

Scully Retained Product Sensor

Model SP-IR (CENELEC) / Installation and Operating Instructions

APPLICATION

The Scully SP-IR Retained Product Sensor is designed to sense residual (retained) product in the bottom of a tank trailer compartment. It is intended for use as part of the Scully Intelli-Check® Overfill & Retained Product Monitoring System. When properly installed at the lowest point in the compartment, using the Scully supplied weld coupling (or equivalent mounting), the sensor will detect approximately 9.5 mm - 12.7 mm (3/8"-1/2") of residual product in the compartment.

SENSOR OUTLINE AND MOUNTING DRAWINGS

The outline dimensions of a typical Scully SP-IR Retained Product Sensor are shown below (Figure 1). The sensor is designed to be installed into the supplied Scully weld coupling, or dimensionally equivalent user provided mounting arrangement. Figure 2, on the following page shows the Scully weld coupling as properly installed into a typical tank compartment. The dimensions shown in parenthesis are given for reference. The weld coupling material is type 6061-T651 aluminum bar stock. It is supplied with a 1/2" NPT female pipe thread, tapped plus 2-3 threads deep to allow for a minimum of 5 full threads of engagement between the sensor and coupling threads.

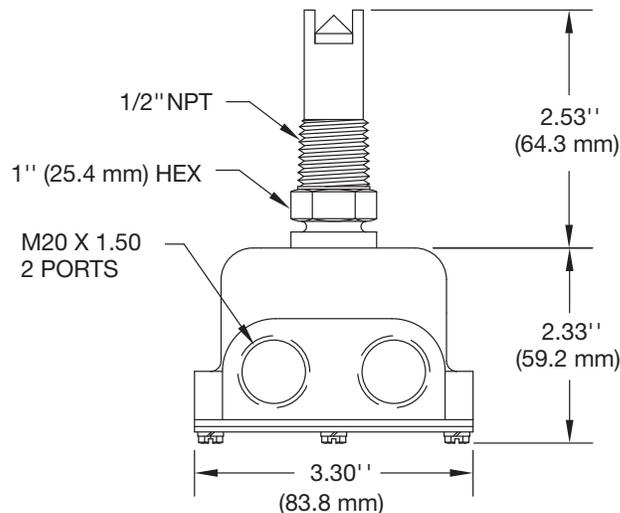


Figure 1.

TECHNICAL SPECIFICATIONS

Operating Temp. Range: -40°C to +60°C
Exposed Materials: Sensor: Aluminum, zinc, borosilicate (Pyrex)® glass, epoxy, conductive nylon.
Holder & Weld Coupling: Aluminum
Cable Entry: Two M20 x 1.5 entry ports

Approvals:

The sensor is intrinsically safe for mounting in Zone 0 according to ATEX directive 94/9/EC

Baseefa03ATEX0492X

EEx ia IIB T5 (-40°C ≤ Ta ≤ +60°C)

Enclosure should be protected against impact



MECHANICAL INSTALLATION

The sensor is designed to withstand vibrations in road transport. However, the sensor should not be subjected to any mechanical impact.

WELD COUPLING/BUSHING INSTALLATION

The Scully weld coupling should be mounted at the lowest practical point in the tank compartment. In choosing a mounting location, assure that there are no reflective metal surfaces within 50mm directly above the area where the sensor will be installed. This will prevent the optic signal, which passes into the liquid when the sensor is immersed, from inadvertently reflecting back into the sensor and giving an erroneous dry indication.

The pilot diameter on the bushing is sized to fit into a 28.8 mm (1-1/8 - inch) hole in the tank shell. The larger straight diameter on the bushing closest to the outside of the tank is intended to allow for a full penetration weld joint with no voids. Welding of the bushing into the tank should be in accordance with all applicable industry regulations. We recommend that a pipe plug be installed into the bushing prior to welding the bushing to the tank to prevent heat distortion of the bushing during welding. Use an anti-seize/lubricant on the pipe plug to facilitate removal after welding.

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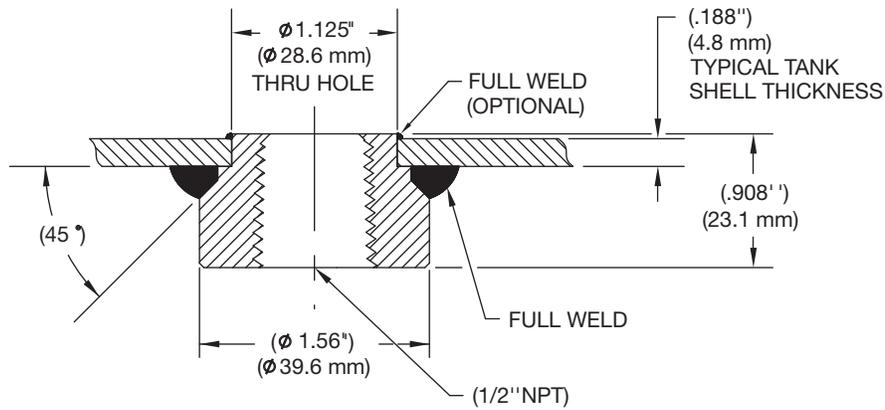


Figure 2.

SENSOR MOUNTING

The sensor features a machined shear section, which allows the sensor's junction box to sacrificially break off in the event of an underride accident. The body portion will remain in the bushing, protecting against loss of product. This shear section is located between the 1 - inch (25.4 mm) hex wrench flats (see Figure 1) and the cast conduit body (junction box) section of the sensor. The sensor **must** be installed and removed from the tank using the 1 - inch hex wrench flats. **Do not attempt to install or remove the sensor by twisting the cast conduit body section. Sensors damaged due to twisting of the conduit body are not covered by warranty.**

The sensor is supplied with a small tube of FEL-PRO® C5A® Copper Based Anti-Seize/Thread Lubricant. This anti-seize/lubricant must be liberally applied to the sensor's 1/2" BSPT male mounting thread prior to installation into the weld coupling. **Galled sensor mounting threads resulting from failure to use the proper anti-seize/thread lubricant are not covered by warranty**

After application of the anti-seize/lubricant, screw the sensor into the weld coupling hand tight. Wrench tighten the sensor securely using a 1 - inch (or equivalent) open-end wrench on the hex wrench flats. Pay close attention to conduit port alignment (for wiring purposes) as the sensor is tightened. Always tighten the sensor slightly more to gain proper conduit port alignment - **never loosen**.

CAUTION: Do not install the sensor in aggressive substances that may attack the exposed materials on the sensor.

ELECTRICAL INSTALLATION

After installation of the sensor, wiring may begin. Install liquid-tight strain relief fittings into the sensor's conduit ports. The end sensor (typically compartment #1) will require one liquid-tight strain relief fitting and a pipe plug. Apply anti-seize/lubricant on the pipe plug threads prior to assembly.

The SP-IR Sensor should be wired in accordance with the appropriate Intelli-Check System wiring diagram. The sensor features two wires, white (ground) and black (signal). Leave a sufficient wiring harness service loop in each conduit junction box for future maintenance. The sensor wires should be connected to the wiring harness wires using crimp connectors or other permanent means to prevent future maintenance problems. It is suggested that either sealing crimp connectors be used, or that the standard crimp connections be coated with white lube to further prevent corrosion problems.

SENSOR REPLACEMENT

It should be noted that a sensor cannot be repaired. A damaged or faulty sensor must be replaced with an equivalent Scully sensor.

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