

# CRS 1:N Modem Redundancy Switches



## INTRODUCTION

The CRS-300 1:10 modem redundancy switch provides fully automatic or manual redundancy for the following modems: CDM-570/570L, CDM-600/ 600L, CDM-625, CDM-Qx/QxL, CDM-700, CDM-710, CDM-710G and SLM-5650A.

The protection system consists of a maximum of 10 traffic modems, a redundant modem, and the CRS-300 redundancy switch. Two companion (slaved) 1:N switches are also available: the CRS-280/280L IF switch and the CRS-350 ESC switch. The IF switch is used in multiple transponder applications. The CRS-350 is used for open network ESC redundancy switching.

## COMPATIBILITY

The CRS-300 supports a wide range of terrestrial data interface types including: EIA-422/530, V.35, EIA-232, LVDS, G.703 (balanced or unbalanced), ASI, 10/100/1000 Ethernet and HSSI. In many cases, each traffic modem can have a different terrestrial data interface types.

## KEY RELIABILITY FEATURES

- Twin, independent AC or DC power supplies
- Passive backplane for signal path
- Non-interruption of normal traffic upon power failure
- Non-interruption of user data when other traffic modem Interface circuit cards are removed
- Data and clock provided to the redundant modem when in Bridge Mode
- Programmable holdoff times to backup or restore
- Audible alarm programmable to activate, based on various changes in status
- Provides single-point remote Monitor and Control (M&C) to switch and traffic modems
- Simplified configuration and control
- 2 line x 24 character Vacuum Fluorescent Display
- Front panel keypad
- LED system status display showing unit and modem status, online/offline status, and bridge status

## SUPERIOR FUNCTIONALITY

The configuration of each traffic modem is stored in the CRS-300 controller. This information is used to program the redundant modem if the traffic modem fails. The modem information is copied to the controller through a serial cable.

The CRS-300 also controls the traffic and redundant modem IF output. All modem outputs are ON if the CRS-280 or CRS-280L IF switch is used in the system. The downlink path through the CRS-280/ CRS-280L is completely passive.

External monitor and control may be connected to the CRS-230 controller board. The CRS-300 and each traffic modem may be monitored or controlled through this remote serial interface.

The data and clock signals to and from a traffic modem are routed through a Traffic Modem Interface (TMI) via a set of relays. This allows the data signals to pass directly through to the traffic modem in the event of a power failure. If the system's power supplies are lost, or if a TMI carrying traffic is removed, no interruption of traffic occurs.

The Bridge Mode may be used to verify the user data on a specific traffic modem. The redundant modem locks to the traffic modem receive IF input signal. The operator can program a delay interval for the backup modem to wait before coming online when a traffic modem failure occurs.

## MODULAR CONSTRUCTION

The redundancy switches are modular in construction. All replaceable modules insert into slots in the back panel, including the controller, Traffic Modem Interfaces (TMIs), Redundant Modem Interfaces (RMIs), and Power Supply Units (PSUs).

Power consumption is so low, even for fully populated units, that no fan cooling is required.

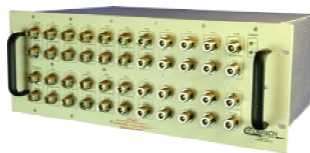
# CRS Series 1:N Modem Redundancy Switches

## SYSTEM SPECIFICATION

Type	1:N Redundancy Switch system, N=10 max, bridging architecture.
Compatible Modems	CDM-570/570L, CDM-600/600L, CDM-625, CDM-Qx/QxL, CDM-700, CDM-710, and SLM-5650A.
Operating Modes	Fully automatic or manual. Force Traffic Modem to Redundant Modem. Remove selected Traffic Modem from control. Programmable hold-off to backup and hold – off to restore (from 2 to 99 seconds).
Switching Conditions	Switch to Redundant Modem following a unit fault. Tx traffic alarm or Rx traffic alarm.
IF Switching	With CRS-280 IF Switch: all modems outputs on all the time. Without CRS-280 IF Switch: IF On/Off control to modems
Redundant Modem Signal Source	Any one of the 10 traffic paths (bridge mode) (both Rx IF and Tx data).
Front Panel	Vacuum fluorescent display, 2 lines, 24 characters. LED status display showing, for all modems. Unit Status, Tx Status, Rx Status, Online and Bridge Status.
Audible Alarm	Programmable to activate following various changes of state.
Common faults	Dry relay contacts.
Prime Power	Two independent inputs, (AC or DC versions available): 90 to 264 VAC, 50/60 Hz, or 48 (38 to 60) VDC <25 watts.
Dimensional Envelope (Rack Mount – 4RU)	19W x 11.75D x 6.75H inch. (48.26W x 29.85D x 17.15H cm).
Weight	~ 20 lbs (~ 9.07 kg)
Temperature	0 to +40°C (32 to 104°F) Operating 50 to 100°C (122 to 212°F) Storage
Humidity	95% at +40°C (104°F), Non-condensing
CE Mark	EMC and Safety.



