ETL Systems

Excelling in RF Engineering

Model number:
SRY-TX-L1-267 & SRY-RX-L1-268

StingRay RF Over Fibre

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

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)

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.

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

950-1950 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

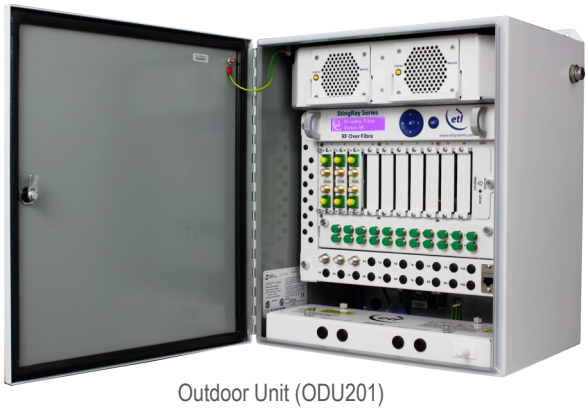
Remote control & monitoring via RJ45 Ethernet port with SNMP & web browser interface

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-TX-L1-267 (Transmit / TX)		SRY-RX-L1-268 (Receive / RX)	
Frequency Range		950-1950 MHz (Extended L-band)			
Flatness	950-1950 MHz	±1.0 dB			
	Any 36 MHz 950-1950 MHz	±0.2 dB			
	Any 1 MHz 950-1950 MHz	±0.01 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, Monitor value relative to input level)			
Link Gain		+8 to +12 dB (Full TX & RX link with 1m fibre)			
Gain Stability		± 0.25dB 20ºC to 30ºC ± 0.15dB Over 24H, after warm-up (Full TX & RX link with 1m fibre)			
OP1dB		+6dBm typ., +4dB min (1dB compression point)			
OIP3	Typical	18 dBm (**Test condition:** 1m fibre, -22 dBm input tones at 1948 and 1950 MHz)			
	Worst Case	15 dBm (**Test condition**: 1m fibre, -22 dBm input tones at 1948 and 1950 MHz)			
CNR (in any 36 MHz)	Typical	72 dB (**Test condition**: 1m fibre, -10 dBm RF input power)			
	Worst case	70 dB (**Test condition**: 1m fibre, -10 dBm RF input power)			
Group Delay Variation		2ns over full band (**Test condition**: 1m fibre, -10 dBm RF input power)			
		1ns any 36MHz (**Test condition**: 1m fibre, -10 dBm RF input power)			
SFDR		105 dB/Hz$^{2/3}$ typical, 102 dB/Hz$^{2/3}$ minimum (**Test condition:** SRY-RX -L1-268, 1m fibre, -22 dBm tones at 1948 and 1950 MHz)		112 dB/Hz2/3typ., 108 dB/Hz2/3 min (**Test conditions:** SRY-TX-L1-267, 1m fibre, -22 dBm input tones at 1948 and 1950 MHz)	
RF Detector Range		Input -30dBm to +10dBm (total power)		Output -30 to 10dBm (total power) This is the only detector readout range, module can be used at lower levels.	
Max RF Input		16 dBm total power (Damage level, NOT operational)			
AGC/MSG		AGC: None		MSG: 0 to - 4 dB	
Noise Figure	Typical	24 dB (**Test conditions:** 1m fibre, -10 dBm RF input power)			
	Worst Case	26dB (**Test conditions:** 1m fibre, -10 dBm RF input power)			
Noise Floor		-150 dBm/Hz typical –148dBm/Hz worst case (**Test conditions:** 1m fibre, -10 dBm RF input power. With input noise at -174dBm/Hz.)			
Phase Noise (950-1950 MHz)		100 Hz –120 dBm/Hz 1 kHz –125 dBm/Hz 10 kHz –135 dBm/Hz 100 kHz -135 dBm/Hz 1 MHz -135 dBm/Hz (Single sideband residual phase noise. **Test Conditions:** 1m fibre, -10 dBm RF i/p power)			
Laser Type		DFB (Two stage isolator for improved performance)		-	
Optical Wavelength		1310 ± 10 nm		1100 to 1650 nm	
Optical Power		Output: +6 ± 2.5 dBm		Input: +2 to 6 dBm, Max 10 dBm	
Power Consumption		6W		4W typical	
MTBF		> 200,000 hours		> 250,000 hours	
RF Connectors		BNC 50 Ω - B5 / SMA 50 Ω - S5			
Optical Connectors		FA - FC/APC or SA - SC/APC			
Module swap		Hot swap			
Control		Local and Remote (Local front panel control. See chassis spec. Remote control via Ethernet. 10/100Base T. TCP/IP, SNMP, web browser)			
Temperatures		-20ºC to +60ºC Operating - 40°C to +90°C Storage			
Humidity		20 to 90% non-condensing			
Altitude		10,000 ft AMSL Operational 30,000 ft AMSL storage/transport			
Spec version		1.6		1.9	

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