CRS-500 1:N Modem Redundancy System

Modem Accessories

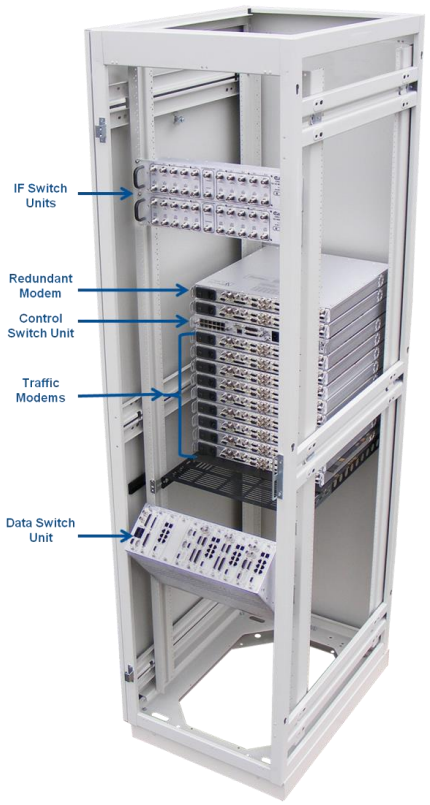
Overview

The CRS-500 is Comtech's next generation 1:N Modem Redundancy System. Intended for hub applications, it provides automatic or manual protection for up to 10 Traffic (or prime) modems with one redundant (or standby) modem.

The CRS-500 supports the CDM-625/625A, CDM-760 and CDM-750 modems for select interfaces. The CDM-625/625A is supported when using the 10/100 Packet Processor mode. The CDM-750/760 is supported when using the ASI, G.703, Gig-E native interface or Gig-E Packet Processor interface (packet processor and ASI only available on the CDM-760).

As shown in the figure, the CRS-500 is a flexible, modular-type architecture, composed of a Control Switch Unit (CSU), Data Switch Unit (DSU) and optional IF Switch Units (ISUs).

A key feature of the CRS-500 architecture is its ability to allow the redundant modem to 'bridge' a traffic modem. The CRS-500 controller automatically configures the redundant modem to match the bridged traffic modem's configuration. The CRS-500 also provides a copy of the bridged traffic modem's TX traffic data to the redundant modem. When using the IF Switch Units (ISUs), it additionally routes the bridged traffic modem's RX IF.



CRS-500 1:N Modem Redundancy System Typical Rack View (back side)

Key Features

- Flexible 1:10 (max.) configuration
- Primary traffic paths are maintained, error-free, when power is removed
- Non-interruption of traffic data when Traffic Modem Interface (TMI) cards are removed
- Bridge mode (hot-standby) redundant modem to ensure quick availability for backup
- Programmable hold-off times to backup or restore
- Programmable preference Selectable Prime Traffic Modem
- Remote (Ethernet or serial) Monitor and Control to switch
- Multiple user interfaces (Web/HTTP, SNMP, MIB, Front panel)
- LED summary panel showing switch and modem status, bridge and online/offline
- Dual independent & hot-swappable/uninterrupted AC or DC power supplies
- Audible alarm programmable to activate, based on various changes in status

Specifications

Configuration	1:10 (max.): 1 redundant modem and up to 10 traffic modems
Compatible Modems	CDM-625/625A*, CDM-760* and CDM-750* (*check interface type)
Operating Modes	Automatic or manual switching mode
Switching Conditions	Switch to redundant modem following a modem unit, TX or RX fault
Switching Time	500 ms for bridged backup
IF Switching	For single transponder: No IF switch needed, (offline TX IF(s) is muted) For multi-transponder: Use CRS-282xx or CRS-280L ISU to switch TX & RX IF
User Interface	Vacuum fluorescent display, 2 lines, 24 characters Front panel, Web and MIB Interfaces LED summary status display showing CRS-500 status and all modems: unit status, TX status, RX status, online and bridge status

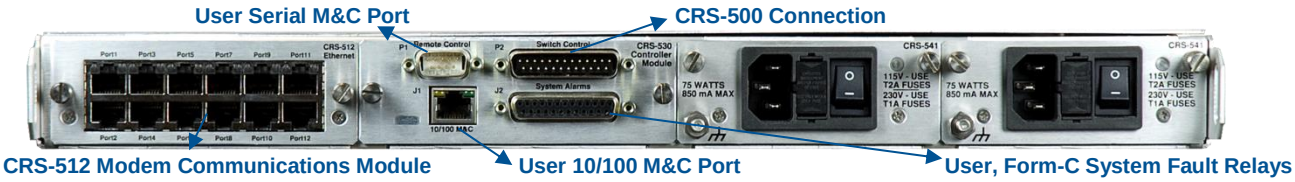
Audible Alarm	Programmable to activate following various changes of state.
Common faults	Form–C relay contacts
Prime Power	90 W max., with 10 CRS-520 TMIs installed in DSU Add additional 1 W per ISU installed
Power Consumption	90 W max., with 10 CRS-520 TMIs installed in DSU Add additional 1 W per ISU installed
Dimensions: CSU – 1RU DSU – +3U CRS 282xx ISU – 2U CRS 290L ISU – 4U	height x width x depth 1.75" x 19.0" x 17.7" (4.4 x 48 x 44.8 cm) 6.00" x 17.3" x 10.5" (15.2 x 43.8 x 26.7 cm) 3.50" x 19.0" x 3.0" (8.9 x 48.3 x 7.6 cm) 7.0" x 19.0" x 14.0" (17.8 x 48.3 x 35.6 cm)
Weight (max.)	CSU = 9 lbs (4.1 kg), DSU = 15 lbs (6.8 kg) CRS282xx ISU = 7 lbs (3.2 kg) CRS280L ISU = 14 lbs (6.4 kg)
Temperature	Operating = 32-122°F / 0-50°C
Humidity	0 to 95%, non-condensing
CE Mark	EMC and Safety

