ETL Systems
New technologies
in RF distribution
www.etlsystems.com

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

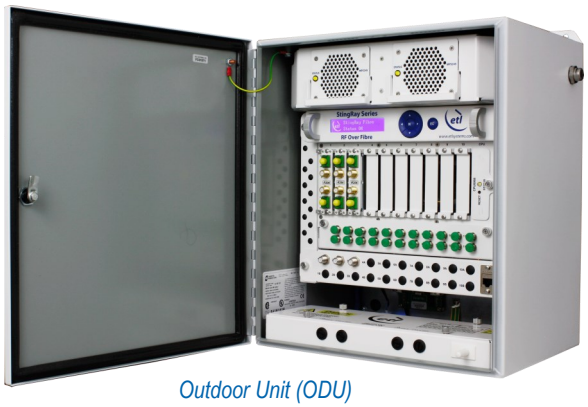
Compact indoor & outdoor chassis options, which can be part populated

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-L1-273-xxxx	SRY-RX-L1-274-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)	
	850-3150 MHz	±2.5dB (**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)	
	Any 36 MHz 850-3150 MHz	±0.6dB (**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:** 1m fibre, 0dBm RF i/p power, 0dBm o/p power)	
	100 Hz	<-90dBc/Hz (**Test condition:** 1m fibre, 0dBm RF i/p power, 0dBm o/p power)	
	1 kHz	<-100dBc/Hz (**Test condition:** 1m fibre, 0dBm RF i/p power, 0dBm o/p power)	
	10 kHz	<-110dBc/Hz (**Test condition:** 1m fibre, 0dBm RF i/p power, 0dBm o/p power)	
	100 kHz	<-120dBc/Hz (**Test condition:** 1m fibre, 0dBm RF i/p power, 0dBm o/p power)	
	1 MHz	<-130dBc/Hz (**Test condition:** 1m fibre, 0dBm RF i/p power, 0dBm o/p power)	

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.
Note 2: All parameters are detailed from 850-2450MHz unless otherwise specified.

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Optical Parameters (TX and RX)		
Model Number	SRY-TX-L1-273-xxxx	SRY-RX-L1-274-xxxx
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	
Spec Issue	1.8	1.8

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