

## Cisco MGX-SRM-3T3

THE CISCO MGX-SRM-3T3 SERVICE RESOURCE MODULES (SRMs) PROVIDE 1:N REDUNDANCY, M13 MULTIPLEXING CAPABILITIES, AND BIT ERROR RATE TESTING (BERT). DESIGNED FOR USE WITH THE CISCO MGX™ 8800 AND 8200 PRODUCTS, THE SRM-3T3 OFFERS THREE T3 PORTS ON THE BACK CARD.

### Highlights

A service resource module (SRM) provides three major functions for service modules; it provides for bit error rate tester (BERT) of T1 and E1 lines and ports, loops back individual N x 64 channels toward the customer premises equipment (CPE) and provides for 1:N redundancy. The SRM-3T3 provides the additional capability of supporting multiple T1 channels over T3 lines on the SRM and distributing those channels to T1 service modules in the shelf.

### Bit Error Rate Tester

After a service module line or port is put into loopback mode, the SRM can generate a test pattern over the looped line or port, read the received looped data, and report on the error rate. This operation can be performed on a complete T1 or E1 line, on a fractional T1 or E1 line, on a SD0 bundle (N x DS0), or on a single DS0 channel. The SRM can support BERT only one line or channel at a time. BERT is capable of generating a variety of test patterns, including all ones, all zeros, alternate one zero, double alternate one zero, 223-1, 220-1, 215-1, 211-1, 29-1, 1 in 8, 1 in 24, DDS1, DDS2, DDS3, DDS4, and DDS5.

### 1:N Service Module Redundancy

Service module redundancy provides 1:N redundancy for multiple groups of service modules, where a group consists of N active and one standby service module. The redundant service module in a group must be a superset (with respect to functionality) of the cards. Upon the detection of a failure in any of the service modules, the packets destined for the failed

service module are carried over the CellBus to the SRM in its chassis. The SRM receives the packets and switches them to the backup service module via the CellBus. Thus each active SRM provides redundancy for a maximum of 11 service modules per shelf.

### Bulk Mode

Each of the T3 ports can be used to support up to 28 multiplexed T1 lines, which are distributed to T1 service

module ports in the switch. Called bulk distribution, this feature is performed when the SRM is in "bulk mode." The purpose of this feature is to allow large numbers of T1 lines to be supported over three T3 lines rather than over individual T1 lines.

Out of the maximum possible 84 T1 channels (3 times 28), up to 80 channels per shelf can be active at any time. Any T1 channel in a T3 line can be distributed to any eight port on a service module in any slots of the shelf without restriction. Each MGX 8800 shelf can support up to 80 T1/E1s, and the whole chassis supports up to 160 T1s. As an option, the SRMs can use back cards and native T1/E1 interfaces to bring the total to 192 DS1s; 160 DS1s using twenty 8-port cards and the SRMs, and 32 DS1s using four 8-port cards with T1/E1 back cards (for the MGX 8220).

The SRM-3T3 can also be operated in "nonbulk mode" on a port-by-port basis. For a port configured in nonbulk mode, bulk distribution is disabled and the SRM provides BERT and 1:N redundancy functions only.



When operating in bulk mode, individual T1 lines can be used on service module ports. However, a service module port cannot be used simultaneously with an individual T1 line and with a distributed T1 channel.

### Ordering Information

MGX-SRM-3T3(=)	Service resource module, supporting three T3s
MGX-BNC-3T3-M(=)	Three T3 back card, BNC connector
MGX-SR-8(=)	License for redundancy

- Three DSX-3 (44.736 Mbps +/-40 ppm) interfaces with dual female 75-ohm BNC coaxial connectors per port (separate RX and TX)
- B3ZS line coding
- Pulse shape conforming to ANSI T1.102
- BERT and extended loopback pattern generation/verification
- 1:1 redundancy with Y-cabling

SRM-T3 LED Indicators

Type of LED	Color	Meaning
ACTIVE (ACT) LED	Green	Indicates card set is in active mode.
STANDBY (STBY) LED	Yellow	Indicates card set is in standby mode.
FAIL (FAIL) LED	Red	Indicates BNM-155 card set has failed or the line module is missing.

Line Redundancy

Type of LED	Color	Meaning
(1:N RED) LED	Green	On indicates 1:N redundancy has been invoked. Off indicates 1:N redundancy is not active.
BERT (BERT) LED	Green	Indicates BERT function is active.

### Card Size

- Front cards 7.25 x 16.25 in.
- Back cards 7.0 x 4.5 in.

### Power

- -48 VDC

### Temperature Range

- 0-50 C (32-122 F)

### Compliance

- Mean time between failures (MTBF)
- 99,608 hours

### Availability

- 99.999



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