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WirelessHART

HCDW Hydrocarbon Detector Probe with Water Level

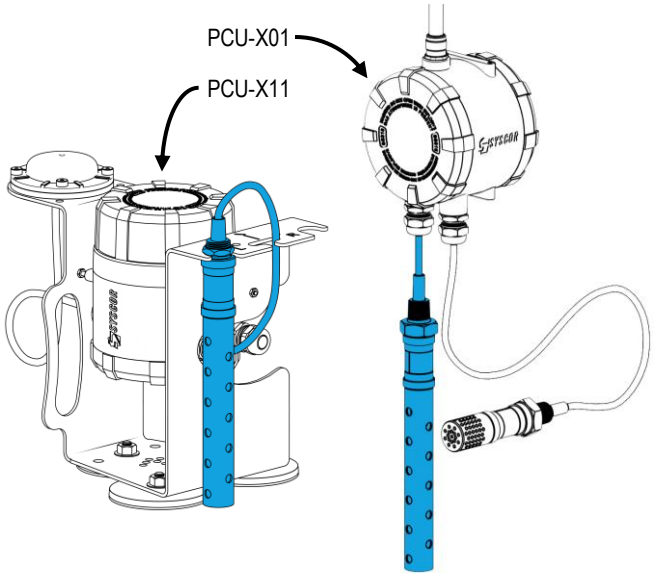


Figure 1. HCDW Probes in typical configurations with a PCU-X11 Inclinometer and a PCU-X01 Sensor Hub.

Description

Syscor's HCDW Hydrocarbon Detector Probe with Water Level can detect hydrocarbons (butane and heavier) and measure water level, temperature, and acceleration/vibration. The probe connects to a PCU-X01 Sensor Hub or PCU-X11 Inclinometer.

Detection and Measurement Capabilities

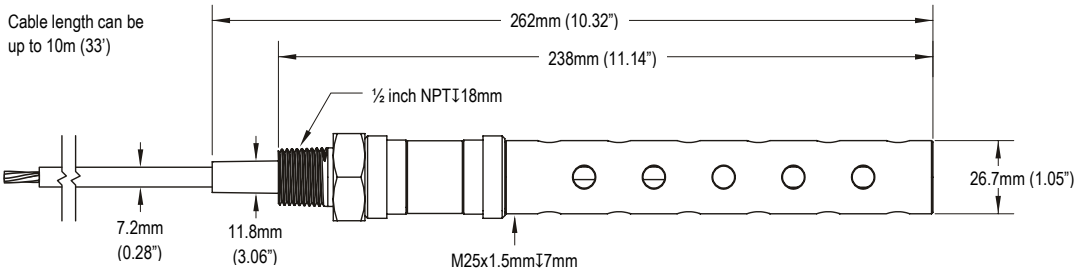
Hydrocarbon Detection: Syscor has developed and qualified, in close cooperation with the petroleum industry, a new generation of hydrocarbon detection Polymer Absorption (PA) Sensors. The probe contains two PA Sensors (for redundancy) built with Syscor's proprietary formulations. The PA sensors have a high signal-to-noise ratio, methane immunity, are corrosion proof, and are designed to operate for up to 30 years (5 years under water).

Water Level Measurement: The resistive water level sensor works only with conductive liquids. Cathodic protection from galvanic corrosion is achieved through gold plating and deposition of "sacrificial metal" on the sensor anode. Additional cathodic protection is achieved by energizing the probe for only brief time periods (20 milliseconds or less).

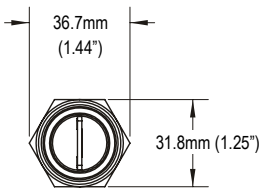
Temperature Measurement: Low power digital temperature sensor.

Acceleration/Vibration Measurement: A sealed, durable, MEMS sensor, referenced to gravity.

The HCDW Probe is capable of self-calibration in the field.



SIDE VIEW



END VIEW

Innovation driven by safety

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Specifications

Functional Specifications	
Power Usage	Nominal < 0.1 W
Sensor Features	Hydrocarbon Detection (butane and heavier), Water Level, Temperature, Accelerometer (see Performance Specifications)
Communication	Proprietary serial protocol to PCU-X01 or PCU-X11
Physical Specifications	
Enclosure	Stainless steel SS316 IP68, Type 4X
Wiring	4x1 conductor (red, black, white, green) 20 AWG tinned copper
Weight	500g [17.6oz.]
External Connections	Must be connected to port 1 or port 2 on a PCU-X01 or PCU-X11. If two sensor probes are connected to same PCU, then the total combined cable length for Intrinsically Safe operation cannot exceed 10m (33ft.).
Performance Specifications	
Polymer Absorption (PA) Sensors	Detects all hydrocarbons (butane and heavier) in air and water.
Water Level Sensor	Up to 5in. (12.7cm) detection range; 1/2in. intervals (not in metric).
Accelerometer	Ultra-low-power, high performance, three-axis linear accelerometer; Dynamically selectable range from 0g to 16g; Acceleration and velocity detection
Temp. Sensor	Resolution: 12 bits (0.0625°C) Accuracy: ±0.75°C (maximum) from -20°C to +85°C ±1°C (maximum) from -40°C to +125°C
Operating Temp.	-40°C to +60°C [-40°F to +140°F]

Certifications

USA	*FCC: 2AAZE-000697* *Intrinsic Safety:* *CSA 19CA70174889X* *Class I, Division 1, Groups C and D, T4* *Class I, Zone 0 AEx ia IIB T4 Ga*
Canada	*IC: 11413A-000697* *Intrinsic Safety:* *CSA 19CA70174889X* *Class I, Division 1, Groups C and D, T4* *Ex ia IIB T4 Ga*

Learn More

PCU-X01 Sensor Hub	syscor.com/downloads/syscor_spec-sheet_pcux01-wirelesshart-sensorhub_en_80175.pdf
PCU-X11 Inclinometer	syscor.com/downloads/syscor_spec-sheet_pcux11-wirelesshart-inclinometer_en_80177.pdf
Polymer Absorption (PA) Sensors	syscor.com/technology/pas
Micro-Electro-Mechanical-System (MEMS)	syscor.com/technology/mems

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