

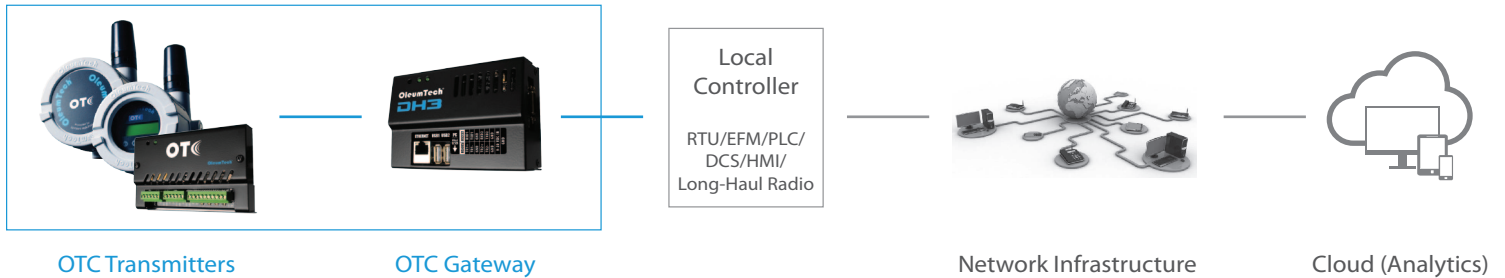


### ▶ Highlights

- 4 analog inputs (24-bit ADC)
- Independent selectability for 0-10 Vdc or 4-20 mA mode
- 4 programmable digital I/O channels
- Modbus master functionality (RS485)
- -40 °C to 80 °C (-40 °F to 176 °F)
- 900 MHz / 915 MHz / 2.4 GHz / 868 MHz
- Secure AES encryption
- Class I, Division 2 (Zone 2) certified



US Patent #6,967,589



## ▶ Wireless Multi-I/O Solution with Modbus Master Functionality

### Scalable I/O Solution

The OleumTech® OTC Wireless Multi-I/O Module provides a quick and scalable solution for adding analog inputs and digital I/O points to any OTC Sensor and I/O Network. It is equipped with four high resolution analog inputs (24-bit ADC). Each input can be independently selected for either 0-10 Vdc or 4-20 mA mode of operation. It also packs four independently configurable digital channels. Each channel can be setup as an input, counter, output, or pulsed output.

### Modbus Master Function

The Wireless Multi-I/O Module also features Modbus Master functionality, which gives users read and write controls over assets connected over its RS485 Serial port.

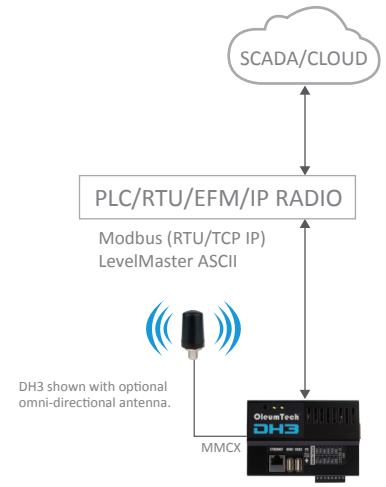
### Robust Range, Advanced Networking

With the provided robust RF range, the Wireless Multi-I/O Module can rescue stranded I/O points that was once economically not feasible. The Wireless Multi-I/O Module can be added to the network as needed and its I/O points can be mapped to anywhere within the OTC Network creating an efficient, highly advanced system that is easy to create and manage. The Wireless Multi-I/O Module communicates with an assigned wireless gateway in the OTC Network. This wireless device is certified for use in Class I, Division 2 (Zone 2) hazardous locations.

