



# ETL Systems

New technologies  
in RF distribution

Model Number:

SRy-G2S-TxxS6-321

SRy-G2S-RS6-322

SRy-G2S-OCM-08-YY-203-SA

SRy-G2S-OCD-08-YY-204-SA

## StingRay RF Over Fibre

### CWDM, up to 50 km distance, Genus L-band modules with LNB powering (on TX module)

The StingRay CWDM Genus 2U Series of L-band RF over fibre units are designed to provide compact fibre links, with eight wavelengths (up to 16 wavelengths contact ETL) on a single fibre cable, with an optical budget of 12 dB. The transmit modules benefit from a high and wide dynamic range with automatic link optimisation ensuring high quality L-band transmission.

The StingRay CWDM system comprises of transmit modules and a multiplexer module to combine up to 8 wavelengths on to a single fibre cable at the transmit end. A demultiplexer module and receive modules are then used at the receive end to split the separate wavelengths.

For more wavelengths and longer distances, please contact us.

#### Typical applications:

- Ku-band and Ka-band ready for HTS applications
- Distribution of comms traffic across site with minimal loss
- General satcoms - teleports, video head-ends, TVRO
- Compact solution for small quantity links such as tactical HQ
- A resilient solution for satellite teleports with transmission distances up to 50 km

**Resilience** from dual redundant hot-swap power supplies & field replaceable CPU & HMI

**Local control & monitoring** via HMI high

**Compact** housed in a 2U high chassis with

**Variable voltage** 13/18VDC, 22 kHz tone up to 500mA to LNBs

**Hot Swap & replaceable** modules

**Field replaceable Internal 10MHz reference source** and external reference inject port with auto detection (optional)

**Remote control & monitoring** via RJ45 Ethernet port with SNMP & web browser interface

#### Chassis - Specification

Dimensions / Weight / Colour	2U high x 550mm deep x 19" wide / <10 kg / RAL9003—White (Semi-matte)
Capacity	Total of 17 module slots. Note that 1 slot may be used for fan (if required) and 1 slot may be used for 10 MHz EXT inject module (if required). Note actual modules may require >1 slot. Refer to required module spec table.
Temperature	Operating: 0°C to +45°C / Storage: -20°C to +75°C
Location / Humidity / Altitude	Indoor use only / 20 to 90% non-condensing / 10,000 feet AMSL (Operational) 30,000 feet AMSL (Storage) Above Mean Sea Level
Control & Monitoring	Local: HMI touch screen Remote: Ethernet via RJ45, 10BaseT/100 BaseTx. TCP/IP, SNMP V3 & HTTPS & Web browser interface HMI and CPU field replaceable. Each module independently monitored and reported.
MTTR	20 minutes (15 minutes to retrieve spare part and 5 mins to replace) Applies to LRUs only and assumed in house stock
AC Input / Consumption	85-264Vac 50/60Hz / 150W
PSU Redundancy	Dual redundant and alarmed Diode OR. Hot swappable
Input & Output ports	Dependant upon module fitted

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## Preliminary Specification

