Wireless Digital I/O Expansion Solution

Scalable I/O Solution

The OleumTech® Wireless Digital I/O Module provides a quick and scalable solution for adding up to six digital I/O points to any OTC Sensor and I/O Network. Each of the digital channel can be programmed independently as inputs or outputs. Each of the channels can be setup as input, counter, output, or pulsed output. The Wireless Digital I/O Module communicates with an assigned wireless gateway in the network. This wireless device is certified for use in Class I, Division 2 (Zone 2) hazardous locations.

Robust Range, Advanced Networking

With the provided robust RF range, the Wireless Digital I/O Module can rescue stranded I/O points that was once economically not feasible. The Digital 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.

Highlights

- 6x programmable digital I/O channels
- Supports any mix of inputs and outputs
- Normally open/close, counts, pulsed modes
- 10 ms to 2000 ms debounce filter
- 1 Amp sink current for open-drain outputs
- -40 °C to 80 °C
- 900 MHz / 2.4 GHz / 868 MHz
- Secure AES encryption
- Class I, Division 2 (Zone 2) certified
Technical Specifications

HARDWARE FEATURES

Device Functionality
- Wireless Digital Input / Output Module

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

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

I/O Interfaces
- 6 Programmable Digital (Discrete) Inputs and Outputs
  - Supports Mix of Inputs and Outputs
  - 30 Vdc (Max) Input for All Channels
  - 1 A 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

ISM Band, Spread Spectrum
- Type: 900 MHz / 915 MHz
- 2.4 GHz / 868 MHz
- 900 MHz: FHSS (Frequency Hopping), FSK, AES Encryption 256-bit (900 MHz), 128-bit (915 MHz)
- 2.4 GHz: DSS (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: 25mW

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 Sight¹
- 2.4 GHz: Up to 4.3 Miles / 7 km with Clear Line of Sight¹
- 868 MHz: Up to 5.2 Miles / 8.4 km with Clear Line of Sight¹

CERTIFICATIONS & COMPLIANCE

EMC/EMI
- FCC Part 15 (USA), IC ICES-003 (Canada), ACMA (Australia)
- AS/NZS CISPR 32 (Australia), EN55032 & EN55024 (EU)

Safety
- Class I, Division 2; Groups A, B, C, D T4; Ex nA IIC T4
- ATEX: Sira 14ATEX4143X; Ex nA IIC T4 Gc
- IECEx: SIR 13.0055X; Ex nA IIC T4 Gc / 9-30 Vdc

MECHANICAL SPECIFICATIONS

Dimensions
- 3.8" (W) x 3" (H) x 1.4" (D) / 96.5 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

Connection Fitting
- DIN Rail or Direct Mount / Custom Enclosures Available

ELECTRICAL SPECIFICATIONS

DC Power Input
- 9-30 Vdc

Average Power Input
- 2 Watt

Power Consumption @ 12 Vd - Idle: 28 mA; Transmission: 137 mA @ 1 Watt

Power Consumption @ 24 Vd - Idle: 22 mA; Transmission: 75 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 Number(s)
- WM-0900-004, WM-0915-004, 2.4 GHz, WM-2400-004, WM-0868-004

Wirelessly Connects To
- OTC Wireless Gateway

Configuration Cable
- SX1000-CC2, 20-ft All-in-One Configuration Cable

¹ 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.

Networking Diagram

Networking Diagram

WIRELESS DIGITAL I/O MODULE

PLC/RTU/EFM/IP RADIO

Modbus (RTU/TCP/IP)

LevelMaster ASCII

SCADA/CLOUD

OTC GATEWAY

OTC TRANSMITTERS

Point-to-Multpoint

“Star Topology”

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Made in USA

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