

MDS entraNET 2400™

Extended Range IP Networking



Features/Benefits

- Long Range – Up to 15 miles²
- Low Power Consumption – Reduced solar panel and battery installation costs
- Secure – Multiple layers of cyber-security prevent unauthorized network access
- 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
- 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
- Plug and Play Connectivity – Configuration requires minimal setup for Ethernet bridging

Applications

- Wireless Ethernet
- Gateway for serial/legacy networks and/or devices to IP network
- Mobile network access for vehicle based operation³

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

For nearly two decades, Microwave Data Systems (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, MDS offers both licensed and license-free solutions with applications in SCADA, telemetry, public safety, telecommunications, and online transaction markets.

Introducing MDS entraNET 2400™

The MDS entraNET 2400™ is a long-range, solar friendly, secure wireless IP/Ethernet solution. It allows customers to bring business information over Ethernet or a serial gateway and onto IP based networks. This includes mission-critical, revenue-generating data from fixed locations such as compressor stations, pipelines, fluid storage tanks and utility meters. It also enables mobile network access for vehicle based operation³.

MDS entraNET 2400™ uses advanced 2400 MHz FHSS technology for license-free operation in the 2401.6-2477.8 MHz band. It is capable of up to 15 mile range² and 106 kbps over-the-air data rate communications. This product is available for use in Class 1, Division 2, Groups A, B, C, & D Hazardous locations¹.

Why use an MDS entraNET 2400™ Wireless Network Solution?

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

Secure wireless operation with multiple layers of protection, including 2400 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 2400 supports multiple users connecting to multiple applications via multiple protocols on the same MDS entraNET 900™ unit or the same network - simultaneously!

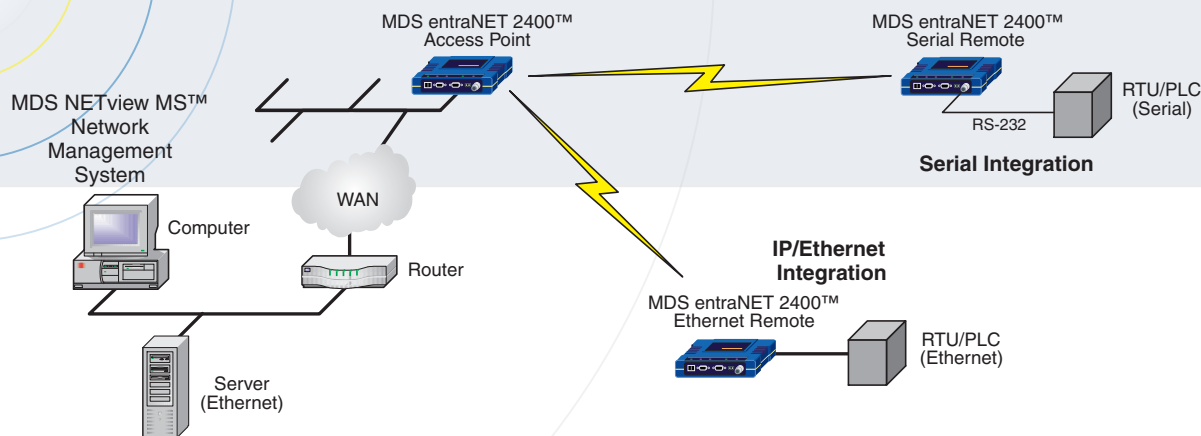
Future proof - The entraNET 2400 adheres to open standards, allowing it to interface with a wide range of external devices enabling both new and old technologies to communicate.

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

MDS

INDUSTRIAL WIRELESS PERFORMANCE

MDS entraNET 2400™ Specifications



General

- Data Rate: 106 Kbps over-the-air
- Frequency Band: 2.4016-2.4778 GHz ISM band
- Spreading Mode: Frequency Hopping Spread Spectrum
- Frequency Channels: Selectable 80 to 128 in increments of 16
- Range²:
 - Typical Fixed Range: 6 miles
 - Maximum Fixed Range: 15 miles
 - Typical Mobile Range (parked): 2.5 miles
 - Typical Mobile Range (moving): 1 miles

Radio

- System Gain: 131 dB
- Carrier Power: 0.1 to 0.5 watts (20 to 27 dBm)
- Carrier Power (ETSI): 0.01 to 0.1 watts (10 to 20 dBm)
- Output impedance: 50 Ohms
- Occupied Bandwidth: 200 kHz
- Modulation: 2 level CPFSK (Continuous Phase FSK)
- Receiver Sensitivity: -104 dBm (1 x 10⁻⁶ BER) typical

Physical Interface

- Ethernet: 10BaseT, RJ-45
- Serial: RS-232/V.24, RJ-45, DCE 1,200-115,200 bps
- Antenna: TNC connector (female)
- LEDs: ETH, Com1, Com2, Power, Link

Protocols

- Wireless: CSMA/CA with Collision Avoidance
- Ethernet: IEEE 802.3 (single device at remote) IP (DHCP, ICMP, UDP, TCP, ARP)
- Serial: Encapsulation over IP (tunneling) for serial async multidrop protocols including Modbus, DNP.3, DF1, BSAP

Management

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

Environmental

- Temperature: -20°C to +60°C (-4°F to +140°F)
- Humidity: 95% at 40°C (104°F) non-condensing
- Input Power: 6-30 Vdc (13.8 Vdc nominal)
- Current Consumption:

Mode	Access Point		
	30 Vdc	13.8 Vdc	6 Vdc
Transmit	253.3 mA	488.5 mA	1091.7 mA
Receive	119.7 mA	230.1 mA	533.3 mA

Mode	Remotes		
	30 Vdc	13.8 Vdc	6 Vdc
Transmit	223.3 mA	433.8 mA	941.7 mA
Receive	69.7 mA	130.1 mA	283.3 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 (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 Approved
- IC Approved
- ETSI Approved
- CE Mark
- CSA Class 1 Div. 2 Groups A, B, C and D for hazardous locations¹ (ANSI/UL equivalent)

¹ 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.

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.

³ Except where ETSI restricted.



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MDS products are manufactured under a quality system certified to ISO 9001. 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.
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