

# HC-Tracker™ Safety System

Developed in close cooperation with the petroleum industry

## Application Challenge

It is necessary to reliably detect underground hydrocarbon leaks in various environmental conditions.

Monitoring systems must also comply with release detection regulations, including US EPA directives (e.g. Design and Installation of Monitoring Wells).

## Syscor's Solution

The HC-Tracker safety system is rapidly deployable as an effective and reliable leak detection system, due to:

### 1. Compliance

Syscor's Intrinsically Safe, WirelessHART Field Transmitters (PCU-X00/01/11) seamlessly integrate with existing DCS/SCADA and asset management systems.

### 2. Simple Installation

A well is excavated using standard hydrovac equipment. A Stackable Monitoring Well is assembled using two-foot sections of threaded, perforated, stainless steel (SS) tubing to the desired depth. Sensor probe(s), Instrumentation Cable(s) and polyvinyl (PV) test tube(s) are bundled inside the PolyFlouro Wicking Sleeve which rests within the tubing. The PCU-X01 Sensor Hub and antenna are mounted to an aboveground section of the tubing.

### 3. Ease of Sensor Testing

Through the test tube nozzle, inject a small volume of butane inside the PV test tube that is zip-strapped to each sensor probe. A fully functional sensor probe detects the butane from the end of the PV test tube. The Sensor Hub then sends a notification to the operator's monitoring interface. As the butane evaporates, the tested Polymer Absorption (PA) sensors return to normal.

### 4. Materials Innovation

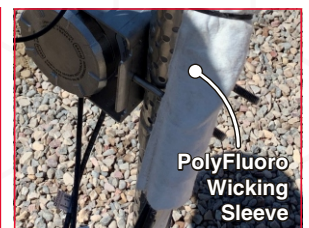
Syscor's Polymer Absorption (PA) Sensors provide accurate and reliable hydrocarbon detection in air (humid or dry), within water bodies, and even in ice. The PA sensors are used in both the Hydrocarbon Detector (HCD) and Hydrocarbon Detector with Water Level (HCDW) sensor probes.

Syscor's PolyFlouro Wicking Sleeve acts as a hydrocarbon amplifying wick to enhance hydrocarbon sheen detection.

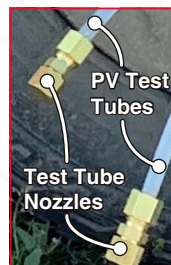
## Hydrocarbon Leak Detection Monitoring Well



