ETL Systems
New technologies
in RF distribution

Model Number:
SRY-G2S-TxxS6-321
SRY-G2S-RS6-322
SRY-G2S-OCM-08-YY-203-SA

StingRay RF Over Fibre

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

Typical applications:
- Teleports & Earth Stations
- Satellite Operations
- Government & Defence applications
- Telemetry, Tracking & Command
- High Resilience applications

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.

Fibre Module

Fibre Module
Compact form factor allowing multiple modules to be housed in the Genus chassis. Each module occupies 1 slot in the chassis.

500 - 3150 MHz operating frequency range

Hot Swap & replaceable RF module

LNB Powering 13/18V on TX modules only

TX & RX module options to transmit and receive signals up to 50 km

Chassis Options

Local control & monitoring via HMI high resolution touchscreen

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

Compact indoor & outdoor chassis options, which can be part populated

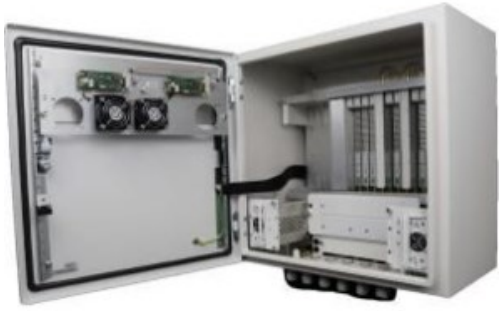
Secure protocols with SNMPv3

Flexible Module Configurations choose from a mixture of fibre modules with different operating frequencies.

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

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

Indoor Chassis



Outdoor Unit

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RoHS COMPLIANT
Pb-Free
ISO 9001 QUALITY MANAGEMENT
UKAS MANAGEMENT SYSTEMS 015

V 1.2 E&OE

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Preliminary Specification

StingRay TX & RX Module - RF Parameters

Model Numbers		SRY-G2S-TxxS6-321 CWDM L-band Transmit Fibre Module *xx is wavelength denominator please contact ETL*	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	-	±2.0dB over full band with Input -10 to -40 dBm
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 **Test condition:** 1m fibre, 10dB gain, -20 dBm I/P Power, -10dBm O/P Power. –22dBm Tones	
	850-2150MHz	Typical 23 dBm, Worst Case 20 dBm **Test condition:** 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 **Test condition:** 1m fibre, -10 dBm RF i/p power, -10 dBm RF o/p total power.	
Noise Figure		Typical 9 dB, Worst Case 12 dB **Test condition:** 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$^{2/3}$ typ., 98 dB/Hz$^{2/3}$ min **Test condition:** 1m fibre, 10dB gain, -22 dBm tones	
	850-2150MHz	107 dB/Hz$^{2/3}$ typ., 102 dB/Hz$^{2/3}$ min **Test condition:** 1m fibre, 10dB gain, -22 dBm tones	
RF Signal Range		**Input:** -70 to -10dBm (total power) Operational i/p range (Note that all Specifications are only 'typical' between -60 & -70dBm unless otherwise detailed).	**Output:** -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		**Output:** 4.5 ±2.5 dBm. 3.8 dBm typical	**Input:** -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

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.

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