



## 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



GP Transmitters

GP 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® GP-DH3 Wireless Gateway plays an integral role in the GP Sensor and I/O Network by being able to wirelessly collect critical process data from GP transmitters and other gateways in the network. The collected data is stored in its 1920-point Modbus register holding table.

### Advanced Peer-to-Peer Networking

In the GP Network, multiple wireless gateways can be deployed to 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 GP-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 GP-DH3's web server.

### Ethernet + Serial + Local Display Option

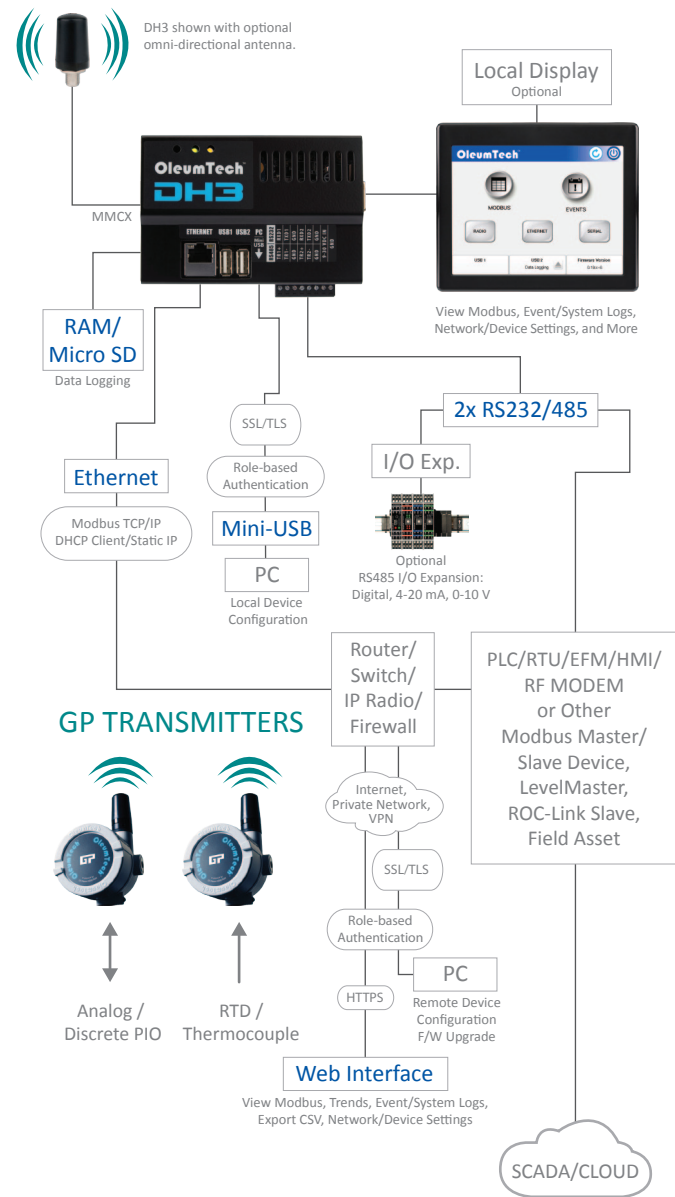
Equipped with an Ethernet and two configurable Serial ports, the GP-DH3 can interface third-party Modbus devices as a Master and/or Slave for delivering data to the cloud. OleumTech offers Serial I/O Expansion Modules for use with the GP-DH3 for added functionality. An optional touchscreen LCD display is available to instantly view process data and access device settings. The local display requires zero 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 and F/W Upgrade Using GP Network Configurator · Supports Auto-MDIX/Auto-Crossover for ad-hoc networking (PC directly to DH3)
Serial Interfaces	· 2 RTU Ports (RS232/RS485 Software Configurable) · Modbus Master/Slave, LevelMaster ASCII Slave
2 USB 2.0 Host Ports	· Reserved for Future Use
Mini-USB (OTG)	· Supports Local Device Configuration and F/W Upgrade Using GP Network Configurator
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	
	Records Data to Internal RAM, MicroSD Card Option for Data Persistence
Trending (RAM/Micro SD)	· 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
SOFTWARE INTERFACE (PC APPLICATION)	
Version/PC Platform	· GP Network Configurator v1.0 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 <sup>1</sup> (Gateway to Gateway) · 900/915 MHz: Up to 7500 Feet / 1.4 Miles / 2.3 km with Clear Line of Sight <sup>1</sup> (Transmitter to Gateway) · 2.4 GHz: Up to 4.3 Miles / 7 km with Clear Line of Sight <sup>1</sup> (Gateway to Gateway) · 868 MHz: Up to 5.2 Miles / 8.4 km with Clear Line of Sight <sup>1</sup> (Gateway to Gateway)
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
Power Consumption @12 Vdc	· 900 / 915 MHz @ 1000 mW: Receive Avg 172 mA, Transmit Avg 401 mA · 2.4 GHz @ 63 mW: Receive Avg 154 mA, Transmit Avg 209 mA · 868 MHz @ 25 mW: Receive Avg 168 mA, Transmit Avg 231 mA
Power Consumption @24 Vdc	· 900 / 915 MHz @ 1000 mW: Receive Avg 113 mA, Transmit Avg 228 mA · 2.4 GHz @ 63 mW: Receive Avg 99 mA, Transmit Avg 139 mA · 868 MHz @ 25 mW: Receive Avg 99 mA, Transmit Avg 132 mA
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

#### GATEWAY - GP-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

<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.

