

# Updated!

## New Dual Gateway Remote

- 1 Ethernet port
- 2 Serial ports
- DNP.3 Support
- New EZ Remote with Integrated antenna and PoE (Power-over-Ethernet)

## MDS entraNET 900®

Extended Range IP Networking



### Features/Benefits

- Long Range – Up to 60 miles<sup>2</sup>
- Low Power Consumption – Reduced solar panel and battery installation costs
- Ethernet and serial interfaces allow migration of existing serial devices to IP networks
- Industrial Grade Performance – Class 1 Div 2<sup>1</sup> & extended temperature range for extreme environments
- Fast – Up to 106 Kbps data rate over the air
- DNP.3 Protocol Aware – Recognizes DNP.3 addressing allowing serial and Ethernet devices to communicate in peer-to-peer mode.
- P22 – Protected Access Point option enhances network availability
- License free – Deploy immediately

### Applications

- Long Range Wireless Ethernet
- Gateway for serial/legacy networks and/or devices to IP network
- Mobile network access for vehicle based operation

### GE MDS...Global wireless solutions. Industrial Wireless Performance.

For more than two decades, GE MDS has been providing highly secure, industrial strength mission critical wireless communications solutions for a broad spectrum of public and private sector clients worldwide. With an installed base approaching 1,000,000 radios in 110 countries, GE MDS offers both licensed and license-free solutions with applications in SCADA, telemetry, public safety, telecommunications, and online transaction markets.

### MDS entraNET 900®

The MDS entraNET 900 is an ultra long-range, industrial, wireless IP/Ethernet solution, with a high level of cyber-security. It allows the connection of Ethernet and/or serial devices to an IP network. This includes mission-critical, revenue-generating data from fixed assets such as oil and gas wells, compressor stations, pipelines, fluid storage tanks and utility meters. It can also be used in vehicles to provide mobile network access.

MDS entraNET 900 uses advanced 900 MHz FHSS technology for license-free operation in the 902-928 MHz ISM band. It is capable of up to 60 mile range<sup>2</sup> and 106 kbps over-the-air data rate communications.

### Why use an MDS entraNET 900 Wireless Network Solution?

**Longest range** industrial product in its class. Providing lowest cost of ownership.

**Secure** wireless operation with multiple layers of protection, including 900 MHz physical layer, 128-bit data encryption, two-way authentication and dynamic key rotation.

**Reliable** - Designed and built for low failure rates and reduced maintenance costs.

**Resilient** - The P22 protected Access Point (a chassis housing two AP radios in a warm stand-by configuration) increases the availability of mission-critical point-to-multipoint networks.

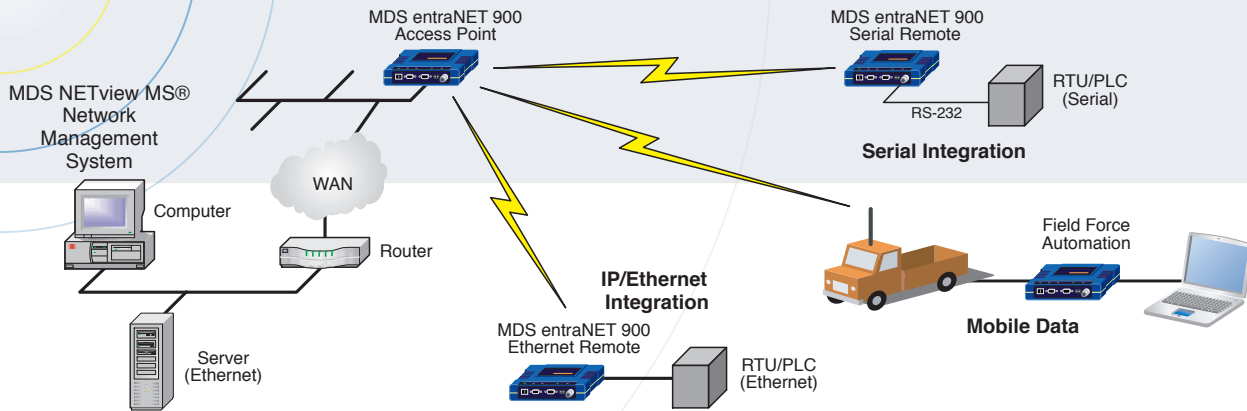
**Flexible** - The MDS entraNET 900 supports multiple users connecting to multiple applications via multiple protocols on the same MDS entraNET 900 unit or the same network - simultaneously!

**Future proof** - The entraNET 900 adheres to open standards, allowing it to interface with a wide range of external devices enabling both new and old technologies to communicate.

**Comprehensive Network Management** - Compatible with MDS NETview MS® and any standard off-the-shelf SNMP management system.



