

# HCDW Sensor Probe



## Description

Sycor's Hydrocarbon Detector with Water Level (HCDW) sensor probe can detect hydrocarbons (butane and heavier) and measure water level, temperature, and acceleration/vibration. To operate, the probe can only be wired to Sycor's PCU-X01 Sensor Hub and PCU-X11 Inclinator.

## Detection and Measurement Capabilities

**Hydrocarbon Detection:** Sycor has developed and qualified, in close cooperation with the petroleum industry, a new generation of hydrocarbon detection Polymer Absorption (PA) Sensors. The probe contains three redundant PA Sensors built with Sycor's proprietary chemistry. The chemistry has a high signal-to-noise ratio, methane immunity, moisture resistance, and is optimized for different applications. In addition, the probe has the following capabilities:

- Detects hydrocarbons upon contact in air, underground, or within water bodies;
- Functions even when fully immersed in hot or cold water for years (including ice);
- Survives over 30 freeze/thaw cycles.

**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).

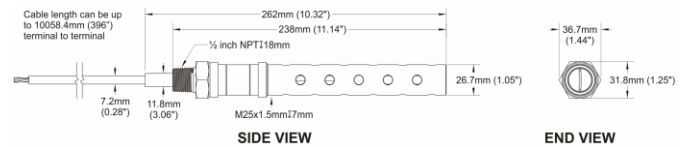
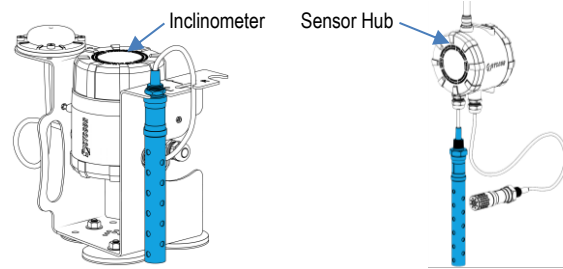
**Temperature Measurement:** Sycor uses a high accuracy, integrated circuit by Texas Instruments (TMP108).

**Acceleration/Vibration Measurement:** Sycor uses MEMS sensors that are sealed, durable, and referenced to gravity.

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

## Learn More

PCU-X01 Sensor Hub	<a href="https://www.sycor.com/downloads/PCU01DDS_WiHART-Sensor_Hub.pdf">https://www.sycor.com/downloads/PCU01DDS_WiHART-Sensor_Hub.pdf</a>
PCU-X11 Inclinator	<a href="https://www.sycor.com/downloads/PCU01DDS_WiHART-Inclinator.pdf">https://www.sycor.com/downloads/PCU01DDS_WiHART-Inclinator.pdf</a>
Polymer Absorption (PA) Sensors	<a href="https://www.sycor.com/technology/pas">https://www.sycor.com/technology/pas</a>
Micro-Electro-Mechanical-System (MEMS)	<a href="https://www.sycor.com/technology/mems">https://www.sycor.com/technology/mems</a>
Hydrocarbon Detector with Water Level (HCDW) Sensor Probe	<a href="https://www.sycor.com/downloads/HCDW01DDS_HCDW-Sensor.pdf">https://www.sycor.com/downloads/HCDW01DDS_HCDW-Sensor.pdf</a>



## Specifications

### Functional Specifications

Power Usage	Typical <0.1 W (system = Field Transmitter + sensors)
Sensor Features	Hydrocarbon Detection (butane and heavier), Water Level, Temperature, Accelerometer (see Performance Specifications)

### Physical Specifications

Power Supply	Sycor's Sensor Hub and Inclinator (Field Transmitters)
Communication	Proprietary protocol to Field Transmitters
Enclosure	Housing: Stainless steel SS316
Wiring	4x1 conductor (red, black, white, green) 20 AWG tinned copper
Weight	500g [17.6oz.]

Connect directly to the Sensor Hub or Inclinator via 1/2in. NPT port or via cable extension. **\*Intrinsically Safe Operation:** If one sensor probe is used, total cable length for Intrinsically Safe operation cannot exceed 10.05m (33ft.). If two sensor probes are used, total combined cable length for Intrinsically Safe operation cannot exceed 10.05m (33ft.).

### Performance Specifications

Polymer Absorption (PA) Sensors	Detects hydrocarbons (butane and heavier) in air and water; operates in environments where full submersion in water is expected (air/water)
Water Level Sensor	Up to 5in. (12.7cm) detection range; 1/2in. intervals (not in metric) Operating temperature range: > 0°C [32°F]
Accelerometer	MEMS digital output motion sensor; ultra-low-power, 3-axis "pico" accelerometer for both acceleration and velocity detection; Dynamically selectable range from 0g to 16g
Temp. Sensor	12 bit resolution; worst case accuracy ± 1°C [1.8°F]
Operating Temp.	-40°C to +60°C [-40°F to +140°F]

### Product 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
Europe	Intrinsic Safety: SIRA 18ATEX2249X Ex ia IIB T4 Ga CE2813
IECEX	Intrinsic Safety: IECEX CSA 18.0031X Ex ia IIB T4 Ga