CRS-280



CRS-280L



CRS-350

### CRS-280/280L – IF SWITCH (Optional)

	CRS-280 (70/140MHz)	CRS-280L (L-Band)
Operating Frequency	50 to 180 MHz	950 to 1950 MHz
Connector Type	Tx/Rx BNC or TNC	Tx/Rx N-type
Return Loss	18 dB into 75Ω	15 dB into 50Ω
Power	From CRS-300	100-240 VAC 50/60 Hz (25W)
Dimensional Envelope (Rack Mount – 4 U)	19" W x 2.5" D x 7" H (48.26 cm x 6.35 cm x 18 cm)	19" W x 14" D x 7" H (48.26 cm x 36 cm x 18 cm)
Weight	< 10 lbs (< 4.54 kg)	< 25 lbs (11.3 kg)

## MODEM vs TERRESTRIAL USER DATA INTERFACE

Modem	TMI	User Data Type	User Data Connector(s)
CDM-570	CRS-320	EIA-422, V.35, EIA-232	(1) DB-25F
CDM-570L	CRS-330	G.703 (Balanced/Unbalanced)	(1) DB-15F/ (2) BNC
	CRS-340	EIA-422, V.35, RS232 G.703 (Balanced/Unbalanced)	(1) DB-25F (1) DB-15F/ (2) BNC
CDM-600 CDM-600L	CRS-320	EIA-422, V.35, RS232	(1) DB-25F
	CRS-330	G.703 Bal (DDI,IDO, DDO, IDI) G.703 Unbal (DDI, IDO, DDO, IDI)	(1) DB-15F (4) BNC
		CRS-340	EIA-422, V.35,RS232, LVDS G.703 Bal (DDI,IDO, DDO, IDI) G.703 Unbal (DDI, IDO)
	CRS-370	HSSI (User)	(1)HD-50F
CDM-625	CRS-316	EIA-422, V.35 10/100 Ethernet	(1) DB-25F (1) RJ45
	CRS-325	ASI	(2) BNC
	CRS-330	G.703 Bal (DDI,IDO, DDO, IDI) G.703 Unbal (DDI, IDO, DDO, IDI)	(1) DB-15F (4) BNC
		CRS-340	EIA-422, V.35, LVDS G.703 Bal (DDI,IDO, DDO, IDI) G.703 Unbal (DDI, IDO)
	CRS_365D	Quad E1 (1 to 4 Ports of E1)	(2) DB-9F
	CRS-370	LVDS to HSSI(User)	(1)HD-50F
CDM-Qx	CRS-316	EIA-530, V.35, EIA-232	(1) DB-25F
CDM-QxL	CRS-325	G.703 Bal (DDI,IDO, DDO, IDI) G.703 Unbal (DDI, IDO)	(1) DB-15F (2) BNCs
		CRS-336	HSSI
	CRS-365	Quad E1 (1 to 4 Ports of E1)	(4) RJ45s
	CDM-700	CRS-325	OC3 Copper
CDM-710	CRS-336	HSSI Giga Bit	(1) HD-50F (1) RJ45
	CRS-345	Multi-Port Unbal G.703 (1-4 ports)	(8) BNCs
CDM-710G	CRS-325	ASI	(2) BNCs
	CRS-336	HSSI Giga Bit	(1) HD-50F (1) RJ45
		Unbal G.703	(2) BNCs
SLM-5650A	CRS-316	MIL-STD-188-114, EIA-530 Giga Bit	(1) DB-25F (1) RJ45
		CRS-325	G.703 Bal (DDI,IDO, DDO, IDI) G.703 Unbal (DDI, IDO)
	CRS-336	HSSI Giga Bit	(1) HD-50F (1) RJ45

### Notes:

1. SLM-5650 (non "A" version) see Legacy 1:N Switch Datasheet.

### CRS-350 – ENGINEERING SERVICE CHANNEL SWITCH( Optional)

Applicable Modems	CDM-600/600L/625, SLM-5650A
User Data Interfaces	(1) DB-25M connector - ESC, overhead signals (1) DB-15F connector - IDR Alarms (1) DB-9F connector - Audio
Power	From CRS-300
Dimensional Envelope (Rack Mount – 4U)	19" W x 4.0" D x 7" H (48.26 cm x 27.5 cm x 18 cm)
Weight	5 lbs (2.2 kg)