# MDS entraNET 900® Specifications



## General

- Data Rate: 106 Kbps over-the-air
- Frequency Band: 902-928 MHz ISM band
- Spreading Mode: Frequency Hopping Spread Spectrum
- Range<sup>2</sup>:
  - Typical Fixed Range: 25 miles
  - Maximum Fixed Range: 60 miles
  - Typical Mobile Range (parked): 10 miles
  - Typical Mobile Range (moving): 5 miles
- Available Configurations:
  - Access Point - Ethernet and Serial
  - Remote - Ethernet and Serial (Dual Gateway)
  - EZ Remote - Ethernet only (refer to EZ Remote data sheet)

## Radio

- System Gain: 136 dB
- Carrier Power: 0.1 to 1 watt (20 to 30 dBm)
- Output impedance: 50 Ohms
- Occupied Bandwidth: 200 kHz
- Modulation: CPFSK (Continuous Phase FSK)
- Receiver Sensitivity: -106 dBm (1 x 10<sup>-6</sup> BER) typical

## Physical Interface

- Ethernet: 10BaseT, RJ-45
- Serial: COM1: RS-232/V.24, RJ-11, DCE, 1200-115,200 bps  
COM2: RS-232/V.24, RJ-45, DCE, 1200-115,200 bps
- Antenna: TNC connector (female)
- LEDs: ETH, COM1, COM2, Power, Link

## Protocols

- Wireless: CSMA/CA (Collision Avoidance)
- Ethernet: IEEE 802.3, Ethernet II  
TCP/IP (DHCP, ICMP, UDP, TCP, ARP)
- Serial: Transparent encapsulation over IP (tunneling) of serial async multidrop protocols including Modbus, DNP.3, DF1, BSAP
- Special: DNP.3 routing and conversion to/from serial and IP interfaces

## Management

- HTTP (embedded web server), TELNET, Local Console
- SNMPv1/2/3, MIB II, Enterprise MIB
- SYSLOG
- MDS NETview MS®

## MDS Cyber Security Suite, Level 3

- Encryption: RC4-128 with automatic key rotation
- Device Authentication: Restricted access list
- User Authentication: User/Password

## Environmental

- Temperature: -40°C to +70°C (-33.8°F to +158°F)
- Humidity: 95% at 40°C (104°F) non-condensing

## Electrical

- Input Power: 6-30 Vdc
- Current Consumption (nominal):
 

	Mode	30 Vdc	13.8 Vdc	6 Vdc
• Access Point	Transmit	270 mA	525 mA	1175 mA
	Receive	115 mA	220 mA	510 mA
• Remotes	Transmit	240 mA	470 mA	1025 mA
	Receive	65 mA	120 mA	260 mA
	Sleep	8 mA	15 mA*	130 mA
	Shutdown	0.78 mA	0.55 mA*	0.37 mA

\* Sleep and Shutdown measurements conducted @ 12 Vdc

## Mechanical

- Case: Die Cast Aluminum
- Mounting options: Flat surface mount brackets, DIN rail
  - Access Point
    - Dimensions: 3.15 H x 17.2 W x 11.2 D cm. (1.25 H x 6.75 W x 4.5 D in.)
    - Weight: 635 g (1.4 lb.)
  - Remote
    - Dimensions: 2.5 H x 12.7 W x 8.9 D cm. (1 H x 5 W x 3.5 D in.)
    - Weight: 472 g (1.04 lb.)
  - P22 Option
    - Case: Steel (19" rack mountable, 2U)
    - Dimensions: 8.9 H x 48.3 W x 35.6 D cm. (3.5 H x 19 W x 14 D in.)
    - Weight: 7.6 kg (14.7 lbs.) with transceivers

## Agency Approvals

- FCC Part 15.247 (FHSS)
- CSA Class 1 Div. 2 Groups A, B, C and D (ANSI/UL equivalent)<sup>1</sup>
- IC

<sup>1</sup> The transceiver is not acceptable as a stand-alone unit for use in the hazardous locations described above. It must either be mounted within another piece of equipment, which is certified for hazardous locations, or installed within guidelines, or conditions of approval, as set forth by the approving agencies.

<sup>2</sup> Typical fixed range calculation assumes a 6 dBd gain Omni on a 100 ft. tower at the AP, a 10 dBd gain Yagi on a 25 ft. mast at the remote with output power decreased to yield maximum allowable EIRP (36 dBm), a 10 dB fade margin, and a mix of agricultural and commercial terrain with line of sight.

Typical mobile range calculation assumes a 6 dBd gain Omni on a 100 ft. tower at the AP, a 5 dBd gain Omni with 1 watt output power at 6 ft. height, a 10 dB fade margin, and 90% reliability with near line-of-sight in a mix of agricultural and commercial terrain. Maximum range achieved with a clear line-of-sight path, and fresnel zone clearance. Actual performance is dependent on many factors including antenna height, blocked paths and terrain.



**GE MDS**  
175 Science Parkway  
Rochester, New York 14620, USA  
Phone (585) 242-9600  
Fax (585) 242-9620  
www.gemds.com

GE MDS products are manufactured under a quality system certified to ISO 9001. GE MDS reserves the right to make changes to specifications of products described in this data sheet at any time without notice and without obligation to notify any person of such changes.

© 2003 MDS Inc. (MDS entraNET 900 SL0104) Rev. N, 03-06-07