



## Highlights

- Wirelessly gather/distribute sensor data
- Map I/O anywhere within the network
- Modbus master/slave functionality
- Ethernet connectivity facilitates IoT and IIoT implementation
- 2x Configurable Serial ports (RS232/RS485)
- Data logging capabilities / web server
- -40 °C to 80 °C
- 900 MHz or 2.4 GHz radio option
- Secure AES encryption
- Class I, Division 2 (Zone 2) certified



US Patent #6967589



OTC Transmitters

OTC Gateway



Network Infrastructure



Cloud (Analytics)

## Gateway with Ethernet and Serial Connectivity

### Primary Data Collection Point

The OleumTech® DH3 Wireless Gateway plays an integral role in the OTC Sensor and 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 1920-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.

### Data Logging Capabilities

The DH3 offers both event-based data logging and time-based trending/logging capabilities. The data can be stored onto its internal RAM (volatile) or onto an optional industrial-grade Micro SD card (non-volatile). Trend graphs are accessible via the DH3's web server.

### Ethernet + Serial + Local Display Option

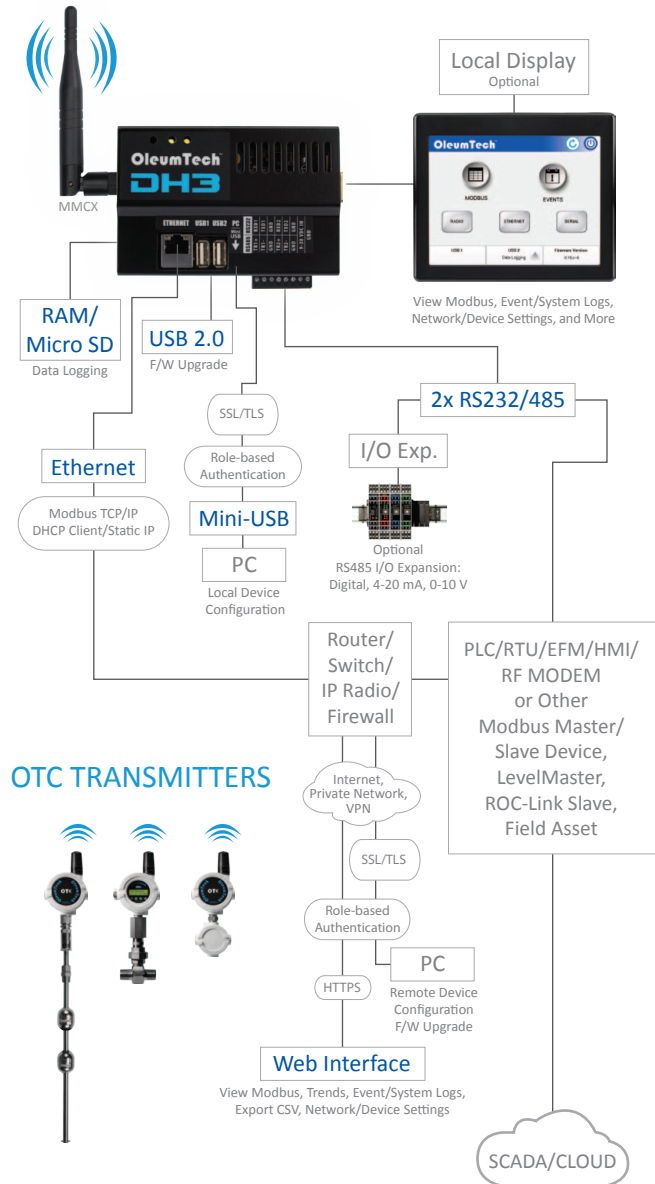
Equipped with Ethernet and two configurable Serial ports, the DH3 can interface third-party Modbus devices as a Master and/or Slave for delivering data to the cloud. OleumTech offers Serial I/O Expansion Modules for use with the DH3 for added functionality. An optional touchscreen LCD display is available to instantly view process data and access device settings. The local display requires no user configuration.

