



## Repeater Specifications

*Redundant Network Intelligent Repeater*

**S**ystem III Repeater relays signals received from the Intelligent Radio Modem (IRM) units to other remote units in a wireless metropolitan area network (MAN). By installing the Repeater at the top of a tall structure near the center of the MAN, the Repeater can provide coverage over 2,800 square miles/ 8,500 square kilometers. It can also provide the gateway into the network where the repeater and customer point of presence (POP) are co-located.

**T**he repeater has a reliable modular design which ensures uninterrupted network operation and greatly facilitates serviceability. All field adjustments can be made at the front panel, via a modem, or via the wireless network. Modules can be removed and

### Features:

- f Fault tolerant design with no single point of failure
- f Continuous duty rated
- f 19.2 kbps data throughput
- f 25 KHz channel
- f 50 km/31 miles range
- f Modular design for rapid servicing
- f Remote control via Network Manager
- f Multiple power sources
- f Dual RF subsystem for rapid backup switchover

replaced while the Repeater is operating. Each module provides clear status information through LED indicators and status may be obtained via an attached PC or from a remotely located network manager station.

**T**he Repeater system consists of a 19" rack mount enclosure with five types of plug-in modules: power supply, transmitter, receiver, control module and communications module. The enclosure houses a module support chassis and a backplane subsystem which is capable of holding two power supplies, two transmitter modules, two receiver modules, one control module and two communications modules.

**T**he transmitter and receiver modules comprise a RF subsystem which receives data from the currently transmitting IRM, then detects, reclocks and retransmits the data so that all IRMs within the coverage area can receive the information from the originating IRM. The control module monitors the operational status of the Repeater's redundant modules, records failure events and supports configuration. The communications modules enable the Repeater to participate on a Collision Eliminating Multiple Access (CEMA) radio network and permit it to be controlled and monitored from a System III Network Manager station.



# SIMREX CORPORATION



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# System III Repeater

**Frequency Range/ Data Rates:** 400 - 512 MHz/ +/- 5.0 MHz  
805 - 960 MHz/ +/- 7.5 MHz

<b>Network Data Rate, Channel Spacing and Modulation Options:</b>	<b>Data Rate</b>	<b>Channel Spacing Modulation</b>	
	9600 bps	25.0 kHz	2 state FSK
	9600 bps	12.5 kHz	4 state FSK
	19200 bps	25 kHz	4 state FSK

### Transmitter Specifications:

Power Output Minimum: 2 watts Maximum: 5 watts (+37 dBm)  
Electrically Adjustable +20 to +37 dBm  
Duty Cycle 100%  
Turn-on Time < 1 millisecond  
Frequency Reference TCXO Controlled Direct Digital Synthesis, 19.6608

MHz

Frequency Stability Temperature: 1.5 ppm Aging: 1 ppm/yr.

### Receiver Type:

Double Conversion Superhetrodyne

### Receiver Specifications:

	<b>2 state, 25 kHz</b>	<b>4 state, 12.5 kHz</b>	<b>4 state, 25kHz</b>
<b>Data Rate</b>	9600 bps	9600 bps	19200 bps
<b>Adjacent Channel Rejection</b>	50 dB	50 dB	50 dB
<b>Spurious Rejection</b> (-50 dB interference)	70 dB	70 dB	70 dB
<b>Image</b>	70 dB	70 dB	70 dB
<b>Intermodulation Rejection</b>	75 dB	75 dB	75 dB
<b>Noise Figure</b>	6 dB	6 dB	6 dB
<b>Sensitivity (10<sup>-6</sup> BER)</b>	-105 dB	-95 dB	-90 dB

### Electrical & Mechanical Specifications:

**External Power Requirements** 110/230 VAC, 50/60 Hz  
**Temperature Range** Operating: 0 to +50°C Storage: -40 to +80°C  
**Humidity** 5 to 90%, Non-Condensing at 40°C  
**Dimensions** 12.3"H x 19"W x 16.3"D/ 312H x 482W x 414D mm  
**Weight** 25 lbs./ 11.3 kg  
**FCC I.D.** 400 - 512 MHz: JK2DM204000  
805 - 960 MHz: JK2DM208000B  
**Emission Designators** 12.5 kHz: 11K7F1D 25.0 kHz: 17K1F1D  
**Regulatory Compliance** United States FCC Parts 2, 15, 22, 90 and 94  
Canada DOC RS-119 and RS-122