

## PRODUCT DESCRIPTION



Inline Model MPS2, Magnetic Pig Signalers are designed to detect a magnet molded into an Inline process pig. The detectors are designed with two separate single-axis integrated Hall Effect magnetic sensors, each with an added ferromagnetic layer. The ferromagnetic layer acts as a magnetic flux concentrator, providing very high magnetic sensitivity. Each sensor assembly consists of two sensors, a signal conditioning control circuit, an LED indicator, and a solid state output relay contact all encapsulated in a rugged, aluminum housing.

## SPECIFICATIONS

Electrical Classification – Waterproof / Non-Hazardous  
 Field Wiring - 4 conductor; max 10 ohms single conductor  
 Input Voltage -9 to 32 VDC  
 Power Consumption - 50 mA (0.6 watts @ 12VDC)  
 Output - 1 (Form A) contact, 200 volts(AC/DC), 250mA

## INSTALLATION / LOCATION (see also “Installation Tips”)

A. Sensor Location – The MPS2 should be located directly above the pig for a “parked” signal or at any location where the pig will make a complete passing. Four factors play an important role in selection of sensor locations:

- (1) Expected location of the pig to be detected
- (2) Undesired magnetic sources in the immediate area
- (3) Maintenance access
- (4) Magnetic null areas between pig magnets

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 in both ends.

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.

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

Maintenance Access - Consideration should be given to easy access by maintenance personnel.

### B. Local Electrical Codes

Sensor assemblies should be installed in accordance with all local electrical codes. Use appropriate conduit seals/breathers/drains if required. Electrical classification is non-hazardous.

### C. Installation Procedure

- (1) Securely mount the sensor using the supplied strap.
- (2) Connect the 4 conductors on the supplied cable to the sensor observing correct polarity as detailed below:

- White wire - DC Voltage Positive.
- Black wire - DC Voltage Return.
- Blue wire - Output Common.
- Brown wire - Output Normally Open.

## START UP

NOTE: Start up and calibration must take place with pig or other magnetics away from sensor.

Upon completion of all mechanical mounting and field wiring, apply system power and observe the following normal condition:

- A. Sensor LED flashes GREEN (the number of flashes represents the major firmware version).
- B. Sensor LED flashes RED (the number of flashes represents the minor firmware version).
- C. Sensor LED lights RED, and the output contact will close for 2 seconds.
- D. Sensor LED will double flash GREEN every 2 seconds. This is the standard non-detect LED flashing mode.

## CALIBRATION

NOTE: (1) Perform calibration with the sensor in its permanent mounting location. If the sensor is re-located for any reason, the calibration procedure must be performed again in the new location. (2) DO NOT USE carbon steel or magnetic tools to avoid calibration errors. (Use Ceramic Blade screwdriver (www.aveninc.com - # 13222 or similar)

A. Using the ceramic blade screwdriver, turn the selector Switch to the “Cal” position. The LED indicator should turn green.



Once the sensor has finished its calibration, the LED will begin double blinking every 2 seconds. This indicates successful calibration.

B. Once calibrated, turn the switch to the “L” position. NOTE: If your application requires higher sensitivity you may need to use the “M” or “H” setting, but the “L” setting will work in most cases.

C. The MPS2 is now ready to detect. NOTE: Sensitivity adjustments do not require recalibration unless sensors are physically moved on the size of the magnet is changed.

**INSTALLATION TIPS**

Mount pig sensor with plastic tie straps and calibrate with Installation and Operations instructions provided with shipment



***Launching PLR 1***

Pigs with magnets in each end have a null area in the center where magnetic detection is weak. Position MPS2 sensor to detect either the leading or trailing end section of the pig to avoid the null area.



***Launching PLR 2***

Sensor mounting on Launching PLR is best located to detect the magnet in the trailing end of the pig. The normal position is at the end of the larger diameter relax chamber as shown on Launching PLR1 photo to the right. An alternate position is shown on Launching PLR2 photo. This position is further back toward the mounting end of the PLR and on the flat surface as close to the larger diameter relax chamber as possible.



***Relax Receiver-Stop PLR 1***

Mounting position on Relax Receiver-Stop PLR is normally best located to detect the leading end pig magnet as the pig rests against the internal pig bar stop (not visible). The pig bar stop is located just in front of the return air fitting as shown on photo Relax Receiver-Stop PLR1 to the right. An alternate mounting position is to detect the trailing end pig magnet as shown in Relax Receiver-Stop PLR2 photo



***Relax Receiver-Stop PLR 2***