Rapid Deployment External Leak Detection System (ELDS) - Solution Sheet

Developed in close cooperation with the petroleum industry

Description

The globally scalable Rapid Deployment ELDS was developed as an IIoT solution bundled with Syscor's hydrocarbon leak detection sensors for sites that lack power but are within cell range.

Applications

The Rapid Deployment ELDS offers end-to-end above and below ground hydrocarbon monitoring for well sites, water bodies, production facilities, pipeline right-of-ways, and other applications (butane and heavier).

Detection and Measurement Capabilities

Syscor's passive Hydrocarbon Detector with HDPE enclosure (HCD-P) sensor probe contains two polymer absorption (PA) sensors offering a high signal-to-noise ratio, methane immunity, and moisture resistance. Up to two HCD-P sensor probes with four PA sensors may be used with each Rapid Deployment ELDS.

Communications & Power

Alerts are transmitted through cellular networks using industry standard protocols. No reconfiguring of existing systems is required. Two lightweight and field replaceable lithium thionyl chloride batteries provide 2+ years of power. As an alternative, Syscor's external lithium thionyl chloride battery packs provide up to 10 years of power.

Installation

The Rapid Deployment ELDS can be mounted using standard hardware. Magnets may also be used on flat steel surfaces.

A robust, lockable enclosure protects internal components from harsh environmental conditions.
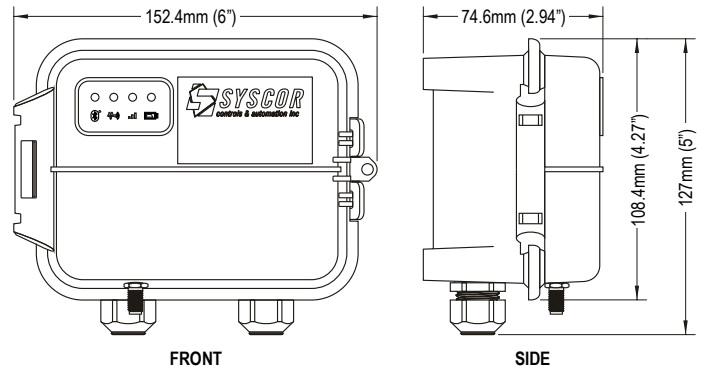
Monitoring Software & Security

Syscor's HMI is a fully customizable, mobile device-compatible, performance dashboard that scales easily for monitoring of geographically dispersed assets. Alarm rationalization tools provide flexibility of information management and threat analysis. The solution can be on-premise, server-based, or entirely cloud-based.

Connections to the HMI are encrypted using industry standard HTTPS and enforce modern ciphers and protocols to prevent Man-in-the-Middle (MITM) attacks. Connections to HMI servers hosted in Syscor's cloud are also filtered through intermediary servers to reduce potential attack vectors.
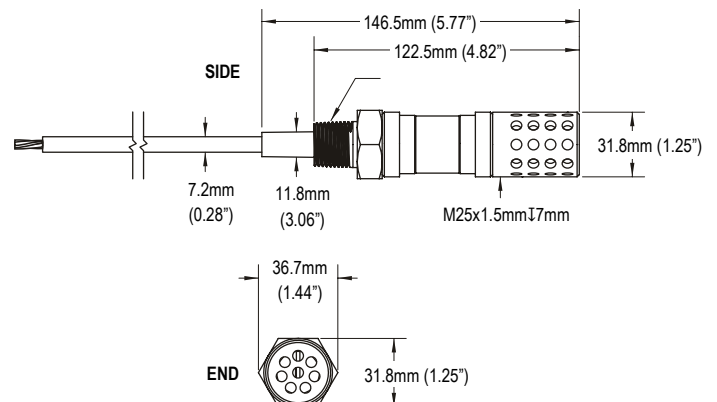
To avoid direct protocol-level interconnect, data can be transmitted to existing SCADA in a cyber-secure fashion through fixed-format email that is parsed and interpreted by SCADA. Alternatively, a purpose-built protocol translation device can communicate to existing SCADA through dry contact digital outputs.

Rapid Deployment External Leak Detection System

152.4mm (6")   74.6mm (2.94")   108.4mm (4.27")   127mm (5")

FRONT   **SIDE**

HCD-P Sensor Probe

146.5mm (5.77")
122.5mm (4.82")
SIDE
7.2mm (0.28")   11.8mm (3.06")   M25x1.5mm↧7mm   31.8mm (1.25")
36.7mm (1.44")
END   31.8mm (1.25")

Specifications

Functional Specifications	
2G	GSM 850, GSM 900, DCS 1800, PSC 1900
3G	FDD B1, B2, B4, B5, B8
LTE Category 1	Verizon: Bands 2, 4, 13 AT&T, T-Mobile: Bands 2, 4, 5, 12 with 3G/2G fallback
Configuration and Management	Digi Remote Manager/Local USB to Serial CU
Remote Data Access	Modbus RTU and ASCI
HMI	Options: Digi HMI alone or Syscor's cloud monitoring software pulling data through the Digi HMI

