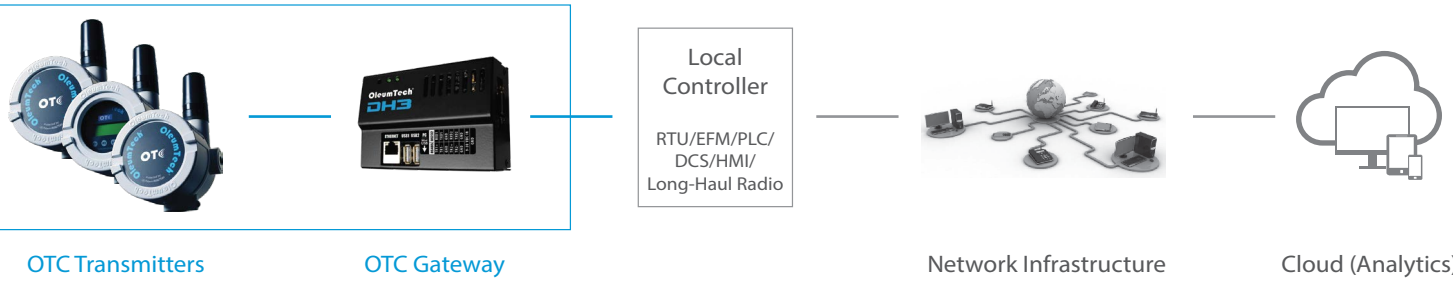
DATASHEET

SM-HP1

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[1]
- Supports Over-the-Air (OTA) functionality for updating the device configuration/calibration[2]
- Self-contained, rugged design
- Installs in minutes
- IP66, -40 ˚C to 70 ˚C (-40 ˚F to 158 ˚F)
- 900 MHz
- Secure AES encryption
- Class I, Division 1 (Zone 0), Intrinsically Safe

US Patent #6,967,589



OTC Transmitters | OTC Gateway | 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 12 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.[1]

Reliable, Scalable, and Safe

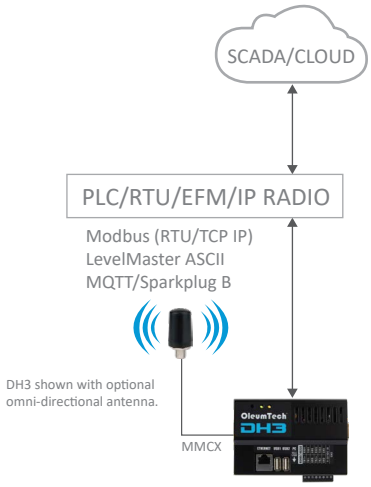
The field-proven wireless transmitter communicates with an assigned wireless gateway within the OTC Wireless Sensor and I/O Network creating a highly scalable network, accommodating virtually any I/O requirement.

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
Available Power	· Supplies Sensor Power Up to 12 Vdc
Sensor Power Up Delay	· Approximately 500 ms
Internal Battery Life	· Over 10 Years, Based on User Defined Reporting Intervals[1]
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	· FHSS, FSK, AES Encryption 256-bit (900 MHz)
Bit Rate	· 9600 bps
Output Power (Max)	· 10 mW
Receiving Sensitivity	· -110 dBm @ 9600 bps, -100 dBm @ 115.2 kbps
RF Range	· Up to 7500 Feet / 1.4 Miles / 2.3 km with Clear Line of Sight[2]
CERTIFICATIONS & COMPLIANCE	
EMC/EMI	· FCC Part 15 (USA), IC ICES-003 (Canada)
Safety	· Class I, Division 1, Groups A, B, C, D T3C; Ex ia IIC T3 · Class I, Zone 0; AEx ia IIC T3 · IECEx: SIR 13.0054X; Ex ia IIC T3 Ga
MECHANICAL SPECIFICATIONS	
Dimensions	· 5" (W) x 12.6" (H) x 4.4" (D) / 127 mm (W) x 320 mm (H) x 112 mm (D)
Dimensions, Sink Weight	· 3.36" / 85.3mm (Height) x 1.25" / 31.8mm (Outer Diameter), 0.5" / 12.7mm (Inner Diameter)
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	· Ambient Temperature (Class I, Division 1 / Zone 0): -40 °C to 70 °C (-40 °F to 158 °F) · Ambient Temperature (Non-Hazardous Applications): -40 °C to 80 °C (-40 °F to 176 °F) · Humidity: 0 to 99 %, Non-Condensing
Warranty	· 2-Year Parts and Labor
Country of Origin	· USA
ORDERING INFORMATION	
Model Numbers	· SM5000-HP1
Wirelessly Connects To	· OTC Wireless Gateway
Configuration Cable	· SX1000-CC2, OTC Configuration Cable Kit
Replacement Battery	· Use OleumTech SX1000-BP3 Only

Networking Diagram



OTC GATEWAY

OTC TRANSMITTERS

Point-to-Multipoint
"Star Topology"

[1]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.

[2]OTA functionality does not support changing the radio settings or upgrading the device firmware.

[3]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.

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