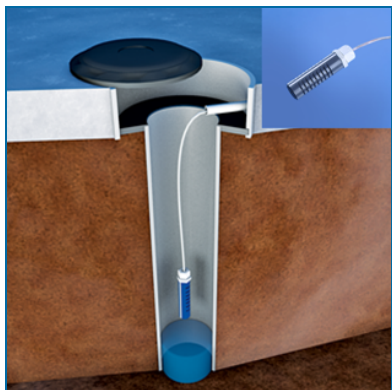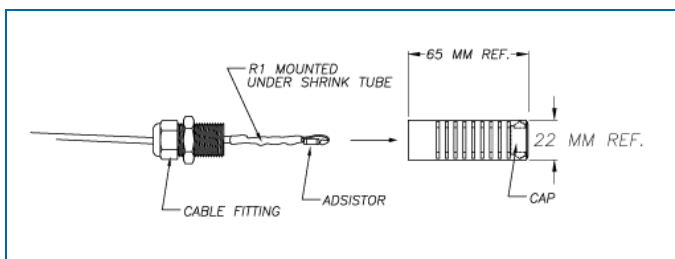# Hydrocarbon Vapor Sensor

Smart Sensor Equipped with Intellisense™ Technology

30-0235-V

Description

The primary function of the Hydrocarbon Vapor Sensor is to sense hydrocarbon vapors in monitoring wells and the interstitial areas of a double-walled tank. These vapors could indicate a possibly dangerous leak that could lead to safety and environmental problems. The sensor is made from a long-life resistive element that will increase in resistance when there are hydrocarbon vapors in the closed space where the device is installed. The sensor will return to normal resistance when hydrocarbon vapors are gone. If there is a break in the cable it will cause an alarm condition in the system.

Specifications	
Primary Use:	Monitoring wells
Alternate Use(s):	Interstitial areas of a double-walled tank
Detects:	Hydrocarbon vapor
Operating Temperature:	-40°C to +70°C (-40°F to 158°F)
Dimensions:	Length: 8.9 cm (3.5"), Diameter: 2.3 cm (0.9")
Nominal resistance (uncontaminated)	Less than 5,000 ohms

Specifications	
Nominal resistance (contaminated)	More than 10,000 ohms
Cable:	Belden #88760 or Alpha #55371 3.6m (12 feet) of gas & oil resistant cable to the inline ISIM + 1.3m (4 feet) ISIM tail.
Maximum Wiring Length*:	305 m (1,000 ft.) field wiring
Alarm Threshold Configuration:	Fully Automatic
Diagnostic Reading on Sensor Setup:	0 to 1 (normal) above 5 (in-alarm)
Multi-Drop Restriction	ProGauge / Integra: 12 on each I.S. barrier channel (48 total per barrier) Nano: See Mixed Multi-Drop Installation in the M2010 Nano Installation Guide.
Connections:	Red = Power, Black = Signal, Shield = Ground

NOTE: *This is the maximum length of wire to be used to connect all sensors on one channel. This length includes the wire from the VSmart to each sensor board in the string.

Installation

WARNING: Make sure you read and fully understand the warnings and information found in the **Hazardous Areas** section of your console's Installation Guide before you install or do the servicing of this sensor.

IMPORTANT: This Smart Sensor must ONLY be connected to a ProGauge or OPW Fuel Management Systems 12V VSmart Module. This will make sure that operation conditions are safe.

CAUTION: ALWAYS obey Local and National Electrical Codes applicable to the installation location.

Make sure that the cables from the field wiring to the controller are in conduit that is dedicated to intrinsically safe wiring.

Use wire-nuts and epoxy-resin seal-packs for field connections (refer to M00-390008 Waterproof Electrical Connections for information).

NOTE: The device will NOT sense hydrocarbon vapor if it is fully in water.

IMPORTANT: This sensor can only be used with a 12V IS Module. Sensors can be connected in parallel up to a maximum of 12 sensors on each channel (48 total on each barrier). This Sensor CANNOT be connected in parallel with devices other than Smart Sensors. It cannot be mixed with non-Smart sensors.

- This sensor uses ONE I.S. Module position

- Start with the Connections table and "Typical Installation" drawing below.

- Do a check to make sure there are no hydrocarbon vapors before you install this sensor in a Dry Monitoring Well.

- Install the sensor close to the top, above the water level, if applicable (if the sensor is under water it will not operate).

- Connect the sensor cable to the sensor.

- Connect the sensor wires to the field wires in the junction box. Use the supplied cable gland and silicon wire nuts.

- Seal the electrical connections with the epoxy seal packs (refer to M00-390008 Waterproof Electrical Connections for instructions).

- Install explosion-resistant sealing fittings at both ends of the conduit. Refer to the **Probe-Cable Seal-offs** section of the console's Installation Guide for instructions.

