DATASHEET
HP1

OT©

Highlights

- 1x 1-5 Vdc hydrostatic sensor input
- Sensor up to 150 ft / 457 m length
- Up to a 10-year battery life[1]
- Self-contained, rugged design
- Installs in minutes
- IP66, -40 ˚C to 70 ˚C
- 900 MHz / 2.4 GHz / 868 MHz
- Secure AES encryption
- Class I, Division 1 (Zone 0), Intrinsically Safe

CSA C US   CE 0518   Ex II 1G   IEC   IECEx

US Patent #6967589

| OTC Transmitters | OTC Gateway | | Local Controller RTU/EFM/PLC/ DCS/HMI/ Long-haul Radio | Network Infrastructure | Cloud (Analytics) |

Cost-Effective Wireless Level Monitoring Solution

Supports 1-5 V Hydrostatic Level Sensors

The OleumTech® HP1 Hydrostatic Transmitter measures water level by monitoring the pressure at the bottom point of vented top mount tanks, deep wells, water towers, rivers, and lakes. This Transmitter is equipped with one 0-5 Vdc analog input and provides high resolution 24-bit analog to digital conversion (ADC). The HP1 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.[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

Networking Diagram

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 [1]
Device Diagnostics	· Health Tags: Battery Voltage, Received Signal Strength Indication (RSSI), RF Refresh, RF Timeout

WIRELESS COMMUNICATIONS

Type: 900 MHz / 915 MHz 2.4 GHz / 868 MHz	· ISM Band, Spread Spectrum
	· 900 MHz: FHSS (Frequency Hopping), FSK, AES Encryption 256-bit (900 MHz), 128-bit (915 MHz)
	· 2.4 GHz: DSSS (Direct-Sequence), AES Encryption 128-bit
	· 868 MHz: LBT (Listen Before Talk), AFA (Adaptive Frequency Agility), AES Encryption 128-bit
Bit Rate	· 900 MHz: 9600 bps / 115.2 kbps; 2.4 GHz: 250 kbps; 868 MHz: 80 kpbs
Output Power (Max)	· 900 MHz: 10 mW; 2.4 GHz: 63 mW; 868 MHz: 25mW
Receiving Sensitivity	· 900 MHz: -110 dBm @ 9600 bps, -100 dBm @ 115.2 kbps
	· 2.4 GHz: -100 dBm @ 250 kbps; 868 MHz: -101 dBm @ 80 kbps
RF Range	· 900 MHz: Up to 7500 Feet / 1.4 Miles / 2.3 km with Clear Line of Sight[2]
	· 2.4 GHz: Up to 4.3 Miles / 7 km with Clear Line of Sight[2]
	· 868 MHz: Up to 5.2 Miles / 8.4 km with Clear Line of Sight[2]

CERTIFICATIONS & COMPLIANCE

EMC/EMI	· FCC Part 15 (USA), IC ICES-003 (Canada), ACMA (Australia)
	· AS/NZS CISPR 32 (Australia), EN55032 & EN55024 (EU)
Safety	· Class I, Division 1, Groups A, B, C, D T3C; Ex ia IIC T3
	· Class I, Zone 0; AEx ia IIC T3
	· ATEX: Sira 13ATEX2142X; Ex ia IIC T3 Ga; II 1 G
	· IECEx: SIR 13.0054X; Ex ia IIC T3 Ga

MECHANICAL SPECIFICATIONS

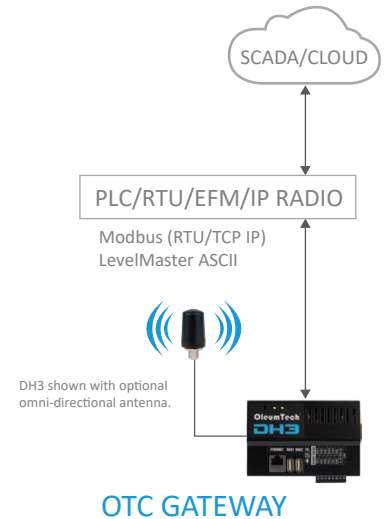|	
Dimensions	· 5" (W) x 12.6" (H) x 4.4" (D) / 127 mm (W) x 320 mm (H) x 112 mm (D)
Package Dimensions	· 10.25" (W) x 14" (H) x 6.5" (D) / 260 mm (W) x 356 mm (H) x 165 mm (D)
Package Weight	· ~7 lbs / 3.2 kg
Connection Fitting	· 3x 3/4" NPT Female Ports (2x Plugged)
Enclosure Casing Material	· Type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

GENERAL SPECIFICATIONS

Operating Conditions	· Ambient Temperature (Class I, Division 1 / Zone 0): -40 °F to 158 °F (-40 °C to 70 °C)
	· Ambient Temperature (Non-Hazardous Applications): -40 °F to 176 °F (-40 °C to 80 °C)
	· Humidity: 0 to 99 %, Non-Condensing
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

SCADA/CLOUD

PLC/RTU/EFM/IP RADIO

Modbus (RTU/TCP IP)
LevelMaster ASCII

DH3 shown with optional
omni-directional antenna.

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] 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.

ISO 9001 REGISTERED COMPANY

MADE IN USA