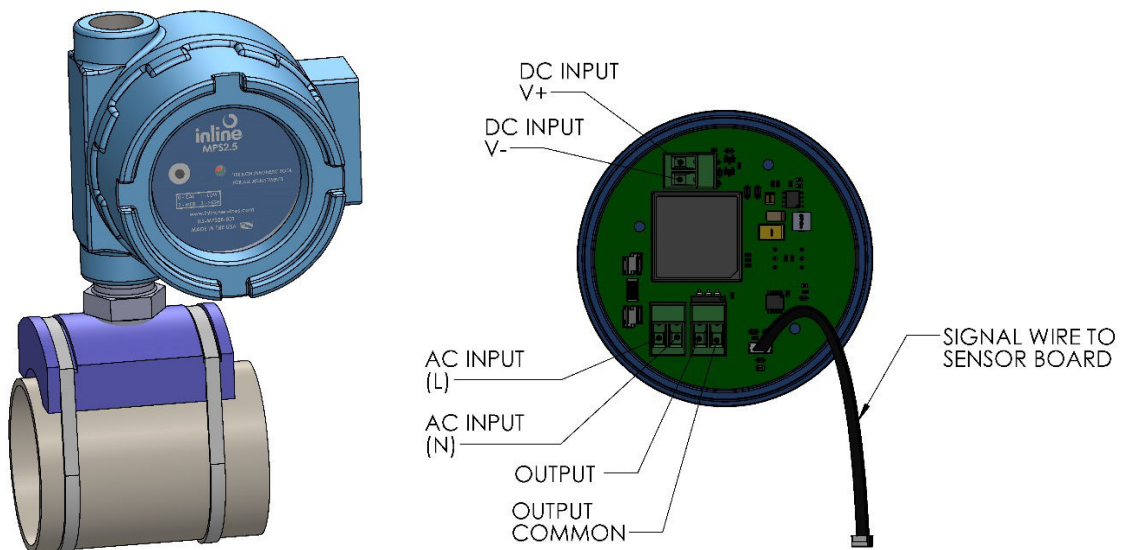


The MPS 2.5 uses a Phoenix contact M8 connector with 4 terminals. The diagram below shows how to wire in the sensor using the included pig tail wire assembly.



3.3.2. MPS 2.5EX

The MPS 2.5EX mounts to a saddle using the stainless-steel sensor housing on the bottom of the unit. The saddle is then placed over the launcher/receiver or pipe and secured with the included non-metallic straps. The sensor can then be wired to the system by qualified technicians according to the diagram below. The unit is protected from accidental cross wire installation. The power connected to the MPS 2.5EX sensors should be either AC or DC only one type should be hooked up at one time.



4. Power up

The power up procedure for the MPS sensor is identical for both models. When the device is powered on, it will blink to indicate the firmware version on the sensor. It will blink green to indicate the major firmware version (number of flashes represent the number) and then blink red to indicate minor firmware version (number of red flashes will indicate number) for example firmware v.1.2 will indicate as 1 green flash, followed by 2 red flashes. After this procedure, the device will automatically go into operation mode. The device will need to calibrate at the first-time power is applied prior to use but will not need to re-calibrate the next power cycle if the device was not moved. The on-board LED will indicate status or current mode according to the table below.

LED behavior	Description
Solid blue	Device needs calibration
Fast flashing blue	Device is gathering calibration data
Slow flashing blue	Device is properly calibrated
Solid green	Device is operating correctly, no pig present
Solid red	Device indicates a pig was detected
Solid purple (EX version only)	Connection issue with wire to sensor board.

5. Calibration

When the LED indicator on the device shows solid blue, it needs calibration. This procedure should be done with the pig and other magnetic sources removed from the area. A ceramic blade screwdriver should be used when making any changes to the device.

To perform a calibration:

- Turn device on and wait for solid blue LED (or a green LED, if re-calibrating)
- Using a ceramic blade screwdriver, turn the 4-position switch to "0" to enter calibration
- The sensor will show a fast blue flash sequence while it reads a background magnetic base value. It will show a slow flashing blue signal to indicate that the device is ready.
- Turn the 4-position switch to 1,2, or 3 to set desired detection sensitivity. We recommend starting at 1-low and adjusting to a higher sensitivity only if necessary.
- The device will turn to a green status light and is ready for service.

6. Operation

The status LED will show solid green when the device is operating normally, and no pig is detected. If the device detects a magnet, it will show a RED led for 2 seconds and close the solid-state relay. After 2 seconds it will scan again and compare to the base level. If the pig remains, it will continue to indicate red (stationary mode at the launcher or receiver) or return the green standby mode.

7. Revision

Reason	Version	Date
Initial release	1.0	10/20/22

8. Contact

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