Ultrasonic Transmitter (LL6)

OT℃
SENSOR NETWORK

Reports to Wireless Gateway
(Sold Separately)

Sensor Included

HIGHLIGHTS

- For water/wastewater applications only

- Includes Ultrasonic sensor

- Non-contact, no moving part solution

- Level reading range

  1 ft to 12 ft / 0.3 m to 3.4 m

- High Resolution of 0.04" / 1 mm

- Mounting: 1.5" NPT (6" adjustability)

- Over 7-year battery life[1]

- Class I, Division 1 (Zone 0), intrinsically safe

- 900 MHz: Up to 7500 ft (2.3 km)[2]

- 2.4 GHz: Up to 4.3 miles (7 km)[2]

- Secure AES encryption

Low Maintenance Level Monitoring Solution.

NON-CONTACT, NO MOVING PARTS

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 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 % can be reported as well based on user preference.

BATTERY-POWERED

The Transmitter rely on power from a replaceable battery. The system is engineered to achieve maximum battery life, providing +7 years of life from a single battery[1].

INTRINSICALLY SAFE

Designed for use in Class I, Division 1 (Zone 0) hazardous locations. The LL6 is intrinsically safe, meaning it cannot a cause a spark and can be serviced without being removed from a process.

LOCAL DISPLAY

The LL6 features a 32-character local LCD display for instantly reading process data, battery voltage, and RF strength (RSSI). When the display is set to configuration mode, users can set all of its parameters, perform calibration, and connect to a network just using the push button interface without the need of any configuration cables.

BreeZ® SOFTWARE

The OTC Sensor Network is managed using the BreeZ Software by OleumTech, provided free of charge. The Ultrasonic Transmitter can be configured using the push button interface or BreeZ Software.

COMMUNICATES WITH WIRELESS GATEWAY

The LL6 communicates with an OleumTech Wireless Gateway within its network, creating a highly scalable network, accommodating virtually any I/O requirement.

OleumTech®

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	· Over 7 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
Self-Diagnostics	· Contains Comprehensive Self-Checking Software and Hardware for Continuous Monitoring of Operation

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: Up to 10 mW; 2.4 GHz: 10 mW or 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	· Class I, Division 1, Groups C, D T3C · Class I Zone 0 AEx ia IIB T3 Ga

MECHANICAL SPECIFICATIONS

Dimensions	· 5.8" (W) x 20.2" (H) x 4.25" (D) / 147mm (W) x 513mm (H) x 108mm (D)
Package Dimensions	· 24" (W) x 10" (H) x 7" (D) / 609mm (W) x 254mm (H) x 153mm (D)
Weight	· Net: 4.25 lbs / 1.9 kg; Gross: 6 lbs / 2.7 kg
Connection Fitting	· 1.5" NPT Male Compression Fitting
Enclosure Casing Material	· Type 4X Aluminum; IP66

GENERAL SPECIFICATIONS

Operating Conditions	· Ambient Temperature (Class I, Division 1): Transmitter -40 °F to 158 °F (-40 °C to 70 °C) LCD Screen -4 °F to 158 °F (-20 °C to 70 °C)
	· Ambient Temperature (Non-Hazardous Applications): Transmitter -40 °F to 185 °F (-40 °C to 85 °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

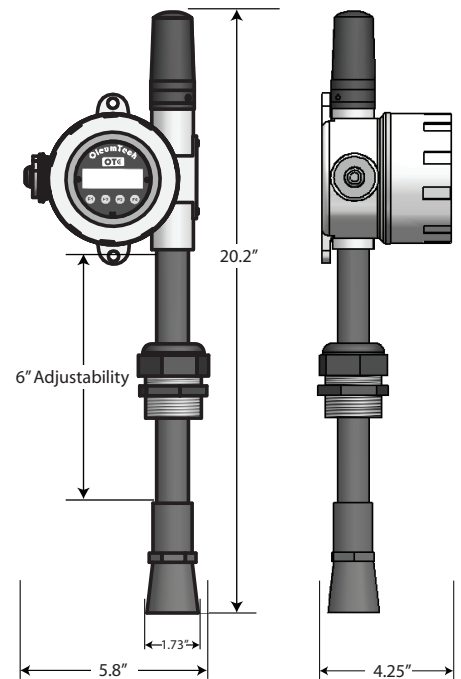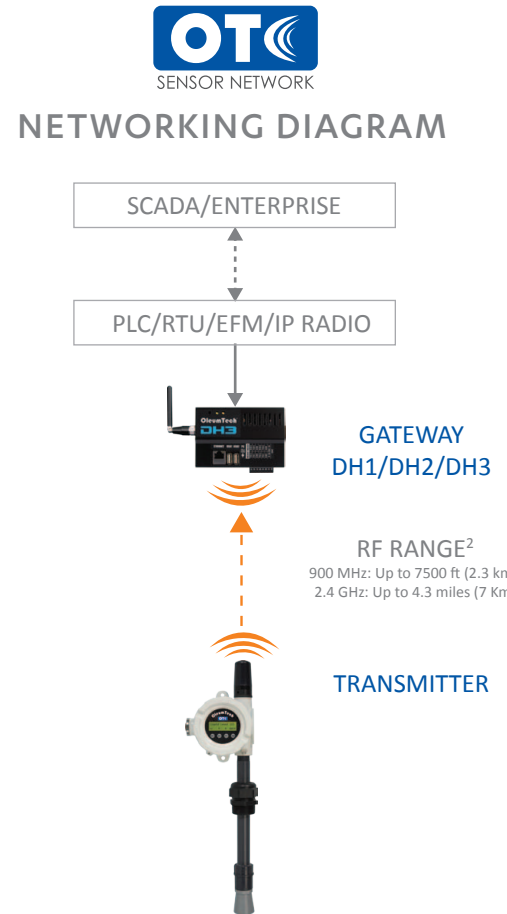|	
Transmitter Model Number(s)	· 900 MHz: WT-0900-LL6; 2.4 GHz: WT-2400-LL6
Wirelessly Connects To	· Wireless Gateway: DH1, DH2, or DH3

[1] 70° Fahrenheit ambient temperature and one transmission per 15 min interval without any retries were used to calculate battery life. The data only applies to a new battery part number SX1000-BP3. 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.

OT SENSOR NETWORK

NETWORKING DIAGRAM

SCADA/ENTERPRISE

PLC/RTU/EFM/IP RADIO

GATEWAY DH1/DH2/DH3

RF RANGE[2]
900 MHz: Up to 7500 ft (2.3 km)
2.4 GHz: Up to 4.3 miles (7 Km)

TRANSMITTER

20.2"
6" Adjustability
1.73"
5.8"
4.25"