### Technical Specifications

HARDWARE FEATURES	
Device Functionality	· Wireless Gateway with Ethernet/Serial Connectivity and Data Logging Capabilities
Embedded Controller	· 32-Bit Power ARM Cortex - A9core Microprocessor, Up to 800 MHz CPU Speed
Memory	· Flash Memory: 4 GB / SD RAM Memory: 512 MB
Ethernet 10/100/1000BASE-T	· Modbus TCP/IP Master/Slave, DHCP Client/Static IP (Device Designed to Work Behind Firewall) · Supports Local/Remote Device Configuration Using BreeZ® 5.0 or Higher/Firmware Upgrade · Supports Auto-MDIX/Auto-Crossover for ad-hoc networking (PC directly to DH3) · 2x RTU Ports (RS232/RS485 Software Configurable)
Serial Interfaces	· Modbus Master/Slave, LevelMaster ASCII Slave, ROC-Link Master (Supports Opcodes 17 and 10) ROC: Read up to 10 User Configurable (TLP) Points, INT16 (signed or unsigned) or FL(OAT)
2x USB 2.0 Host Ports	· Supports Firmware Upgrade (USB Flash Drive Required)
1x Mini-USB (OTG)	· Supports Local Device Configuration Using BreeZ® 5.0 or Higher/Firmware Upgrade
Micro SD Card Slot	· Only Use Industrial-Grade Micro SD Cards: Part # SX1000-SD2 (-40 °C to 70 °C)
Device Diagnostics	· Health Tag: Supply Voltage
DATA LOGGING	
Trending (RAM/Micro SD)	Records Data to Internal RAM, MicroSD Card Option for Data Persistence · 800,000 Pts Max Regardless of Memory Capacity; Supports Multiple Trends; Exportable to .CSV
Event Logging (RAM/Micro SD)	· 100,000 Pts Max Regardless of Memory Capacity · Event Types: Rising or Falling Edge Event Control: Deadband or On-Delay; Exportable to .CSV
System Logging (RAM/Micro SD)	· 100,000 Pts Max Regardless of Memory Capacity, Viewable on Web Server or Local Display
WEB SERVER	
Features	· View Modbus Data, Trends, Event and System Logs, Device/Network Settings, and More
Security/Privacy	· Role-based Authentication (Admin/User/Guest), HTTPS
BreeZ® SOFTWARE INTERFACE (PC APPLICATION)	
Version/PC Platform	· BreeZ® Version 5.0 or Higher; PC with Windows® Vista or Higher
Connectivity	· Configurable via Mini-USB Port or Ethernet Port
Security/Privacy	· Role-based Authentication (Admin/User), SSL/TLS v1.2 (AES-256 Encryption)
WIRELESS COMMUNICATIONS	
Type: 900 MHz / 2.4 GHz	· ISM Band, FSK (Frequency-Shift Keying), AES Encryption 256-bit (900 MHz), 128-bit (915 MHz) · 900 MHz: FHSS (Frequency Hopping Spread Spectrum) / 50 Freq Ch x 10 Hopping Tables · Channel Size: 500 KHz for 1 W Radio · 2.4 GHz: DSSS (Direct-Sequence Spread Spectrum), AES Encryption 128-bit · Channel Size: 5 MHz, Utilizes 12 out of 802.15.4 Standard 16 Channels
Frequency	· 902 to 928 MHz / 2.4 GHz
Bit Rate	· 900 MHz: 9600 bps / 115.2 kbps; 2.4 GHz: 250 kbps
Output Power	· 900 MHz: Up to 1000 mW / 2.4 GHz: 63 mW
Receiving Sensitivity	· 900 MHz: -110 dBm @ 9600 bps, -100 dBm @ 115.2 kbps / 2.4 GHz: -100 dBm @ 250 kbps
Range (Peer-to-Peer)	· 900 MHz: Up to 40 Miles (64.4 Km) / 2.4 GHz: Up to 5.7 Miles (9.3 Km) <sup>1</sup>
Antenna Connector	· MMCX
CERTIFICATIONS	
FCC	· FCC Part 15
Industry Canada (IC)	· ICES-003 · Class 1, Division 2, Groups A, B, C, D T4; Ex nA IIC T4 · Class 1, Zone 2, AEx nA IIC T4 Gc / 9-30 Vdc, Ta = -40 to 176 °F (-40 °C to +80 °C)
Safety	· ATEX: ITS15ATEX48231X Ex nA IIC T4 Gc · IECEx: ETL15.0039X; Ex nA nC IIC T4 Gc / 9-30 Vdc, Ta = -4 to 176 °F (-20 °C to +80 °C)
MECHANICAL SPECIFICATIONS	
DH3 Dimensions	· 4.6" (W) x 3.0" (H) x 2.0" (D) / 117 mm (W) x 76 mm (H) x 50 mm (D)
Package Dimensions	· 8" (W) x 6" (H) x 2.5" (D) / 203 mm (W) x 152 mm (H) x 63 mm (D)
Package Weight	· 1.3 lbs / 570 g
Mounting	· DIN Rail Clip (Spring-Loaded)
ELECTRICAL SPECIFICATIONS	
DC Power Input	· 9-30 Vdc
Average Power Input	· Local Display Off: 3 Watt; Local Display On: 5 Watt · LCD Unplugged: Idle 211mA (typ), Transmission @100mW 248mA (typ) · LCD Plugged In, but Off: Idle 220mA (typ), Transmission @100mW 261mA (typ) · LCD Plugged In, and On: Idle 368mA (typ), Transmission @100mW 411mA (typ)
Power Consumption @12 VDC See User Guide for Full Details	
GENERAL SPECIFICATIONS	
Operating Conditions	· Temperature: -40 °F to 158 °F (-40 °C to 70 °C) · Humidity: 0 to 99 %, Non-Condensing
Warranty	· 2-Year Parts and Labor
Country of Origin	· USA
ORDERING INFORMATION	
Model Numbers	· 900 MHz: WG-0900-DH3, 2.4 GHz: WG-2400-DH3
Wirelessly Connects To	· OTC Wireless Devices (Gateways, Transmitters, I/O Modules)
Micro SD Card	· Only Use Industrial-Grade Micro SD Cards: Part # SX1000-SD2 (-40 °C to 70 °C)
Local Display	· 5.7" Local HMI Display WX-1000-LCD
Configuration Cable	· WX-1001-CA2, 15-ft USB to Mini-USB Cable or SX1000-CC2, 20-ft All-in-One Configuration Cable

### Networking Diagram

#### OTC GATEWAY - DH3



<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.

