

CRS-311 1:1 Modem Redundancy Switch

Modem Accessories



Overview

The CRS-311 1:1 Redundancy Switch supports automatic or manual 1:1 protection for our SLM-5650A/5650 and CDM-Qx/QxL Satellite Modems. A CRS-281 IF redundancy module provides TX 70/140 MHz or L-Band backup.

The switch connects two modems – a traffic unit and a redundant unit. It monitors the fault status of these two units. If there is an equipment failure, switching automatically takes place to protect the IF, data and overhead traffic circuits.

The traffic and redundant modems are linked together so that any configuration changes made to the traffic unit are automatically updated in the redundant unit.

Functional Description

The switch has two power supply modules. Each power supply provides the full demand for the switch, providing power supply redundancy.

The 1:1 controller is within the CRS-311, providing control and driving signals for all switching. This unit continuously monitors a pair of modems so that, in the event of an equipment failure (or an undesired traffic condition), the sub-system automatically replaces the failed unit with the redundant unit.

Front Panel

The front panel of the switch contains the following items:

- Unit Status LED
- Stored Event LED
- Remote LED
- Online LEDs: indicates which modem is carrying traffic
- Keypad: provides up, down, left, right, clear and enter operation in conjunction with the display
- Vacuum fluorescent display: 2 lines x 24 characters

Rear Panel

Located on the rear panel are several key items/assemblies. These include two CRS-241 AC power supplies or two CRS-251 DC power supplies for redundant prime power. A CRS-230 System Interface Controller supports the logic and switchover, and supplies a control interface to the CRS-311. A selection of Traffic Modem Interface (TMI) and Redundant Modem Interface (RMI) modules are available to support data switchover, and one of the two types of CRS-281 IF switches is available for either 70/140 MHz or L-Band redundancy. For the CDM-QxL, the CRS-281A is available to switch BUC and LNB DC power, 10 MHz and FSK.



CRS-311 Back Panel

Specifications

| | |
|-------------------------------|--|
| Type | 1:1 redundancy switch system, bridging architecture |
| Compatible Modems | SLM-5650A/5650, CDM-Qx/QxL |
| Operating Modes | Fully automatic or manual Force traffic modem to redundant modem Programmable hold-off to backup and hold-off to restore (2 to 99 seconds) |
| Switching Conditions | Switch to redundant modem following a unit, TX traffic, or RX traffic fault |
| Switching Time | 2 to 7 seconds |
| IF Switching | IF is controlled on the CRS-281 |
| Redundant Modem Signal Source | Both Rx IF and TX data are bridged from the traffic modem |
| Front Panel | Vacuum fluorescent display: 2 lines x 24 characters LED system status display: unit status, stored event, and remote modem traffic status |
| Audible Alarm | Programmable |
| Common Faults | Dry relay contacts |
| CE Mark | EMC and safety |

User Data Interface to TMI / RMI By Modem Data Interface (Optional)

| Data Interface | TMI | RMI |
|--|--------------------|--------------------|
| CDM-Qx/QxL Modem Interfaces and Corresponding TMI / RMI | | |
| EIA-530 / 422 / V.35, EIA-232 | CRS-316 | CRS-305 |
| G.703 T1/E1 Bal / Unbal or E2 Unbal | CRS-325 | CRS-305 |
| HSSI | CRS-336 | CRS-305 |
| Quad E1 | CRS-365 | CRS-305 |
| SLM-5650A/5650 Modem Interfaces and Corresponding TMI / RMI | | |
| MIL-STD-188-114, EIA-530 | CRS-316 | CRS-307 |
| GigE | CRS-316 or CRS-336 | CRS-306 or CRS-307 |
| G.703 Bal / Unbal | CRS-325 | CRS-306 |
| HSSI | CRS-336 | CRS-306 or CRS-307 |
| 4-Port Ethernet | CRS-515 | CRS-505 |
| Async RS-485/232 Overhead | CRS-351 | CRS-351 |

Environmental and Physical

| | |
|---|---|
| Prime Power | Two independent inputs, <25 W, (AC or DC): 90 to 264 VAC, 50/60 Hz, or 38 to 60 VDC |
| Weight | ~ 10 lbs (~ 9.07 kg) |
| Dimensions (2RU) (height x width x depth) | 3.46" x 19" x 11.09" (8.79 x 48.26 x 28.17 cm) |
| Operating Temp | 0 to +50°C (32 to 122°F) |
| Storage Temp | -25 to +85°C (-13 to 185°F) |

Humidity | 95% at +50°C (104°F) non-condensing

CRS-281 IF Specifications

| | CRS-281 (70/140 MHz) | CRS-281L/281A |
|--|---|--|
| TX/RX Operating Freq | 50 to 180 MHz | 950 to 1950 MHz |
| TX/RX Connectors | TNC female, 50 Ω or opt BNC female, 50 or 75 Ω | Type N female, 50 Ω path |
| Return Loss | 18 dB | >10 dB, external IF ports |
| TX IF Loss/Flatness | < 1.5 dB over operating frequency | Switched by RF relay (1.5 dB max. loss, 40 dB min. on/off isolation) |
| RX IF Loss/Flatness | < 7 dB over operating frequency | Passive power splitting (7 dB max. loss) |
| TX to TX Channel Isolation | > 50 dB | > 50 dB |
| TX to RX Channel Isolation | 60 dB minimum | 90 dB minimum |
| IF Switch Power | From CRS-311 chassis | From CRS-311 chassis |
| IF Only Switching | CRS-281 | CRS-281L for SLM-5650A/5650 |
| IF, BUC/LNB DC, 10 MHz and BUC FSK Switching | NA | CRS-281A for CDM-QxL |

User Data Interfaces Supported By CRS-311

| RMI/TMI | Connector | Data Type |
|---------------|-----------|-------------------------|
| CRS-316 (TMI) | DB-25M | EIA-422/-530/-232, V.35 |
| | RJ-45 | GigE |
| CRS-325 (TMI) | DB-15F | G.703 Bal |
| | BNC (2) | G.703 Unbal/ASI |
| CRS-336 (TMI) | HD50F | HSSI |
| | RJ-45 | GigE |
| CRS-365 (TMI) | RJ-45 (4) | E1 Bal (only) |
| CRS-515 (TMI) | RJ-45 (4) | 10/100/1000 Ethernet |

Options

| | |
|--|--|
| AC (90 to 264 VAC or DC (-48 VDC)) | |
| TMI / RMI – Selected based on data interface | |
| CRS-281 | 70/140 MHz: TNC (50 Ω), BNC (50 Ω) or BNC (75 Ω) |
| CRS-351 | Async RS-485/232 ESC overhead switching module |
| CRS-281L | L-Band 1:1 support for SLM-5650A/5650: Type N (50 Ω) |
| CRS-281A | L-Band 1:1 support for CDM-QxL: Type N (50 Ω), BUC/LNB DC, 10 MHz, BUC FSK |



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