



### ▶ Highlights

- 1-5 Vdc hydrostatic sensor input (24-bit ADC)
- Sensor up to 150 ft / 457 m length
- Up to a 10-year battery life<sup>1</sup>
- Self-contained, rugged design
- Installs in minutes
- IP66, -40 °C to 70 °C (-40 °F to 158 °F)
- 900 MHz / 915 MHz / 2.4 GHz / 868 MHz
- Secure AES encryption
- Class I, Division 1 (Zone 0), Intrinsically Safe



US Patent #6,967,589



OTC Transmitters

OTC Gateway

Local  
Controller

RTU/EFM/PLC/  
DCS/HMI/  
Long-Haul Radio



Network Infrastructure



Cloud (Analytics)

## ▶ Cost-Effective Wireless Liquid Level Monitoring Solution

### Supports 1-5 V Hydrostatic Level Sensors

The OleumTech® OTC Wireless Hydrostatic Level Transmitter measures water level by monitoring the pressure at the bottom point of vented top mount tanks, deep wells, water towers, rivers, and lakes. The SM-HP1 transmitter is equipped with one 0-5 Vdc analog input and provides high resolution 24-bit analog to digital conversion (ADC). The liquid level transmitter can supply up to 9.5 Vdc to the connected submersible pressure sensor. This ultra-low-power transmitter is powered by a replaceable battery pack that provides up to a 10-year life.<sup>1</sup>

### Reliable, Scalable, and Safe

The field-proven wireless transmitter communicates with an assigned wireless gateway within the OTC Wireless Sensor and I/O Network creating a highly scalable network, accommodating virtually any I/O requirement.

The OleumTech wireless transmitter is certified for use in Class I, Division 1 (Zone 0) hazardous locations. It is intrinsically safe, designed not to cause a spark, and can be serviced without being removed from a process.

### Technical Specifications



#### HARDWARE FEATURES

Device Functionality	· Liquid Level Sensing Wireless Transmitter Using Hydrostatic Technology
Embedded Controller	· Ultra-Low Power RISC Microcontroller with Internal FLASH (Field Upgradeable)
Configuration	· Standard RS232 Serial / BreeZ® Software for PC
Sensor Type	· Submersible Hydrostatic Pressure Sensor (Sold Separately), Wide Operating Temperature Range
Power Source	· Self-Contained, Internal 3.6 Vdc Lithium Battery
Internal Battery Life	· Over 10 Years, Based on User Defined Reporting Intervals <sup>1</sup>
Device Diagnostics	· Health Tags: Battery Voltage, Received Signal Strength Indication (RSSI), RF Refresh, RF Timeout

#### WIRELESS COMMUNICATIONS

Radio Band	· ISM Band (License-Free)
900 MHz / 915 MHz	· FHSS, FSK, AES Encryption 256-bit (900 MHz), 128-bit (915 MHz)
2.4 GHz	· DSSS, AES Encryption 128-bit
868 MHz	· LBT-AFA, AES Encryption 128-bit
Bit Rate	· 900/915 MHz: 9600 bps / 115.2 kbps; 2.4 GHz: 250 kbps; 868 MHz: 80 kbps
Output Power (Max)	· 900/915 MHz: 10 mW; 2.4 GHz: 63 mW; 868 MHz: 25 mW
Receiving Sensitivity	· 900/915 MHz: -110 dBm @ 9600 bps, -100 dBm @ 115.2 kbps · 2.4 GHz: -101 dBm @ 250 kbps; 868 MHz: -106 dBm @ 80 kbps
RF Range	· 900/915 MHz: Up to 7500 Feet / 1.4 Miles / 2.3 km with Clear Line of Sight <sup>2</sup> · 2.4 GHz: Up to 1.9 Miles / 3.1 km with Clear Line of Sight <sup>2</sup> · 868 MHz: Up to 1.5 Miles / 2.4 km with Clear Line of Sight <sup>2</sup>

#### CERTIFICATIONS & COMPLIANCE

EMC/EMI	 <ul style="list-style-type: none"> <li>· FCC Part 15 (USA), IC ICES-003 (Canada), ACMA (Australia)</li> <li>· AS/NZS CISPR 32 (Australia), EN55032 &amp; EN55024 (EU)</li> </ul>
Safety	 <ul style="list-style-type: none"> <li>· Class I, Division 1, Groups A, B, C, D T3C; Ex ia IIC T3</li> <li>· Class I, Zone 0; AEx ia IIC T3</li> <li>· ATEX: Sira 13ATEX2142X; Ex ia IIC T3 Ga; II 1 G</li> <li>· IECEx: SIR 13.0054X; Ex ia IIC T3 Ga</li> </ul>

#### MECHANICAL SPECIFICATIONS

Dimensions	· 5" (W) x 12.6" (H) x 4.4" (D) / 127 mm (W) x 320 mm (H) x 112 mm (D)
Package Dimensions	· 10.25" (W) x 14" (H) x 6.5" (D) / 260 mm (W) x 356 mm (H) x 165 mm (D)
Package Weight	· ~7 lbs / 3.2 kg
Connection Fitting	· (3) 3/4" NPT Female Ports (2x Plugged)
Enclosure Casing Material	· Type 4X Aluminum; IP66

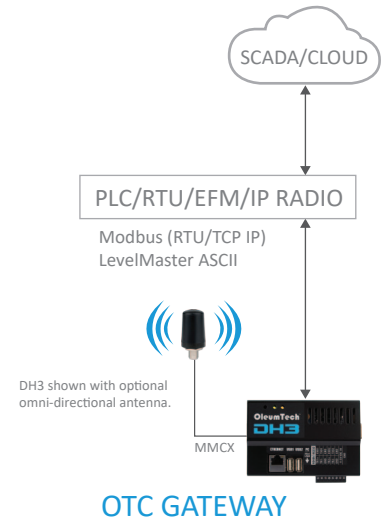
#### GENERAL SPECIFICATIONS

Operating Conditions	<ul style="list-style-type: none"> <li>· Ambient Temperature (Class I, Division 1 / Zone 0): -40 °C to 70 °C (-40 °F to 158 °F)</li> <li>· Ambient Temperature (Non-Hazardous Applications): -40 °C to 80 °C (-40 °F to 176 °F)</li> <li>· Humidity: 0 to 99 %, Non-Condensing</li> </ul>
Warranty	· 2-Year Parts and Labor
Country of Origin	· USA

#### ORDERING INFORMATION

Model Numbers	· SM5000-HP1 (900), SM5010-HP1 (915), SM5400-HP1 (2.4), SM5020-HP1 (868)
Wirelessly Connects To	· OTC Wireless Gateway
Configuration Cable	· SX1000-CC2, 20-ft All-in-One Configuration Cable
Replacement Battery	· Use OleumTech SX1000-BP3 Only

### Networking Diagram



#### OTC TRANSMITTERS

Point-to-Multipoint  
"Star Topology"



<sup>1</sup>Ambient temperature and one transmission per 1 min interval without any retries were used to calculate battery life. Actual battery life may vary depending on environmental factors, application, and usage. Use data shown above only as general point of reference. See OleumTech Battery Life Expectancy Chart for predicted battery life based on reporting interval.

<sup>2</sup>The maximum RF range data was collected under optimal test conditions, including a clear line of sight between antennas. Actual wireless RF range may vary depending on location, RF interference, weather, antenna type, cable type, and line of sight.

