ETL Systems

Excelling in RF Engineering

Model Number: SRY-TX-L1-273
& SRY-RX-L1-274

StingRay RF over Fibre

200 series Optical Fibre to L-band manual gain modules

The SRY-TX-L1-273 and SRY-RX-L1-274 is a manual gain optical transmitter and receiver for RF over Fibre, built in a compact EMC sealed housing which converts L-band (850 to 2450MHz) to 1310nm for transmission over a single mode fibre. It uses a 2-stage optically isolated DFB laser and is suited for transmission up to 10km.

Other options in the StingRay series: The StingRay range is also available with additional features such as RF monitoring ports, high linearity, switchable LNB powering & redundancy systems.

Typical applications:

- General satcoms– teleports, video head-ends, TVRO
- Compact solution for small quantity links such as tactical HQ
- A resilient solution for satellite teleports with transition distances up to 10km

Fibre Modules

Manual gain control Up to 65dB total

-20dB Monitor port to measure input signal levels

TX & RX module options to transmit and receive signals up to 10 km

Flexibility modules can be housed in outdoor & indoor chassis

Chassis Options

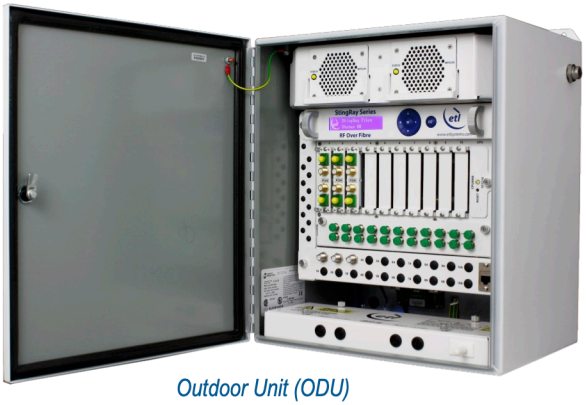
Compact indoor & outdoor chassis options, which can be part populated

Resilience from dual redundant hot-swap power supplies, hot-swap fibre modules & fans

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

Local control & monitoring via front panel push buttons & display

Indoor chassis showing hot-swap power supply modules , fibre modules and fans



Outdoor Unit (ODU)

Please see separate datasheet for 200 series chassis options.