## Technical Specifications

HARDWARE FEATURES	
Device Functionality	· Wireless Multiple Input / Output Module
Embedded Controller	· Ultra-Low Power RISC Microcontroller with Internal FLASH (Field Upgradeable)
Configuration	· Config / Debug Port - RS232 Slave Only (RJ-45) / BreeZ® Software for PC
Serial	· RS485 Port - Modbus Master Only (RJ-45)
I/O Interfaces	· 4 Analog Inputs (24-bit ADC): 0-10 V or 4-20 mA Selectable Modes · 4 Programmable Digital (Discrete) Channels - Supports Mix of Inputs and Outputs - 30 Vdc (Max) Input for All Channels - 1A Sink Current for Open-Drain Outputs - Configurable Debounce Filter
Device Diagnostics	· Health Tags: Supply Voltage, Received Signal Strength Indication (RSSI), RF Refresh, RF Timeout
WIRELESS COMMUNICATIONS	
Radio Band	· ISM Band (License-Free)
900 MHz / 915 MHz	· FHSS, FSK, AES Encryption 256-bit (900 MHz), 128-bit (915 MHz)
2.4 GHz	· DSSS, AES Encryption 128-bit
868 MHz	· LBT-AFA, AES Encryption 128-bit
Bit Rate	· 900/915 MHz: 9600 bps / 115.2 kbps; 2.4 GHz: 250 kbps; 868 MHz: 80 kbps
Output Power (Max)	· 900/915 MHz: 1000 mW; 2.4 GHz: 63 mW; 868 MHz: 25mW
Receiving Sensitivity	· 900/915 MHz: -110 dBm @ 9600 bps, -100 dBm @ 115.2 kbps · 2.4 GHz: -101 dBm @ 250 kbps; 868 MHz: -106 dBm @ 80 kbps
RF Range	· 900/915 MHz: Up to 40 Miles / 64 km with Clear Line of Sight <sup>1</sup> · 2.4 GHz: Up to 4.3 Miles / 7 km with Clear Line of Sight <sup>1</sup> · 868 MHz: Up to 5.2 Miles / 8.4 km with Clear Line of Sight <sup>1</sup>
CERTIFICATIONS & COMPLIANCE	
EMC/EMI	<ul style="list-style-type: none"> <li>· FCC Part 15 (USA), IC ICES-003 (Canada), ACMA (Australia)</li> <li>· AS/NZS CISPR 32 (Australia), EN55032 &amp; EN55024 (EU)</li> <li>· Class I, Division 2, Groups A, B, C, D T4; Ex nA IIC T4</li> </ul>
Safety	<ul style="list-style-type: none"> <li>· Class I, Zone 2 AEx nA IIC T4</li> <li>· ATEX: Sira 14ATEX4143X; Ex nA IIC T4 Gc, II 3 G</li> <li>· IECEx: SIR 13.0055X; Ex nA IIC T4 Gc</li> </ul>
MECHANICAL SPECIFICATIONS	
Dimensions	· 4.9" (W) x 3" (H) x 1.4" (D) / 124.5 mm (W) x 76.2 mm (H) x 35.6 mm (D)
Package Dimensions	· 8" (W) x 6" (H) x 2.5" (D) / 203 mm (W) x 152 mm (H) x 63 mm (D)
Weight	· Net: 0.75 lbs / 0.3 kg; Packaging: 1 lbs / 0.4 kg
Mounting	· DIN Rail Mountable with Height Adjustability
ELECTRICAL SPECIFICATIONS	
DC Power Input	· 9-30 Vdc
Average Power Input	· 2 Watt
900/915 MHz Pwr Cons. @ 12 V	· @100 mW: Idle = 33 mA; Transmit = 138 mA   @1 Watt: Idle = 33 mA; Transmit = 272 mA
900/915 MHz Pwr Cons. @ 24 V	· @100 mW: Idle = 26 mA; Transmit = 92 mA;   @1 Watt: Idle = 26 mA; Transmit = 180 mA
2.4 GHz Pwr Cons. @ 12 V	· @25 mW: Idle = 28 mA; Transmit = 60 mA   @ 63 mW: Idle = 28 mA; Transmit = 74 mA
2.4 GHz Pwr Cons. @ 24 V	· @25 mW: Idle = 22 mA; Transmit = 44 mA   @ 63 mW: Idle = 22 mA; Transmit = 58 mA
868 MHz Pwr Cons. @ 12 V	· @10 mW: Idle = 22 mA; Transmit = 40 mA   @ 25 mW: Idle = 22 mA; Transmit = 49 mA
868 MHz Pwr Cons. @ 24 V	· @10 mW: Idle = 20 mA; Transmit = 28 mA   @ 25 mW: Idle = 20 mA; Transmit = 33 mA
GENERAL SPECIFICATIONS	
Operating Conditions	· Temperature: Class I, Division 2 (Zone 2): -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	· WM-0900-002, WM-0915-002, 2.4 GHz, WM-2400-002, WM-0868-002
Wirelessly Connects To	· OTC Wireless Gateway
Configuration Cable	· SX1000-CC2, 20-ft All-in-One Configuration Cable

## Networking Diagram



OTC GATEWAY

### OTC TRANSMITTERS

Point-to-Multipoint  
"Star Topology"



Wireless Multi-I/O Module shown with optional omni-directional antenna.

Modbus Slave Device

<sup>1</sup> 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.

