Wireless Multi-I/O Solution with Modbus Master Functionality

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

**Scalable I/O Solution**
The OleumTech® 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. The Multi-I/O Module 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 Multi-I/O Module can be added to the network as needed and its I/O points can to be mapped to anywhere within the OTC Network creating an efficient, highly advanced system that is yet 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.
HARDWARE FEATURES

Device Functionality:
- Wireless Multiple Input / Output Module

Embedded Controller:
- 32-bit Low Power ARM7 Microcontroller with Internal FLASH (Field Upgradeable)

Configuration:
- Config / Debug Port - RS232 Slave Only (RI-45) / BreeZ® Software for PC

Serial:
- RS485 Port - Modbus Master Only (RI-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

Type:
- 900 MHz / 915 MHz
  - 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 kbps

Output Power (Max):
- 900 MHz: 1000 mW; 2.4 GHz: 63 mW; 868 MHz: 25 mW

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 40 Miles / 64 km with Clear Line of Sight
- 2.4 GHz: Up to 4.3 Miles / 7 km with Clear Line of Sight
- 868 MHz: Up to 5.2 Miles / 8.4 km with Clear Line of Sight

CERTIFICATIONS & COMPLIANCE

- FCC Part 15 (USA), IC ICES-003 (Canada), ACMA (Australia)
- AS/NZS CISPR 32 (Australia), EN55032 & EN55024 (EU)
- ATEX: Sira 14ATEX4143X; Ex nA IIC T4 Gc
- IECEx: SIR 13.0055X; Ex nA IIC T4 Gc / 9-30 Vdc

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

Power Consumption:
- @ 12 Vdc: Idle: 29 mA; Transmission: 103 mA @ 1 Watt
- @ 24 Vdc: Idle: 20 mA; Transmission: 70 mA @ 1 Watt

GENERAL SPECIFICATIONS

Operating Conditions:
- Temperature: Class I, Div 2 (Zone 2): -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:
- 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

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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