Control Switch Unit (CSU)

The CSU is the controller of the CRS-500 Redundancy System and consumes only 1RU of rack space. It contains field-replaceable modules such as the CRS-530 controller and dual, hot-swappable Power Supply Units (PSUs). The configuration of each traffic modem is stored in the CRS-530 controller. This information is used to program the redundant modem if a traffic modem fails. The CSU contains an extensive M&C system and is fully controllable from the front panel or from external 10/100 Ethernet or EIA-232C/485 ports located on the back side of the CSU unit, (on the CRS-530 module). Ethernet is used by the switch to communicate to all modems. A 10/100 Ethernet M&C connection goes to/from each modem to the CSU.

Control Switch Unit (CSU) – Front View

Control Switch Unit (CSU) – Rear View



Control Switch Unit (CSU) Configurations

Modem	Terrestrial Interface	Mode of Operation	Modem to CSU Comms Module
CDM-625/625A	IP Packet Processor	Layer 3 or Bridge	N/A (Thorough TMI)
CDM-750/CDM-760	ASI or G.703 (T3, E3, STS-1)	Any	CRS-512
CDM-750/CDM-760	Gig-E Copper	Any	N/A (Thorough TMI)

Data Switch Unit (DSU)

The DSU contains the Traffic Modem Interface (TMIs) and Redundant Modem Interface (RMIs) traffic data cards. The traffic data from the user interface to the traffic modem interface passes through normally-closed relay contacts on the TMI card. If and when both power supplies are lost, or if a TMI carrying traffic is removed with its cables, no interruption of traffic data occurs. The figure below shows a DSU configuration example for a CDM-625/625A in a 1:4 configuration. Consult the CRS-500 User Manual for more DSU configuration details. The DSU can be installed in the rear or top of the rack in a horizontal or vertical position. It also comes equipped with locking hinges, to allow the unit to be tilted away from the rack for easy access to equipment data cables.

Data Switch Unit (DSU) Configurations

Modem	Terrestrial Interface	Mode of Operation	RMI (Redundant Modem Interface)	TMI (Traffic Modem Interface)
CDM-625/625A	IP Packet Processor	Layer 3 or Bridge	CRS-510	CRS-520 (one per online modem)
CDM-750/CDM-760	ASI or G.703 (T3, E3, STS-1)	Any	CRS-505	CRS-345
CDM-750/CDM-760	Gig-E Native or Packet Processor	Any	CRS-505	CRS-516

Data Switch Unit (DSU), Front View

IF Switch Units (ISU)

The ISUs are intended for satellite earth stations where traffic modems use different transponders within the same redundancy system. The figures below show the CRS-280, 70/140 MHz and the CRS-280L model ISUs. Note: The L-Band TX model does not pass DC power to BUC.

If all traffic modems are sharing the same transponder, ISUs are not needed. This is because the CRS-500 will shut off the off-line modem's TX IF output.

Transmit and Receive ISU, 70/140MHz

- CRS-280, 75 Ω (PL/8976-1)
- CRS-280, 50 Ω (PL/8976-2)

Transmit and Receive ISU, L-Band

- CRS-280L, 50 Ω (Must Configure CRS-280L to order separately)

Specifications IF Switch Unit (ISU), CRS-280

	70-140 MHz
Operating Frequency	50 to 180 MHz
Connector Type	BNC, 50/75 Ω
Return Loss	18 dB
RX-RX Isolation	> 60 dB
TX-TX Isolation	> 60 dB
Power Source	From CRS-500 DSU

Specifications IF Switch Unit (ISU), CRS-280L

	CRS-280L (L-Band)
Operating Frequency	950 to 1950 MHz
Connector Type	TX/RX N–type
Return Loss	15 dB into 50 Ω
Power	100-240 VAC 50/60 Hz (25 W) 36-60 VDC (25 W)
Dimensions (Rack Mount – 4 U) (height x width x depth)	7" x 19" x 14" (18 x 48.26 x 36 cm)
Weight	< 25 lbs (11.3 kg)
Power Source	Redundant AC or -48VDC input

CRS280 or CRS-280L

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