

entraNET 900™

Extended Range IP Networking



Ethernet Remote



Access Point

Features

- Long Range: 20-25 miles²
- 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 2¹ & extended temperature range for extreme environments
- Fast – Up to 106 Kbps data rate over the air
- DNP3 Protocol Aware – Recognizes DNP3 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

entraNET 900™

The 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. EntraNET 900 uses advanced 900 MHz FHSS technology for license-free operation in the 902-928 MHz ISM band. It has a typical range of 20-25 miles² 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 standby configuration) increases the availability of mission-critical point-to-multipoint networks.

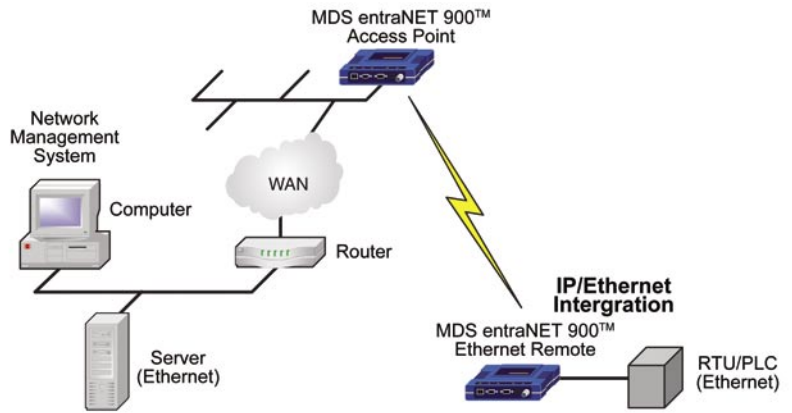
Flexible - The MDS entraNET 900 supports multiple users connecting to multiple applications via multiple protocols on the same MDS entraNET 900™ unit or the same network - simultaneously!

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.

entraNET 900™

Specifications



General

- Data Rate: 106 Kbps over-the-air
- Frequency Band: 902-928 MHz ISM band
- Spreading Mode: Frequency Hopping Spread Spectrum
- Range²:
 - Typical Fixed Range: 20-25 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 10⁻⁶ 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, DNP3, DF1, BSAP
- Special: DNP3 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™

¹ The transceiver is not acceptable as a standard which is certified

² 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.

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	175 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)¹
- IC



Electro Industries/GaugeTech

1800 Shames Drive • Westbury, NY 11590

1-877-EIMETER (1-877-346-3837) • E-Mail: sales@electroind.com

Tel: 516-334-0870 • Web Site: www.electroind.com • Fax: 516-338-4741