

GE Enterprise Solutions MDS

APPLICATIONS

- Point-to-point transmission applications
- Cost effective thin route applications
- Long haul telecommunication links
- Cellular backhaul
- Last mile links
- Trunked radio
- SCADA

PRODUCT OVERVIEW

The new full rate MDS LEDR™ microwave radio family provides full duplex, scalable bandwidth and capacity from 1 x E1 (2.048 Mbps) in a 500 kHz channel to 4 x E1 (8.192 Mbps) in a 2.0 MHz channel. These radios are designed to operate in a point to point environment with a wide range of applications. They are especially effective for telecommunications access and transport links, and for use as backhauls to extend existing telecommunication channels. The full rate MDS LEDR microwave radio is designed to connect to any industry standard E1 G.703 source.

MDS LEDR™ Full Rate Series

LEDR 400F 330-512 MHz

LEDR 900F 800-960 MHz

LEDR 1400F 1350-1535 MHz

LEDR Protected



FEATURES

- Frequency range: 330 MHz to 512 MHz, 800 MHz to 960 MHz and 1350 to 1535 MHz
- Data rates: scalable from 1 x E1 to 4 x E1
- Spectrally efficient: selectable 32 QAM, 16 QAM or QPSK
- Excellent sensitivity: -90 dBm @ 10⁻⁶ BER at 1 x E1 (16 QAM)
- Advanced modem features: FEC, interleaver and adaptive equalizer
- Front panel displays for easy maintenance and link monitoring
- Built-in NMS element manager
- SNMP network management for fault, configuration, performance and security management
- Integrated HTML web server allows networkwide management via the internet
- Built-in 9600 bps data service channel
- Local loopback and remote loopback
- 8 relay alarm contacts per radio
- DTMF compatible orderwire
- Optional 1+1 hot standby protected configuration
- Optional space diversity configuration



MDS LEDR™ FULL RATE SERIES SPECIFICATIONS



General Specifications

- Frequency ranges:
 - LEDR 400F: 330-512 MHz
 - LEDR 900F*: 800-960 MHz
 - LEDR 1400F: 1350-1535 MHz
- RF occupied bandwidth: 500 kHz, 1.0 MHz, 2.0 MHz
- User data rates: 1 x E1 (2 Mbps), 2 x E1 (4 Mbps), 4 x E1 (8 Mbps)
- Modulation type: 32 QAM, 16 QAM, QPSK
- FEC: Reed Solomon
- Temperature Range: -10° to 50° C
- Humidity: < 95% non-condensing
- Voltage range: ±12Vdc (with external power supply)*(±20%) ±24 Vdc, or ±48 Vdc (±20%)
- Power consumption: non-protected: < 60 W, protected: < 135 W
- Size: 4.5 (1U) H x 48 W x 30 D cm. (1.75 H x 19 W x 12 D in.)

Transmitter

- Power output at antenna port: +30 dBm
- Output Control Range: 10 dB in 10 steps
- Frequency Stability: 1.5 ppm
- Spurious Outputs: < -60 dBc

Receiver

- Residual BER: < 1x10⁻¹⁰
- Dynamic Range: > 65 dB

Interfaces

- Data: G.703
- Orderwire: DTMF capable
- Data Service Channel: RS-232, 300-9600 bps
- Ethernet NMS: 10 Base-T
- Console Port: RS-232, 300 bps to 115.2 Kbps
- Alarms: 4 programmable outputs, 4 programmable inputs
- Antenna: 50 Ohms Impedance

Options

- Space diversity
- Hot-standby protected
- Bandwidth upgrade kits (consult factory for details)
- Bandpass duplexers

Network Management

- Local LED indicators:
 - Front panel LED status indicate: power, active, general alarm, Rx alarm, Tx alarm, I/O alarm
- Front panel LCD:
 - Display & keypad for management of local & remote radio
- Element management:
 - Full management of LEDR network via command line interface
- SNMP management:
 - Full IP-based management of LEDR network and SNMP-enabled peripherals via custom enterprise MIB
- HTML webserver:
 - Full IP-based management of LEDR network and web-enabled peripherals via any web browser (e.g. Netscape™ or Internet Explorer™)

Accessories

- 110/240 Vac, 50/60 Hz power supply
- Orderwire handset
- G.703 120 ohms to 75 ohms balun

Protected

- Configuration: 2 x LEDR radios, connected via protected switch box
- Total Size: 2 x 1 RU high + 1 x 2 RU high
- Transmit branching loss: 2 dB
- Receive branching loss: 5 dB
- Receive switching: hitless

Agency Approvals

- LEDR 400F: transmission: FCC Part 90, IC RSS-119, FCC part 15
- LEDR 900F: transmission: FCC Part 101, IC RSS-119, FCC part 15
- LEDR 1400F:
 - Transmission: ETS300 630, MPT 1717 Class 3
 - Environmental: ETS 300 019, Class 2
 - EMC: ETS 300 385
 - Safety: CE Mark

* Consult factory

System Performance

Channel Spacing	500 kHz	1.0 MHz	1.75*/2.0 MHz
Capacity	1 x E1	2 x E1	4 x E1
Receiver Sensitivity (10 ⁻⁶ BER) ¹ (32 QAM)	89 dBm	86 dBm	83 dBm
System Gain (10 ⁻⁶ BER) (32 QAM)	119 dB	116 dB	113 dB

Modulation Type	Threshold Differential	Normalized System Gain Differential
QPSK	-4.5 dB	-3.5 dB
16 QAM	-1.5 dB	-2.5 dB
32 QAM	0 dB	0 dB



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