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RF Parameters (TX and RX)			
Model Number		SRY-TX-Y-273-xxxx	SRY-RX-Y-274-xxxx
Frequency Range		850-2450 MHz	
Flatness	950-1950 MHz	±1.0dB (**Test Condition:** Full TX & RX link, 1m fibre, Input –10dBm, Output –10dBm)	
	Any 500 MHz 950-1950 MHz	±0.6dB (**Test Condition:** Full TX & RX link, 1m fibre, Input –10dBm, Output –10dBm)	
	850-2450 MHz	±1.5dB (**Test Condition:** Full TX & RX link, 1m fibre, Input –10dBm, Output –10dBm)	
	Any 36 MHz 950-1950 MHz	±0.25dB (**Test Condition:** Full TX & RX link, 1m fibre, Input –10dBm, Output –10dBm)	
	Any 36 MHz 850-2450 MHz	±0.4dB (**Test Condition:** Full TX & RX link, 1m fibre, Input –10dBm, Output –10dBm)	
Flatness 1+1 link	950-1950 MHz	±1.0dB (**Test Condition:** With splitter SRY-DIV-L1-289-S5S5 I/P 0dBm, Switch SRY-SW-L1-271-S5S5 O/P 0dBm, 1m fibre link)	
	Any 500 MHz 950-1950 MHz	±0.6dB (**Test Condition:** With splitter SRY-DIV-L1-289-S5S5 I/P 0dBm, Switch SRY-SW-L1-271-S5S5 O/P 0dBm, 1m fibre link)	
	Any 36 MHz 950-1950 MHz	±0.25dB (**Test Condition:** With splitter SRY-DIV-L1-289-S5S5 I/P 0dBm, Switch SRY-SW-L1-271-S5S5 O/P 0dBm, 1m fibre link)	
Return Loss	50 ohm SMA	18dB typical, 12dB minimum	
	50 ohm BNC	18dB typical, 12dB minimum	
Monitor port		-20 dB ±3dB	
Input P1dB	(See note 1)	+6dBm Typical, 0dBm Minimum (**Test Condition:**1dB compression point. Measured with 1m fibre, 0dB link gain, 1950 MHz)	
Output IP3	(See note 1)	20dBm Typical, 17dBm Minimum (**Test Condition:** Measured with 1m fibre, 10dB gain, -22 dBm tones at 2150 & 2152 MHz)	
IMD3	(See note 1)	-84dBc, -78dBc Worst Case (**Test Condition:** Measured with 1m fibre, 10dB gain link, -22 dBm tones at 2150 & 2152 MHz)	
CNR (in any 36 MHz)		-60dB typical, -56dB Worse Case (**Test Condition:** Measured with 1m fibre, 0dBm RF i/p power, 0 dBm RF o/p total power)	
Noise Figure (See note 1)		24dB Typical, 27dB Worst Case (**Test Condition:** Measured with 1m fibre, 0dBm RF i/p power, 0 dBm o/p power N.B. 0db gain)	
Optical Wavelength		1310 ± 10 nm	1100 to 1650 nm (Optimised for 1310 nm and 1550 nm)
Max RF Input		+0dBm total power (Damage level)	-
SFDR		112 dB/Hz$^{2/3}$typ., 108 dB/Hz$^{2/3}$ min (**Test condition:** 1m fibre, 10dB gain, -22dBm tones at 2150 & 2152 MHz)	-
Phase Noise	10 Hz	<-70dBc/Hz (**Test condition:** SRY-LX-L1-273, 1m fibre, 0dBm RF i/p power, 0dBm o/p power)	
	100 Hz	<-90dBc/Hz (**Test condition:** SRY-LX-L1-273, 1m fibre, 0dBm RF i/p power, 0dBm o/p power)	
	1 kHz	<-100dBc/Hz (**Test condition:** SRY-LX-L1-273, 1m fibre, 0dBm RF i/p power, 0dBm o/p power)	
	10 kHz	<-110dBc/Hz (**Test condition:** SRY-LX-L1-273, 1m fibre, 0dBm RF i/p power, 0dBm o/p power)	
	100 kHz	<-120dBc/Hz (**Test condition:** SRY-LX-L1-273, 1m fibre, 0dBm RF i/p power, 0dBm o/p power)	
	1 MHz	<-130dBc/Hz (**Test condition:** SRY-LX-L1-273, 1m fibre, 0dBm RF i/p power, 0dBm o/p power)	
Laser Type		DFB (Two stage optical isolator for improved performance)	N/A
Optical Power output		+6 ±2.5dBm	N/A
Optical Power in		N/A	0 to 4.5dBm
Power Consumption		6W	4W
Manual Gain Control (in 0.25 dB steps)		+30dB	35dB
Range of max i/p level for optimised 0 dB link		–30 to 0dBm (with SRY-RX-L1-274)	-
RF Output Range		-	-30dBm to +5dBm
MTBF		>172,000	>232,000
RF Connectors		BNC 50 Ω (B5) or SMA 50 Ω (S5)	
Optical Connectors		FC/APC (FA) or SC/APC (SA)	
Operating Temperature		-20 to +60 °C	
Storage Temperature		-40 to +90 °C	
Location		Indoor use	
Humidity		20 to 90% non-condensing. Relative Humidity	
Altitude		10,000 feet AMSL (Above Mean Sea Level) - Operational 30,000 ft AMSL (Above Mean Sea Level) - Storage/Transport	
Dimensions		87.8 x 18 x 150 mm	
Weight		0.35 kg	

Note 1: All RF measurements are given with T273 RF input to the laser 'RF Out Pwr' set to 0dBm. Higher level here will give better P1dB at the expense of Noise.