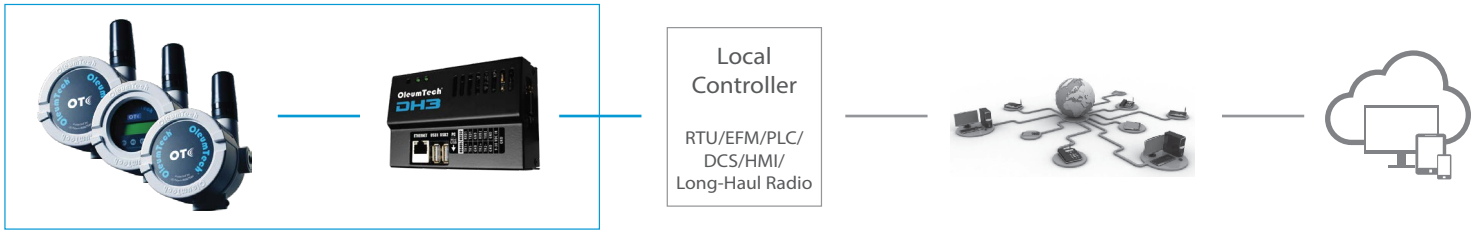
DATASHEET

SM-RTD
SM-RTM

Highlights

- SM-RTD is available with a 2" to 18" RTD sensor
- SM-RTM supports third-party RTD sensors
- High accuracy of ±0.15 °C / ±0.06% @ 0 °C (SM-RTD)
- Up to a 10-year battery life[1]
- Supports Over-the-Air (OTA) functionality for updating the device configuration[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)

Self-Contained Wireless Temperature Monitoring Solution

Supports 2, 3, or 4-Wire RTD Sensor

The OleumTech® OTC Wireless RTD Temperature Transmitters are ideal for monitoring air, gas, water, or liquid temperatures. The SM-RTD direct mount version is available with a 4-wire Platinum 100 ohm Class A RTD sensor with a high accuracy of ±0.15 °C / ±0.06% @ 0 °C. You can choose from 2 to 18-inch RTD length. It supports temperatures ranging from -55 °C to 260 °C. The SM-RTM multi-vendor version provides a junction box and wiring terminal board for accepting a third-party 2, 3, or 4-wire RTD sensors. The temperature output can be reported in Fahrenheit, Celsius, or both. These ultra-low-powered transmitters are powered by replaceable battery packs that provide up to a 10-year life.[1]

Reliable, Scalable, and Safe

The field-proven wireless transmitters communicate 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 transmitters are certified for use in Class I, Division 1 (Zone 0) hazardous locations. They are Intrinsically Safe, designed not to cause a spark, and can be serviced without being removed from a process.

Technical Specifications

HARDWARE FEATURES	
Device Functionality	· Temperature Sensing Wireless Transmitter Using RTD Sensor
Embedded Controller	· Ultra-Low Power RISC Microcontroller with Internal FLASH (Field Upgradeable)
Configuration	· Standard RS232 Serial / BreeZ® Software for PC
ADC Resolution	· 24-bit High-Resolution Delta-Sigma ADC
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
RTD TEMPERATURE SENSOR	
RTD Element	· Platinum 100 Ohm, Class A (Model SM-RTD)
Temperature Coefficient	· 0.00385 (Model SM-RTD)
Probe Lengths	· 2" to 18" / 30.5 to 45.5 cm in 1" / 25 mm Increments
Temperature Range	· SM-RTD: -67 °F to 500 °F (-55 °C to 260 °C); SM-RTM: Temperature Range Depends on Sensor
Accuracy	· SM-RTD: ±0.15 °C / ±0.06% @ 0 °C; SM-RTM: Accuracy Depends on Sensor
Materials	· Probe Cover - Silver Coated Copper / Probe Insulation - PTFE
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, SM-RTD	· 5" (W) x 7.6" (H) x 4.4" (D) / 127 mm (W) x 193 mm (H) x 112 mm (D) - Excludes RTD Length
Dimensions, SM-RTM	· 5" (W) x 12.3" (H) x 6.4" (D) / 127 mm (W) x 313 mm (H) x 163 mm (D) - Excludes RTD Length
Package Dimensions	· 10.25" (W) x 14" (H) x 6.5" (D) / 260mm (W) x 356mm (H) x 165mm (D)
Package Weight, SM-RTD	· ~5.25 lbs / 2.4 kg
Package Weight, SM-RTM	· ~7 lbs / 3.2 kg
Connection Fitting	· SM-RTD: 1/2" NPT Male; SM-RTM: 3/4" NPT Female
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	· Direct Mount: SM5000-RTD, Multi-Vendor: SM5000-RTM
Wirelessly Connects To	· OTC Wireless Gateway
Configuration Cable	· SX1000-CC2, 20-ft All-in-One Configuration Cable
Replacement Battery	· Use OleumTech SX1000-BP3 Only

[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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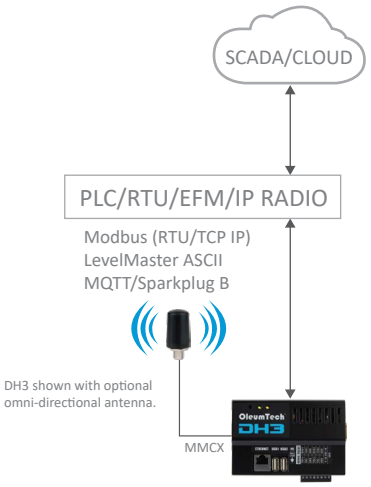
Networking Diagram



OTC GATEWAY

OTC TRANSMITTERS

Point-to-Multipoint
"Star Topology"

MADE IN USA