### StingRay TX & RX Module - RF Parameters

Model Numbers	SRY-G2S-TxxS6-321 CWDM L-band Transmit Fibre Module <i>xx is wavelength denominator please contact ETL</i>	SRY-G2S-RS6-322 CWDM L-band Receive Fibre Module
Frequency Range	500-3150 MHz	
Flatness (dB)	850 to 2150 MHz	±1.5 dB, Fixed gain mode, input -10 dBm, output -10 dBm.
	500 to 3150 MHz	±2.0 dB, Fixed gain mode, input -10 dBm, output -10 dBm.
	any 36MHz	±0.25 dB, Fixed gain mode, input -10 dBm, output -10 dBm.
	Output AGC Flatness	-
Return Loss (dB)	50 ohm SMA	18 dB typ., 14 dB min
	50 ohm BNC	18 dB typ., 14 dB min
	75ohm BNC	14 dB typ., 10 dB min
	75 ohm F-type	14 dB typ., 10 dB min
Gain Setting Modes	Manual Gain Control (MGC), Automatic Gain Control (AGC), Fixed Gain (FG)	
Manual Gain Range	60dB in 0.5dB steps (The MGC gain mode allows link optimisation for better Noise or Distortion performance)	
Monitor Port (SMA 50 Ohm Connector)	-20dBc +/-3dB	
OIP3	Full Band	Typical 20 dBm, Worst Case 17 dBm <b>Test condition:</b> 1m fibre, 10dB gain, -20 dBm I/P Power, -10dBm O/P Power. -22dBm Tones
	850-2150MHz	Typical 23 dBm, Worst Case 20 dBm <b>Test condition:</b> 1m fibre, 10dB gain, -20 dBm I/P Power, -10dBm O/P Power. -22dBm Tones
CNR (in any 36 MHz)	Typical -50 dB, Worst Case -45 dB <b>Test condition:</b> 1m fibre, -10 dBm RF i/p power, -10 dBm RF o/p total power.	
Noise Figure	Typical 9 dB, Worst Case 12 dB <b>Test condition:</b> 1m fibre, -50 dBm RF i/p power, -10 dBm o/p power	
Group Delay Variation	<2ns over full band. <0.5ns over any 36MHz.	
SFDR	Full Band	103 dB/Hz <sup>2/3</sup> typ., 98 dB/Hz <sup>2/3</sup> min <b>Test condition:</b> 1m fibre, 10dB gain, -22 dBm tones
	850-2150MHz	107 dB/Hz <sup>2/3</sup> typ., 102 dB/Hz <sup>2/3</sup> min <b>Test condition:</b> 1m fibre, 10dB gain, -22 dBm tones
RF Signal Range	<b>Input:</b> -70 to -10dBm (total power) Operational i/p range (Note that all Specifications are only 'typical' between -60 & -70dBm unless otherwise detailed).	<b>Output:</b> -70dBm to -10dBm (total power) o/p range available under all i/p conditions. (Note that all Specifications are only 'typical' between -60 & -70dBm unless otherwise detailed).
Max RF input	16dBm total power. Damage level, NOT operational.	-
10 MHz level at output	-10 to +10dBm. User settable level via the chassis. Accuracy ±1dB	-10 to +10dBm. User settable level via the chassis. Accuracy ±1dB
10MHz isolation	-40 dB. Between adjacent modules in same chassis	-40 dB. Between adjacent modules in same chassis
Laser Type	DFB. Optical isolator for improved performance	
Optical Wavelength	1470 to 1610 nm	1100 to 1650nm. Optimised for 1310nm and 1550 nm
Optical Power	<b>Output:</b> 4.5 ±2.5 dBm. 3.8 dBm typical	<b>Input:</b> -8 to 4.5dBm. Max 10 dBm
LNB Power	18/13V ± 5%, 500mA max	-
Optical Connectors	FC/APC, SC/APC, E2000/APC, Single mode fibre. Use angle polish connectors only	
Module Dimensions	39 x 87 x 238 mm . 0.2kg. Genus 2U series mountable. 1 Chassis slot per module	
Power Consumption	15W Typical. With 18V 500 mA LNB Power.	4 W Typical
Module Swap	Hot swap	
MTBF	>200,000 hours.	
Spec Version	0.1	0.1

### RF Parameters (Multiplexer)

Model Number	SRY-G2S-OCM-08-YY-203-SA 8 channel CWDM Mux Module
Operating wavelength	1470/ 1490 / 1510 / 1530 / 1550 / 1570 / 1590/ 1610 nm
Insertion Loss	2.5 dB
Isolation	>30 dB
Return Loss	>45 dB
Maximum optical power	250 mW
Power Consumption	0W
Module Dimensions	2 Chassis slots per Mux module
Connector Options	Optical connectors: FA - FC/APC or SA - SC/ APC

### RF Parameters (Demultiplexer)

Model Number	SRY-G2S-OCD-08-YY-204-SA 8 channel CWDM Demux Module
Operating wavelength	1470/ 1490 / 1510 / 1530 / 1550 / 1570 / 1590/ 1610 nm
Insertion Loss	2.5 dB
Isolation	>30 dB
Return Loss	>45 dB
Maximum optical power	250 mW
Power Consumption	0W
Module Dimensions	2 Chassis slots per DeMux module
Connector Options	Optical connectors: FA - FC/APC or SA - SC/ APC

Note 1: The specification is subject to regular reviews and will be updated from time to time as part of our continuing product development and improved spec accuracy.

Note 2: Operation beyond the quoted limits stated above may cause instantaneous and permanent damage.