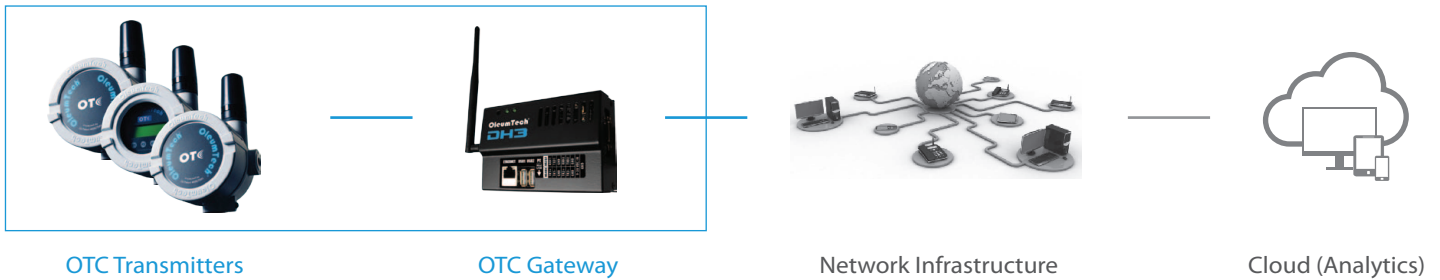DATASHEET
LL6

OTC

Highlights

- For water/wastewater applications only
- Non-contact, no moving part solution
- Level reading range:
  1 ft to 12 ft / 0.3 m to 3.4 m
- Up to a 10-year battery life[1]
- Advanced local LCD display interface
- Self-contained, rugged design
- Installs in minutes
- IP66, -40 ˚C to 80 ˚C
- 900 MHz or 2.4 GHz radio option
- Secure AES encryption

US Patent #6967589

| OTC Transmitters | OTC Gateway | Network Infrastructure | Cloud (Analytics) |

Non-Contact Wireless Water Level Monitoring Solution

Ultrasonic Level Sensor Included

The OleumTech® LL6 Ultrasonic Transmitter does not come in contact with the liquid (product) or have any moving parts that require maintenance. Specifically designed for water and wastewater applications, the LL6 provides 1 to 12 ft range of reliable level measurement with a high resolution of 0.04 inches. The LL6 can be installed easily and quickly with the provided mounting hardware. Additional data such as volume and tank full percentage can be reported as well based on user preference. This ultra-low-power transmitter is powered by a replaceable battery pack that provides up to a 10-year life.[1] The push button LCD interface allows for device configuration and instant access to process data.

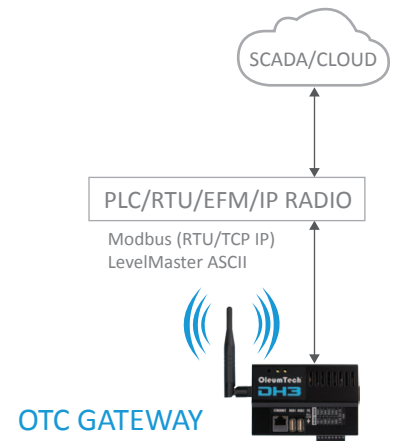### Reliable, Scalable, and Safe

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 Ultrasonic Technology Non-Contact Solution / No Moving Parts
Embedded Controller	· Ultra-Low Power RISC Microcontroller with Internal FLASH (Field Upgradeable)
Configuration	· Standard RS232 Serial / BreeZ® Software for PC
Sensor Type	· Ultrasonic; Non-Submersible
Reading Range	· Minimum: 1 ft. / 0.3 m Maximum: 12 ft. / 3.6 m
Dead Band Zone	· 12" / 1 ft. / 0.3 m
Resolution	· High Resolution of 0.04" (1 mm)
Power Source	· Self-Contained, Internal 3.6 Vdc Lithium Battery
Internal Battery Life	· Up to 10 Years, Based on User Defined Reporting Intervals[1]
Local LCD Display	· 32-Character Display (16x2 Lines) with 4 Function Keys + Read Button
Instant Displayable Read	· Product Level / Battery Voltage / RF Status
Local Configuration	· Integral LCD with Push Button Interface
Device Diagnostics	· Health Tags: Battery Voltage, Received Signal Strength Indication (RSSI), RF Refresh, RF Timeout, Error Codes

WIRELESS COMMUNICATIONS

Type: 900 MHz / 2.4 GHz	· 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
Bit Rate	· 900 MHz: 9600 bps / 115.2 kbps ; 2.4 GHz: 250 kbps
Output Power	· 900 MHz: 10 mW; 2.4 GHz: 63 mW
Receiving Sensitivity	· 900 MHz: -110 dBm @ 9600 bps, -100 dBm @ 115.2 kbps / 2.4 GHz: -100 dBm @ 250 kbps
RF Range	· 900 MHz: Up to 7500 Feet (2.3 km) with Clear Line of Sight[2]
	· 2.4 GHz: Up to 7 km / 4.3 miles with Clear Line of Sight[2]

CERTIFICATIONS & COMPLIANCE

EMC/EMI	· FCC Part 15 (USA) IC ICES-003 (Canada)
Safety	· CAN/CSA-C22.2 No. 61010-1-2012
	· UL Std. No. 61010-1-2012
	· IEC/EN 61010-1-2010
	· Device is not intended for use in hazardous locations

MECHANICAL SPECIFICATIONS

Dimensions	· 5.5" (W) x 20.2" (H) x 4.4" (D) / 140 mm (W) x 513 mm (H) x 112 mm (D)
Package Dimensions	· 24" (W) x 10" (H) x 7" (D) / 609mm (W) x 254mm (H) x 153mm (D)
Package Weight	· ~6 lbs / 2.7 kg
Connection Fitting	· 1.5" NPT Male Compression Fitting
Enclosure Casing Material	· Type 4X Aluminum; IP66

GENERAL SPECIFICATIONS

	· Ambient Temperature (Non-Hazardous Applications): Transmitter -40 °F to 176 °F (-40 °C to 80 °C)
	LCD Screen -4 °F to 158 °F (-20 °C to 70 °C)
	· Humidity: 0 to 99 %, Non-Condensing
Warranty	· 2-Year Parts and Labor
Country of Origin	· USA

ORDERING INFORMATION

Model Numbers	· 900 MHz: WT-0900-LL6; 2.4 GHz: WT-2400-LL6
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

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

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