Connections

Sensor Wire Color	12V Smart Sensor Interface Channel
Red	Power

Sensor Wire Color	12V Smart Sensor Interface Channel
Black (hydrocarbon sensor)	Signal
Shield (or 3rd conductor)	Ground

Typical Installation Drawing
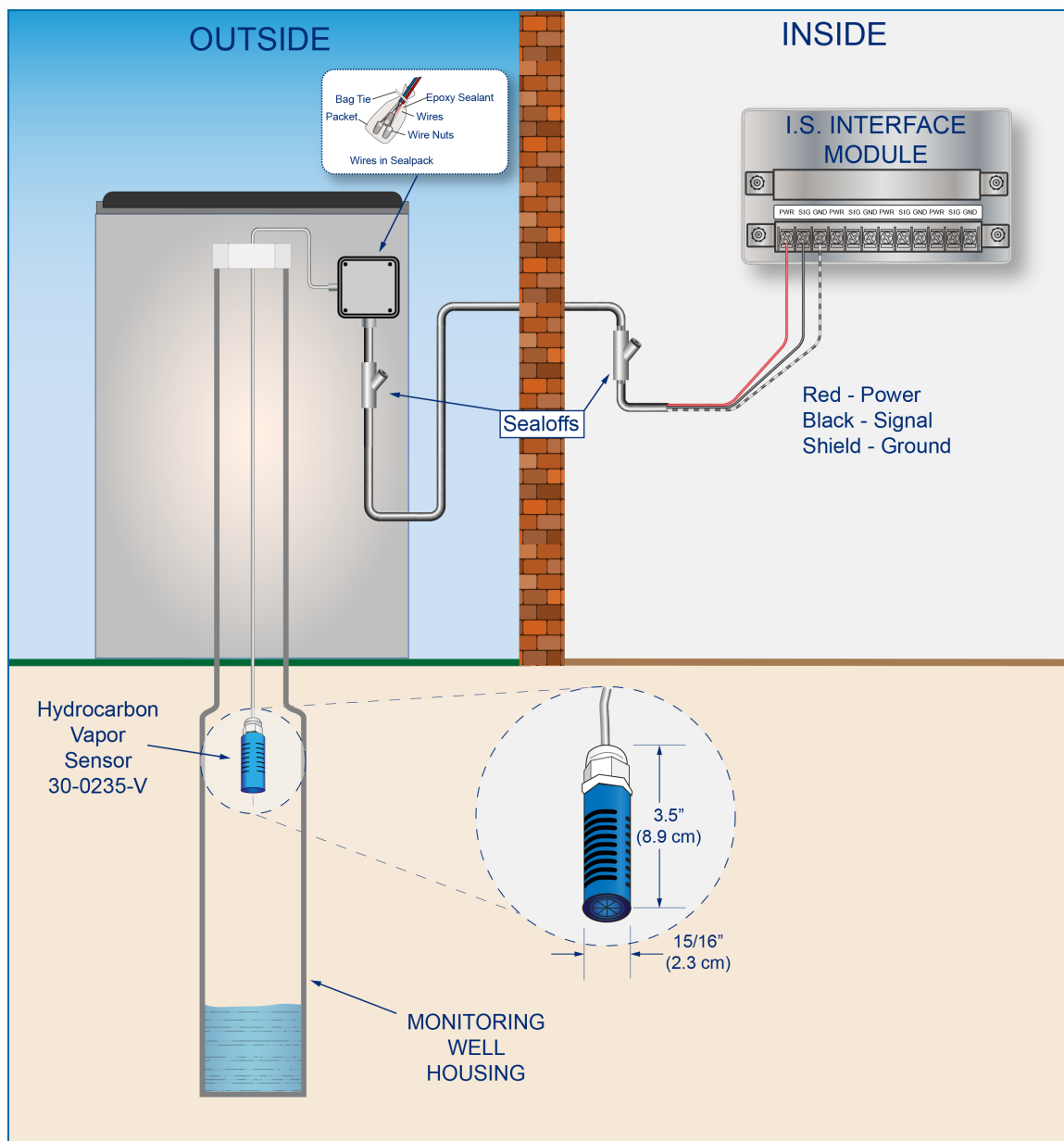
Controller Setup

The sensor must be **Auto Detected** on the console. Alarm thresholds are configured automatically through the *Intellisense* mechanism between the sensor and the console.

Test the Hydrocarbon Vapor Sensor

CAUTION: Use caution to prevent dangerous conditions when you do work in a hazardous area.

Make sure that the area has sufficient airflow when you do a test or remove contamination from the sensor. Make sure there are no open flames or hot surfaces near the work area.

- Put the sensor in the air space of a container half full with Mineral Spirits.
- Wait approximately 10 minutes. The test is satisfactory if an alarm condition or other event occurs. If the test results are unsatisfactory, replace the sensor.

If the controller does not go into an alarm condition, look to see if the thresholds are correctly programmed in the system. A sensor or wiring fault will cause a system alarm. Do a continuity test in the wiring and junction boxes. Make sure there is continuity with no short circuits.

Clean the Hydrocarbon Vapor Sensor

- Put the sensor fully into Denatured Alcohol for one (1) hour.
- Remove the sensor and let it dry in the air for one (1) hour.
- Reconnect the sensor.

NOTE: If the sensor does not return to sufficient resistance, replace the sensor if necessary.