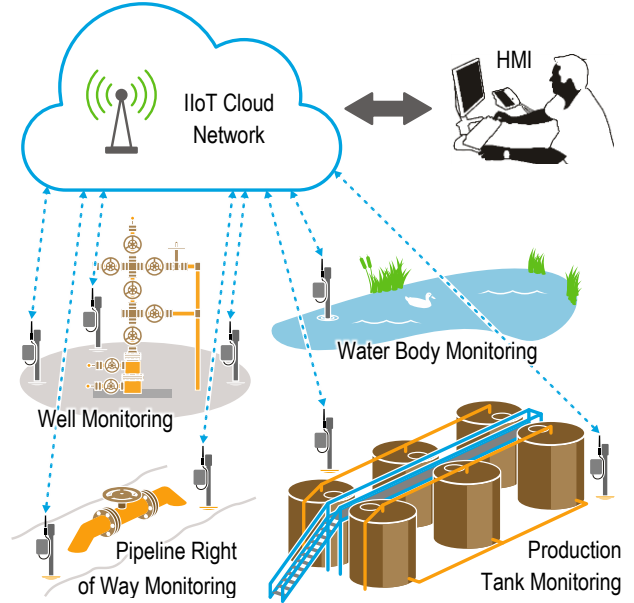| Physical Specifications	

Power Supply	Rapid Deployment ELDS Battery Pack: Lithium thionyl chloride, non-rechargeable, field replaceable, 7.2 V, 14.5 Ah;
	
	Lifespan approximately 2 years at 1 sample per minute and 1 data upload per day. Note: alarm notifications occur immediately upon reaching setpoint.
	
	Syscor's Optional External Battery Packs:
	1) Lithium thionyl chloride, non-rechargeable, field replaceable;
	   4-cell (7.2V 38.0Ah 273.6Wh);
	   Lifespan up to 3 years depending on update rate
	2) Lithium thionyl chloride, non-rechargeable, field replaceable;
	   24-cell (7.2 V, 228Ah,1642Wh);
	   Lifespan approximately 10+ years depending on update rate

Communication	HCD-P to Rapid Deployment ELDS: Proprietary Syscor protocol; Rapid Deployment ELDS to IIoT cloud network: Cellular
Enclosure	Rapid Deployment ELDS: Lexan/IP66 HCD-P: High density polyethylene (HDPE)
Antenna Options 2.4GHz	Linear, direct/SMA male, straight, 3dBi; VSWR <3:1; <5:1 at 2500-2690MHz<3:1; 50Ohms impedance; 3G/4G/LTE (699-960/1710-2690MHz); ABS material; 40g (1.4oz) WxHxT: 3.80cm (1.45in), 19.6cm (7.71in), 1.38cm (0.54in)
Antenna Port	External SMA
Sensor Probe Ports	2x HCD-P sensor probes
Sensor Probe Wiring	4x1 conductor (Black, Red, White, Green); 20 (7/28) AWG Tinned Copper
Weight	304g (Rapid Deployment ELDS + Antenna); 42.9g (HCD-P)
Mounting Options	Standard Installation hardware or magnetic base provided by Syscor

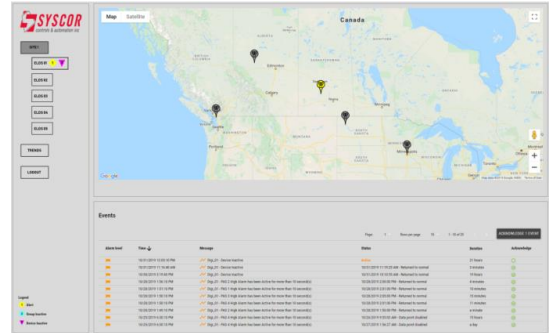| Performance Specifications	
Electromagnetic Compatibility (Immunity)	EN 55024:2010
Operating Temp.	-35°C to +60°C [-31°F to +140°F]
Hydrocarbon Detection	Syscor's HDC-P sensor probe with Polymer Absorption Sensors (PA) sensors reliably detects direct hydrocarbon contact (butane and heavier); the probe operates underground and within air, hot and cold water, and ice.

### Certifications *Rapid Deployment ELDS (CSENSE-A310)*

USA	C-UL-US listed E165880 Class I, Division II, Groups A, B, C, and D, T6	FCC: RI7LE910NAV2 & QOQBLE112 	AEx nA IIC T6 Gc
Canada	C-UL-US listed E165880 Class I, Division II, Groups A, B, C, and D, T6	IC: 5131A-LE910N & 5123A-BGTBLE112 	Ex nA IIC T6 Gc
Europe	Ex II 3G	DEMKO 16 ATEX 1717X	Ex nA IIC T6 Gc

HMI

IIoT Cloud Network

Water Body Monitoring

Well Monitoring

Pipeline Right of Way Monitoring

Production Tank Monitoring

Rapid Deployment ELDS Global Screen with Alarm (Yellow)

Rapid Deployment ELDS Device Screen with Alarm (Yellow)
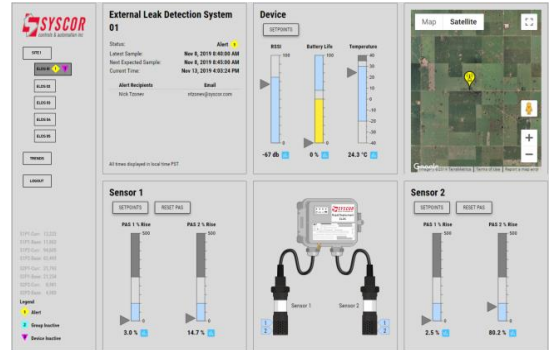
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Monitoring Software	syscor.com/products/software

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ISO 9001:2015