PCU-X01 Sensor Hub with Universal Mounting Bracket



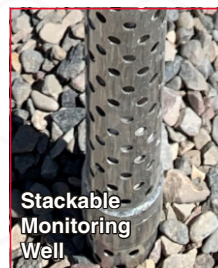
PolyFlouro Wicking Sleeve



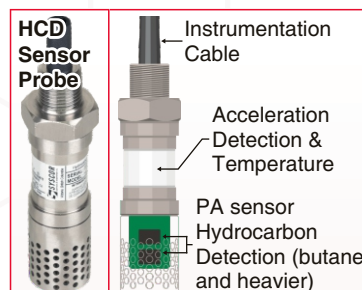
PV Test Tubes  
Test Tube Nozzles



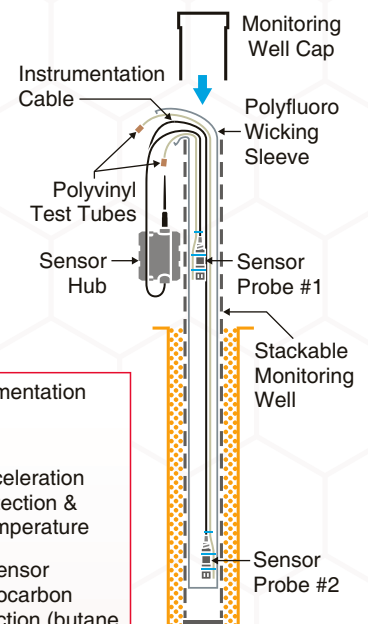
PolyFlouro Wicking Sleeve

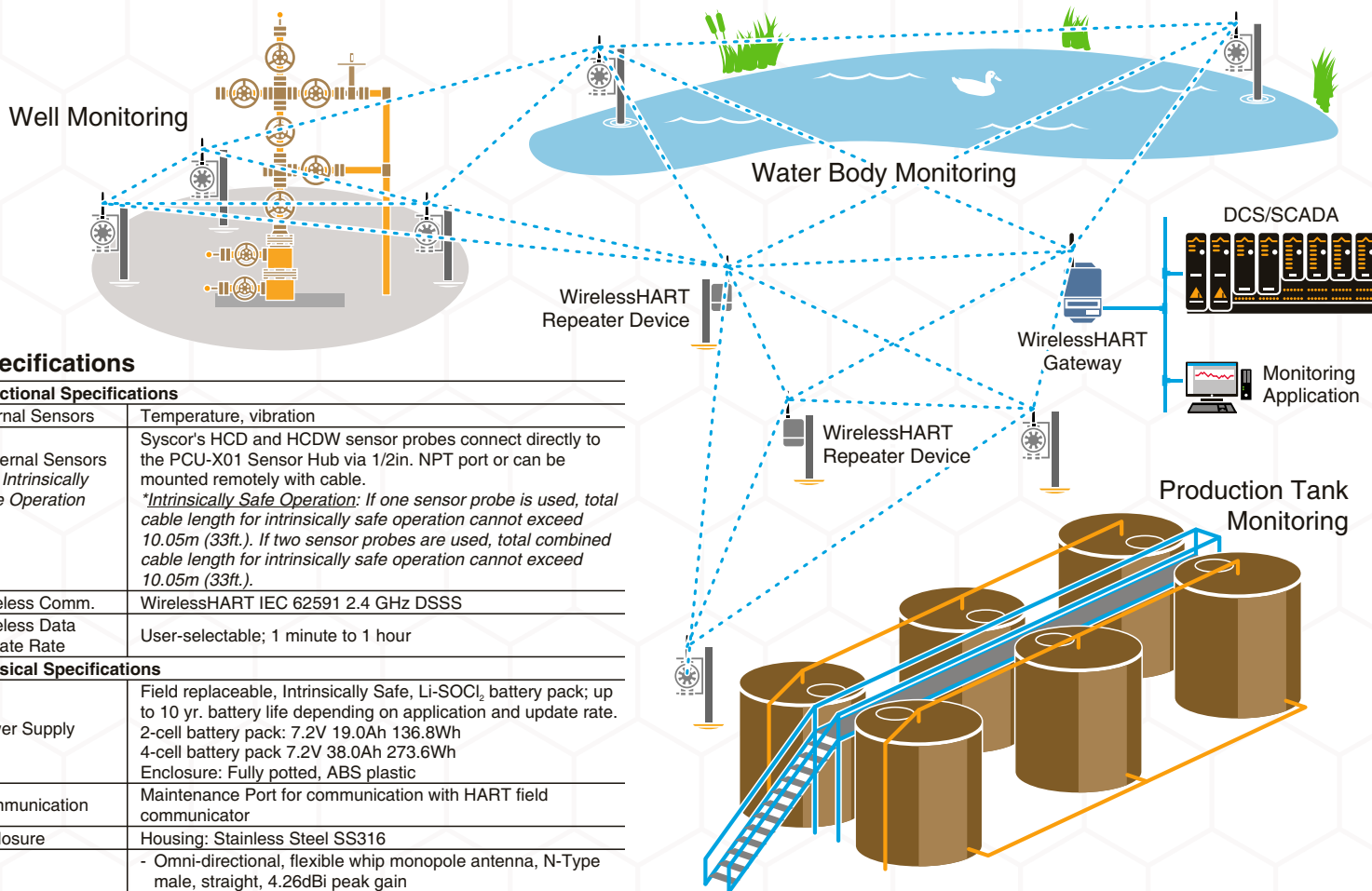


Stackable Monitoring Well



HCD Sensor Probe  
Instrumentation Cable  
Acceleration Detection & Temperature  
PA sensor Hydrocarbon Detection (butane and heavier)





### Specifications

#### Functional Specifications

|  |   |
|--|---|
| Internal Sensors                                   | Temperature, vibration  |
| *External Sensors and Intrinsically Safe Operation | Syscor's HCD and HCDW sensor probes connect directly to the PCU-X01 Sensor Hub via 1/2in. NPT port or can be mounted remotely with cable.<br><i>*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.).</i> |
| Wireless Comm.                                     | WirelessHART IEC 62591 2.4 GHz DSSS   |
| Wireless Data Update Rate                          | User-selectable; 1 minute to 1 hour   |

