ETL Systems

Excelling in RF Engineering

Model Number: SRY-TX-L1-201 & SRY-RX-L1-202

StingRay RF over Fibre

200 series L-band modules with -20dB monitor ports & 13/18V LNB powering & 22kHz tone (on TX module)

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 10km

The StingRay 200 Series of L-band RF over fibre chassis are designed to give compact fibre links of up to 10 km (Link budget 4 dB). The transmit modules benefit from a high and wide dynamic range with automatic link optimisation ensuring high quality L-band transmission.

Fibre Modules

850 - 2450 MHz operating frequency range

-20dB Monitor port to measure input signal levels

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

LNB Powering 13/18V on TX modules only

High isolation between modules for signal quality

Chassis Options

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

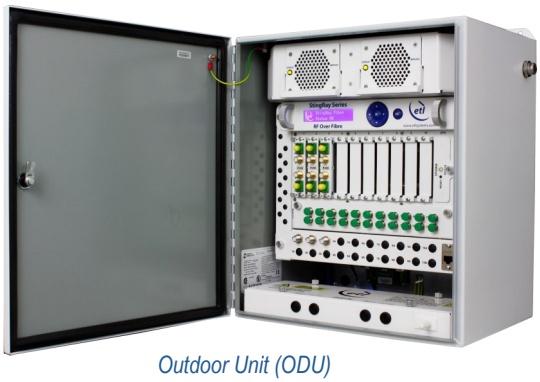
Resilience from dual redundant hot-swap power supplies, hot-swap fibre modules & fans

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

10MHz Inject from an external source chassis option

Local control & monitoring via front panel push buttons & display

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



Outdoor Unit (ODU)

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RF Parameters (TX & RX Modules)

Model Number		SRY-TX-L1-201-xxxx				SRY-RX-L1-202-xxxx			
Frequency Range		850 to 2450 MHz (Extended L-band)							
Flatness	850-2150MHz	± 1.2 dB				± 1.5 dB			
	850-2450MHz	± 1.7 dB				± 2.0 dB			
	Any 36MHz i/p >-50dBm	± 0.25 dB							
	Any 36MHz i/p <-50dBm	± 0.5 dB							
Output AGC Flatness		-				± 2.0 dB full band (Input -10 to -40 dBm)			
AGC		AGC: Factory set (once AGC level set, gain can be fixed)				AGC / MSG: Settable output power level (once AGC level set, gain can be fixed)			
Return Loss	Typical	18 dB 50 Ω SMA	18 dB 50 Ω BNC	12 dB 75 Ω BNC	12 dB 75 Ω F-type	18 dB 50 Ω SMA	18 dB 50 Ω BNC	16 dB 75 Ω BNC	16 dB 75 Ω F-type
	Minimum	12 dB 50 Ω SMA	12 dB 50 Ω BNC	10 dB 75 Ω BNC	10 dB 75 Ω F-type	12 dB 50 Ω SMA	12 dB 50 Ω BNC	12 dB 75 Ω BNC	12 dB 75 Ω F-type
Monitor Port		-20 dB ± 3 dB							
OIP3		17 dBm typical, 14 dBm worst case (**Test condition:** 1m fibre 10 dB gain, -22 dBm tones at 2150 and 2152 MHz)							
CNR (in any 36 MHz)		-50 dB typical, -45 dB worst case (**Test condition:** 1m fibre, -10 dBm RF i/p power,-10 dBm RF o/p total power)				-38 dB typical, -35 dB worst case (**Test condition:** 1m fibre, -10 dBm RF i/p power,-10 dBm RF o/p total power)			
Noise Figure		12 dB typical,15 dB worst case (**Test condition:** 1m fibre, -50 dBm RF i/p power, -10 dBm o/p power)							
Group Delay Variation		2ns over full band, 1ns over any 36MHz							
SFDR		105 dB/Hz$^{2/3}$ typical , 100 dB/Hz$^{2/3}$ minimum (**Test condition:** 1m fibre, 10 dB gain, -22dBm tones at 2150 and 2152 MHz)							
IMD3		-65 dBc typical , - 60dB minimum (**Test condition:** 1m fibre, 10 dB gain, -22dBm tones at 2150 and 2152 MHz)							
RF Signal Range		Input: -60 to -10 dBm (total power)				Output: -30 dBm to -10dBm (total power)			
10 MHz level at output		-10 to +5 dBm (User settable range in chassis SRY-C205-2U, SRY-C207-1U, SRY-ODU201 + SRY-OPT16-10M)				-			
10 MHz Isolation		-40 dB		Between adjacent modules in same chassis		-			
Max RF Input		16 dBm total power (Damage level, NOT operational)							
Laser Type		DFB	Optical isolator for improved performance			-			
Optical Wavelength		1310 ± 10 nm				1100 ± 1650 nm (optimised for 1310 nm & 1550 nm)			
Optical Power		Output: 4.5 ± 2.5 dBm				In: 0 to 4.5 dBm (Max. 10 dBm)			
Power Consumption		15W typical (with 18V 500mA LNB power)				4W typical			
LNB Power		13/18V ± 5%, 500mA max				-			
MTBF		>200,000 hours				>250,000 hours			
Connector Options		RF connectors: BNC 50 Ω - B5 / SMA 50 Ω - S5 / SMA 50 Ω - S5 / Optical connectors: FA - FC/APC or SA - SC/APC							

Chassis Options - Technical Specifications

Model Numbers	SRY-C200-1U	SRY-C207-1U	SRY-C201-2U	SRY-C206-2U	SRY-C205-2U	SRY-C204-2U	SRY-ODU-201
Capacity	Up to 4 2xx series modules		Up to 16 2xx series modules			Up to 10 2xx series modules	
Redundancy options	1+1 redundancy configuration available with modules SRY-L1-DIV213 & SRY-L1-SW214					4+1 redundancy	1+1 redundancy
Dimensions	1U high x 450 mm deep x 19" wide		2U high x 450 mm deep x 19" wide				407 high x 356 deep x 254" wide
Local Control & Monitoring	Front panel LCD and keypad						Optional
Remote Control & Monitoring	Ethernet via RJ45, 10baseT/100BaseTx			Ethernet via optical 1000BaseLX SFP module	Ethernet via RJ45, 10baseT/100BaseTx		
	ETL protocol over TCP/IP, SNMP, built in web server. Serial port. Dry contact alarm summary.						
Module Features Monitored	Includes: Temperature, RF Power, Optical Power, PSU status & Individual fans						
LNB Power	Up to 0.5A per channel, not exceeding 2.8A total		Up to 500mA per channel, 8A total				Yes Module must support LNB
10MHz Injection	-	+9 dBm, input level (27 dBm max. level)	-	-	+15 dBm input level (27 dBm max. level)	-	With SRY-OPT16-10M
PSU Power	100-240 VAC 50/60Hz (Fused 6A, Dual IEC)						
PSU Redundancy	Dual Hot-Swap Modules, Diode OR						
AC Power Consumption	< 150 W all channels		<405 W all channels			<312 W all channels	< 260 W all channels
Heat Load	< 65 W, 222 BTU/hr		< 220 W, 495 BTU/hr			< 200 W, 450 BTU/hr	<145 W, 495 BTU/hr
Operating/Storage Temperature	Operating: 0 to 50˚C / Storage: -20˚C to +75˚C						See SRY-ODU-201 datasheet
Humidity	20 to 90% non-condensing						
Weight	TBD kg		12 kg				21 kg
Front Panel Colour	RAL9003 White semi-matte						

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