ETL Systems

Excelling in RF Engineering

Model number:
SRY-T-L1-267A & SRY-R-L1-268A

StingRay RF Over Fibre

200 series L-band modules with fixed gain & high linearity

The StingRay 200 Series broadband RF over fibre chassis are designed to give compact fibre links of up to 10 km (up to 300 km with a DWDM system). The transmit modules benefit from a high and wide dynamic range. Resilience is provided by a full hot-swap, modular design.

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 transition distances up to 10 km (up to 300 km with DWDM)

Other options in the StingRay series: The StingRay range is also available with additional features such as RF monitoring ports, high linearity, switchable 13/18V & 22KHz tone LNB powering, redundancy systems and 10 MHz injection.

Fibre Modules

850-2150 MHz operating frequency range

Fixed Gain 0 dBm, 0 dB link

High Linearity with high 1dB Gain Compression

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

High isolation between modules for signal quality

Chassis Options

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

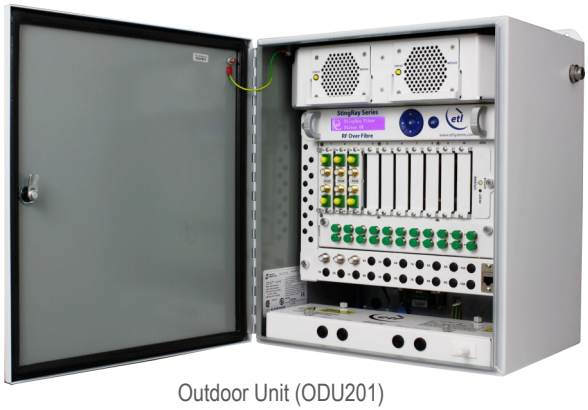
Remote control & monitoring via RJ45 Ethernet port with SNMP & web browser interface

Local control & monitoring via front panel push buttons & display

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

10MHz Inject from an external source chassis option

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



Outdoor Unit (ODU201)

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RF Parameters (TX & RX Fibre Modules)							
Model Number		SRY-T-L1-267A (Transmit / TX)			SRY-R-L1-268A (Receive / RX)		
Frequency Range		850-2150 MHz (L-band)					
Flatness		**850-2150MHz:** ±2.0 dB	**Any 36 MHz 850 to 1950 MHz:** ±0.25 dB		**850 to 1950 MHz:** ±1.0 dB	**850 to 2150 MHz:** ±2.0 dB	**Any 36MHz 850 to 1950 MHz:** ±0.2 dB
		Any 1 MHz 850 to 1950 MHz: ±0.01 dB	**Any 36MHz 850 to 2150 MHz:** ±0.4 dB	**Any 1MHz 850– to 2150 MHz:** ±0.02 dB	**Any 1MHz 850 to 1950 MHz:** ±0.01 dB	**Any 36MHz 850 to 2150 MHz:** ±0.4 dB	**Any 1MHz 850 to 2150 MHz:** ±0.02 dB
Return Loss	Typical	18 dB 50Ω SMA		18 dB 50Ω BNC	18 dB 50Ω SMA		18 dB 50Ω BNC
	Minimum	12 dB 50Ω SMA		12 dB 50Ω BNC	12 dB 50Ω SMA		12 dB 50Ω BNC
Monitor Port		-20 dB ± 3 dB Mounted on module					
Link Gain		0 dB ±2.5 (Full TX & RX link, 1m fibre)					
Gain Stability		±0.25 dB 20°C to 30°C		±0.15 dB Over 24H, after warm up		(Full TX &RX link, 1m fibre)	
1dB Gain Compression		+6 dBm typical, +2 dBm minimum					
OIP3	Typical	18 dBm (**Test condition:** 1m fibre, 10 dB gain, -22 dBm tones at 2150 and 2152 MHz)					
	Worst Case	15 dBm (**Test condition:** 1m fibre, 10 dB gain, -22 dBm tones at 2150 and 2152 MHz)					
CNR (in any 36 MHz)	Typical	55 dB (**Test condition:** 1m fibre, 0 dBm RF i/p power, 0 dBm RF o/p total power)					
	Worst case	52 dB (**Test condition:** 1m fibre, 0 dBm RF i/p power, 0 dBm RF o/p total power)					
Group Delay Variation		2ns over full band (**Test conditions:** 1m fibre, 0 dBm RF i/p power, 0 dBm RF o/p total power)					
		1ns any 36MHz (**Test conditions:** 1m fibre, 0 dBm RF i/p power, 0 dBm RF o/p total power)					
SFDR		112 dB/Hz$^{2/3}$ typical, 108 dB/Hz$^{2/3}$ minimum (**Test conditions:** 1m fibre, 0 dB gain, -22 dBm tones at 2150 and 2152 MHz)					
RF Signal Range		Input: <0 dBm (total power) Operational I/P range			Output: -30 to +10dBm (total power) This is only RF detector readout range, module can be used at lower levels.		
Max RF Input		16 dBm total power (Damage level, NOT operational)			16 dBm total power (Damage level, NOT operational)		
10 MHz Level at Output		Not Supported					
Automatic Gain Control / Manual Settable Gain		AGC: None			MSG: 0 to - 4 dB		
Noise Figure	Typical	24 dB (**Test condition:** 1m fibre, 0 dBm RF i/p power, 0 dBm o/p power)					
	Worst Case	26 dB (**Test condition:** 1m fibre, 0 dBm RF i/p power, 0 dBm o/p power)					
Noise Floor	Typical	-150 dBm/Hz (**Test conditions:** 1m fibre, 0 dBm RF i/p power, 0 dBm o/p power. With input noise of –174dBm/Hz)					
	Worst Case	-148 dBm/Hz (**Test conditions:** 1m fibre, 0 dBm RF i/p power, 0 dBm o/p power. With input noise of –174dBm/Hz)					
Laser Type		DFB (Two stage isolator for improved performance)			-		
Additive Phase Noise (950-1950MHz)		100Hz: -120 dBc/Hz	1 kHz: -125 dBc/Hz	10kHz: -135 dBc/Hz	100kHz: -135 dBc/Hz	1MHz: -135 dBc/Hz	
		Single sideband additive phase noise (**Test condition:** 1m fibre, 0 dBm RF i/p power, 0 dBm o/p power)					
Optical Wavelength		1310 ± 10 nm			1100 to 1650 nm Optimised for 1310 nm and 1550 nm		
Optical Power		Output: +6 ± 2.5 dBm			Input: +2 to 6 dBm, Max 10 dBm		
Power Consumption		6W			4W typical		
LNB Power		None					
MTBF (module)		> 200,000 hours			> 250,000 hours		
RF Connectors		BNC 50 Ω - B5 / SMA 50 Ω - S5 (contact ETL for 75 ohm units)					
Optical Connectors		FA - FC/APC or SA - SC/APC					
Spec Version		1.4			1.8		

Please see separate datasheet for 200 series chassis options.

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