



Highlights

- Wirelessly gather/distribute sensor data
- Map I/O points anywhere within the network
- Modbus Master/Slave functionality
- Ethernet connectivity facilitates IoT and IIoT implementations
- 2 configurable Serial/RTU ports (RS232/RS485)
- Data logging capabilities / secure web server
- -40 °C to 70°C (-40 °F to 158 °F)
- 900 MHz / 915 MHz / 2.4 GHz / 868 MHz
- Secure AES encryption
- Class I, Zone 2 certified



US Patent #6,967,589



OTC Transmitters

OTC Gateway

Local
Controller
RTU/EFM/PLC/
DCS/HMI/
Long-Haul Radio



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 Wireless Sensor and I/O Network. It possesses the ability to aggregate data from OTC wireless transmitters, I/O modules, and other gateways onto its 1920-point register holding table. Third-party devices can access the data over the Modbus or LevelMaster ASCII protocol.

Advanced Peer-to-Peer Networking

Multiple gateways can be deployed to the OTC platform for creating a custom, highly scalable network. The gateways have the power to communicate with each other. You can leverage the peer-to-peer technology for funneling data to the primary gateway for optimizing network efficiency and/or designing an extremely flexible I/O mapping system across the entire wireless network.

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 secure web server.

Ethernet + Serial + Local Display Option

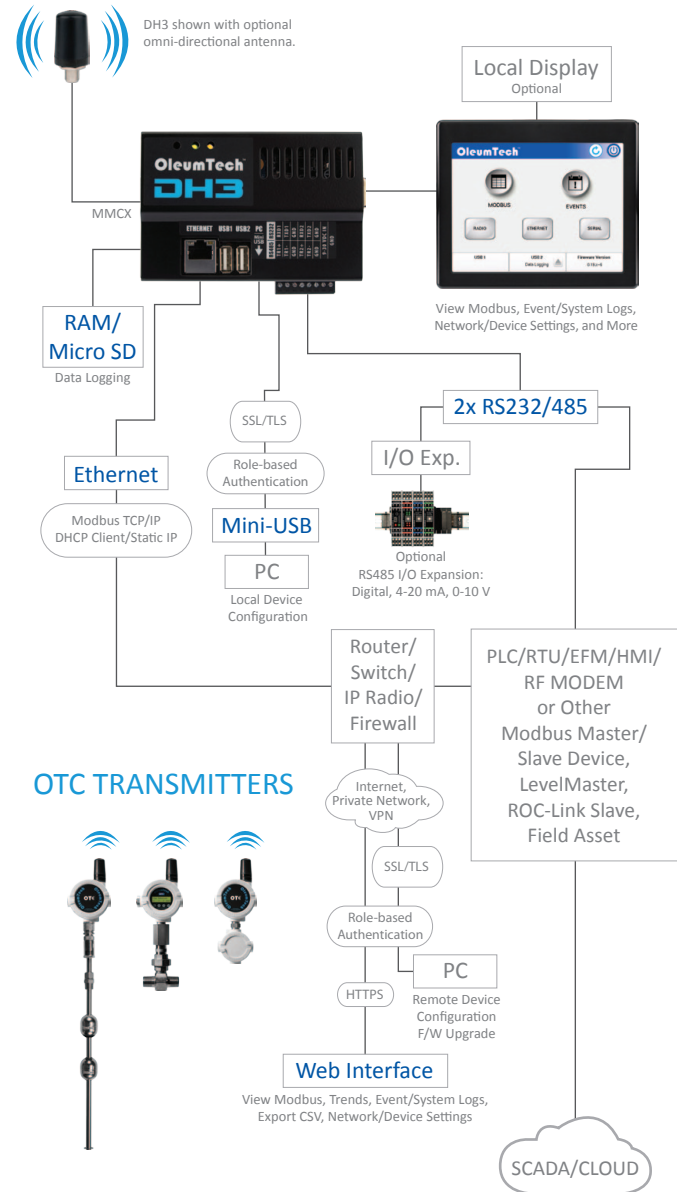
Equipped with both Ethernet and Serial ports, the DH3 is designed for interfacing multiple third-party devices. Having both Modbus Master and Slave functionalities, the DH3 provides endless possibilities for solving telemetry challenges. OleumTech offers a local I/O expansion solution for integrating analog and discrete I/O capabilities to the DH3. An optional touchscreen display is also available for added convenience.

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 · Modbus TCP/IP Master/Slave, DHCP Client/Static IP (Device Designed to Work Behind Firewall) |
| Ethernet 10/100/1000BASE-T | · Supports Local/Remote Device Configuration and F/W Upgrade Using BreeZ® 5.0 or Higher · 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 | · Reserved for Future Use |
| 1x Mini-USB (OTG) | · Supports Local Device Configuration and F/W Upgrade Using BreeZ® 5.0 or Higher |
| 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 Later; PC with Windows® 7 or Later |
| Connectivity | · Configurable via Ethernet Port or Mini-USB Port |
| Security/Privacy | · Role-based Authentication (Admin/User), Remote Communication Secured via SSL/TLS v1.2 |
| 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 ¹ (Gateway to Gateway) · 900/915 MHz: Up to 7500 Feet / 1.4 Miles / 2.3 km with Clear Line of Sight ¹ (Transmitter to Gateway) · 2.4 GHz: Up to 4.3 Miles / 7 km with Clear Line of Sight ¹ · 868 MHz: Up to 5.2 Miles / 8.4 km with Clear Line of Sight ¹ |
| CERTIFICATIONS | |
| EMC/EMI | · FCC Part 15 (USA), IC ICES-003 (Canada), ACMA (Australia) · AS/NZS CISPR 32 (Australia), EN55032 & EN55024 (EU) |
| Safety | · Class I, Zone 2, AEx nA nC IIC T4 Gc · Class I, Zone 2, Ex nA nC IIC T4 Gc · ATEX: ITS15ATEX48231X Ex nA IIC T4 Gc · IECEx: ETL15.0039X; Ex nA nC IIC T4 Gc |
| 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 172 mA, Transmission 401 mA @ 1 Watt |
| Power Consumption @12 Vdc | · LCD Plugged In, but Off: Idle 181 mA, Transmission 415 mA @ 1 Watt · LCD Plugged In, and On: Idle 330 mA, Transmission 532 mA @ 1 Watt |
| Power Consumption @24 Vdc | · LCD Unplugged, Idle 113 mA, Transmission 228 mA @ 1 Watt · LCD Plugged In, but Off: Idle 117 mA, Transmission 241 mA @ 1 Watt · LCD Plugged In, and On: Idle 195 mA, Transmission 289 mA @ 1 Watt |
| GENERAL SPECIFICATIONS | |
| Operating Conditions | · Temperature: -40 °C to +70 °C (-40 °F to 158 °F) · Temperature with Optional LCD: -20 °C to +70 °C (-4 °F to 158 °F) · Humidity: 0 to 99 %, Non-Condensing |
| Warranty | · 2-Year Parts and Labor |
| Country of Origin | · USA |

Networking Diagram

OTC GATEWAY - DH3



ORDERING INFORMATION

| | |
|------------------------|--|
| Model Numbers | · WG-0900-DH3, WG-0915-DH3, WG-2400-DH3, WG-0868-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 |

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.

