Serial Gateway with Onboard I/O

Primary Data Collection Point
The OleumTech® DH1 Wireless Gateway plays an integral role in the OTC Sensor & I/O Network by being able to wirelessly collect critical process data from OTC Wireless Transmitters, I/O Modules, and other Gateways. The data is stored in its 320-point Modbus register holding table.

Peer-to-Peer Advanced Networking
In the OTC Sensor Network, multiple Wireless Gateways can be placed into the same network to form a much larger sensor network. All Gateways can have their own set of Transmitters and they have the ability to communicate with other Gateways in the network. With this powerful advantage, you can setup sophisticated I/O distribution systems and migrate data with extreme flexibility, scalability and ease.

Serial Interface
With the provided RS232/RS485 configurable Serial port, the DH1 can virtually interface with any third-party Modbus device either as a master or slave device. The DH1 can also be configured as a LevelMaster ASCII slave or ROC Link master. Its dedicated RS485 port (RJ-45) can be utilized for connecting to other Serial devices.

Onboard I/O
Unlike other OTC Wireless Gateways, the DH1 is equipped with onboard I/O comprised of 4x analog inputs (0-5 Vdc), 2x digital inputs, and 2x digital outputs. If additional I/O points are needed, OleumTech offers a Modular I/O Expansion System via RS485 connection for use with the DH1 for added versatility.
**HARDWARE FEATURES**

- **Device Functionality**
  - Wireless Gateway with Onboard I/O and I/O Expansion Capabilities

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

- **Serial Interfaces**
  - RTU Port (RS232/RS485) Terminal Block
  - Modbus Master/Slave, LevelMaster ASCII Slave, ROC-Link Master (Supports OpCodes 17 and 10)
  - RS485 Expansion Port - Modbus Master or Slave (RJ-45)

- **I/O Interfaces**
  - 4x Analog Inputs (0-5 Vdc) with 12-bit ADC
  - 2x Discrete Inputs (0-24 Vdc) for Dry Contact Relay or Open-Drain Output Devices
  - 2x Open-Drain Outputs (I_max = 240 mA (Continuous Sink Current @ 80 °C), V_max = 24 Vdc)

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

- **Device Diagnostics**
  - Health Tag: Supply Voltage

**WIRELESS COMMUNICATIONS**

- **Type and Band**
  - 900 MHz / 915 MHz
  - 2.4 GHz / 868 MHz

- **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 (Gateway-to-Gateway)
  - 900 MHz: Up to 7500 Feet / 1.4 Miles / 2.3 km with Clear Line of Sight¹ (Transmitter-to-Gateway)
  - 2.4 GHz: Up to 2 Miles / 3.2 km with Clear Line of Sight¹
  - 868 MHz: Up to 5.2 Miles / 8.4 km with Clear Line of Sight¹

**CERTIFICATIONS & COMPLIANCE**

- Class I, Division 2, Groups A, B, C, D T4; Ex nA IIC T4
- Class I, Zone 2 AEx nA IIC T4 / 9-30 Vdc
- 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: ~1 lbs / 0.4 kg

**ELECTRICAL SPECIFICATIONS**

- DC Power Input: 9-30 Vdc
- Average Power Input: 2 Watt
- Power Consumption: @ 12 Vdc
  - Idle: 63 mA; Transmission: 348 mA @ 1 Watt
- Power Consumption: @ 24 Vdc
  - Idle: 40 mA; Transmission: 174 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: WG-0900-DH1, WG-0915-DH1, WG-2400-DH1, WG-0868-DH1
- Wirelessly Connects To: OTC Wireless Devices (Gateways, Transmitters, I/O Modules)
- 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.

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