



# StingRay RF over Fibre

## 200 series Optical Fibre to L-band manual gain modules

The SRY-T-L1-273A and SRY-RX-L1-274 is a manual gain optical transmitter and receiver for RF over Fibre, 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. The SRY-T-L1-273A module has a monitor port and can provide LNB power 13/18V, 22 kHz at up to 500 mA. When installed in a 10 MHz distributing chassis the module can inject a user settable and switchable 10 MHz tone of between -10 and +5 dBm. This unit is designed to work with SRY-TX-L1-274-xxxxxx for links up to 10km.

### 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

**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.

### 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.





RF Parameters (TX and RX)			
Model Number		SRY-T-L1-273A-xxxxxx	SRY-RX-L1-274-xxxxxx
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 Worst 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 <sup>2/3</sup> typ., 108 dB/Hz <sup>2/3</sup> min (Test condition: 1m fibre, 10dB gain, -22dBm tones at 2150 & 2152 MHz)	
Phase Noise	10 Hz	<-70dBc/Hz (Test condition: SRY-T-L1-273, 1m fibre, 0dBm RF i/p power, 0dBm o/p power)	
	100 Hz	<-90dBc/Hz (Test condition: SRY-T-L1-273, 1m fibre, 0dBm RF i/p power, 0dBm o/p power)	
	1 kHz	<-100dBc/Hz (Test condition: SRY-T-L1-273, 1m fibre, 0dBm RF i/p power, 0dBm o/p power)	
	10 kHz	<-110dBc/Hz (Test condition: SRY-T-L1-273, 1m fibre, 0dBm RF i/p power, 0dBm o/p power)	
	100 kHz	<-120dBc/Hz (Test condition: SRY-T-L1-273, 1m fibre, 0dBm RF i/p power, 0dBm o/p power)	
	1 MHz	<-130dBc/Hz (Test condition: SRY-T-L1-273, 1m fibre, 0dBm RF i/p power, 0dBm o/p power)	
10 MHz level at output	Typical Maximum	-4.5 dB -6 dB	Below backplane level on chassis SRY-C205-2U, SRY-C207-1U, SRY-ODU201+SRY-OPT16-10M only.
Laser Type		DFB (Two stage optical isolator for improved performance)	
Optical Power output		+6 ±2.5dBm	
Optical Power in		N/A	
Power Consumption		6W	
LNB Power		18/13V ±5 %, 500 mA max	
Manual Gain Control (in 0.25 dB steps)		+30dB	
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	
RF Connectors		BNC 50 Ω (B5) or SMA 50 Ω (S5)	
Optical Connectors		FC/APC (FA) or SC/APC (SA)	
Temperature		Operating : -20 to +60 °C , Storage : -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 Version		1.2	

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.