#### Physical Specifications

|                            |   |
|----------------------------|---|
| Power Supply               | Field replaceable, Intrinsically Safe, Li-SOCl <sub>2</sub> battery pack; up to 10 yr. battery life depending on application and update rate.<br>2-cell battery pack: 7.2V 19.0Ah 136.8Wh<br>4-cell battery pack 7.2V 38.0Ah 273.6Wh<br>Enclosure: Fully potted, ABS plastic  |
| Communication              | Maintenance Port for communication with HART field communicator   |
| Enclosure                  | Housing: Stainless Steel SS316  |
| Antenna Options 2.4-2.5GHz | <ul style="list-style-type: none"> <li>- Omni-directional, flexible whip monopole antenna, N-Type male, straight, 4.26dBi peak gain</li> <li>- Omni-directional, rigid monopole antenna, N-Type male, straight, 5dBi peak gain</li> <li>- Other antenna options are available</li> <li>- Optional lightning arresters are available</li> </ul>            |
| Antenna Port               | N-Type female   |
| Sensor Probe Ports         | 1/2in. NPT  |
| Sensor Wiring Connections  | Screw terminals for 4x1 conductor 20 AWG tinned copper wire   |
| Weight                     | Field Transmitter-3.75kg [8.3lbs.]; HCD- 400g [14.1oz.]; HCDW-500g [17.6oz.]; Universal Mounting Bracket- 0.5kg [1.1lbs.]; 2-cell Battery Pack-300g [10.6oz.]; 4-cell Battery Pack -600g [21.2oz.]; Stackable Monitoring Well (2ft. section)-1kg [2.2lbs.]; Stackable Monitoring Well Endcap-102g [0.22lbs.]; Polyfluoro Wicking Sleeve-35g (1.23oz) /ft. |
| Mounting Options           | Universal Mounting Bracket with optional magnets  |

#### Performance Specifications

|                               |  |
|-------------------------------|--|
| Electromagnetic Compatibility | Meets all relevant requirements of EN 62479:2010 and EN-61326-1:2013   |
| Vibration and Acceleration    | Ultra-low-power, high performance, three-axis linear accelerometer; Dynamically selectable range from 0g to 16g; Acceleration and velocity detection |
| Temp. Sensor                  | 8 bit resolution; worst case accuracy $\pm 2^{\circ}\text{C}$ [3.6°F]  |
| Operating Temp.               | -40°C to +60°C [-40°F to +140°F]   |

#### \*Product Certifications

Note: Certifications apply to the complete system (Sensor Hub (IP67, Type 4X) + sensor probes (IP68, Type 4X))

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| <b>USA :</b><br>FCC: 2AAZE-000697<br>Intrinsic Safety: [CSA] 70174889<br>Class I, Division 1, Groups C and D, T4<br>Class I, Zone 0 AEx ia IIB T4 Ga | <b>Canada :</b><br>IC: 11413A-000697<br>Intrinsic Safety: [CSA] 70174889<br>Class I, Division 1, Groups C and D, T4<br>Ex ia IIB T4 Ga | <b>Europe :</b><br>Intrinsic Safety: [SIRA] 18ATEX2249X<br>Ex ia IIB T4 Ga<br>CE <sub>0518</sub> |
|--|--|--|

### Learn More

|   |   |
|---|---|
| HC-Tracker  | <a href="https://syscor.com/solutions/hctracker">https://syscor.com/solutions/hctracker</a>   |
| PCU-X01 Sensor Hub  | <a href="https://syscor.com/downloads/PCU01DDS_WiHART-Sensor_Hub.pdf">https://syscor.com/downloads/PCU01DDS_WiHART-Sensor_Hub.pdf</a>                     |
| PCU-X00 Repeater  | <a href="https://syscor.com/downloads/PCU01DDS_WiHART-Repeater.pdf">https://syscor.com/downloads/PCU01DDS_WiHART-Repeater.pdf</a>                         |
| Hydrocarbon Detector (HCD) Sensor Probe                   | <a href="https://syscor.com/downloads/HCD01DDS_HCD-Sensor.pdf">https://syscor.com/downloads/HCD01DDS_HCD-Sensor.pdf</a>                                   |
| Hydrocarbon Detector with Water Level (HCDW) Sensor Probe | <a href="https://syscor.com/downloads/HCDW01DDS_HCDW-Sensor.pdf">https://syscor.com/downloads/HCDW01DDS_HCDW-Sensor.pdf</a>                               |
| Field Transmitter Battery Packs                           | <a href="https://syscor.com/downloads/BATTERY01DDS_FT Batteries.pdf">https://syscor.com/downloads/BATTERY01DDS_FT Batteries.pdf</a>                       |
| Antennas  | <a href="https://syscor.com/products/antennas">https://syscor.com/products/antennas</a>   |
| Universal Mounting Bracket                                | <a href="https://syscor.com/downloads/BACKET02DDS_UniversalMountingBracket.pdf">https://syscor.com/downloads/BACKET02DDS_UniversalMountingBracket.pdf</a> |
| Stackable Monitoring Well                                 | <a href="https://syscor.com/downloads/TUBING01DDS_SMonitoringWell.pdf">https://syscor.com/downloads/TUBING01DDS_SMonitoringWell.pdf</a>                   |
| Instrumentation Cable                                     | <a href="https://syscor.com/downloads/CBL01DDS_4x1-Cable.pdf">https://syscor.com/downloads/CBL01DDS_4x1-Cable.pdf</a>                                     |
| Monitoring Software                                       | <a href="https://syscor.com/products/software">https://syscor.com/products/software</a>   |