



# StingRay RF over Fibre

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

For use in SRY Redundant chassis

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.

### 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

## Fibre Modules



**850 - 2450 MHz**  
operating frequency range



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



**-20dB Monitor port** to measure input signal levels



**LNB Powering** 13/18V on TX modules only



**High isolation** between modules for signal quality

## Chassis Options



**Compact indoor & outdoor** chassis options - Models SRY-C209-2U & SRY-ODU209 only



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



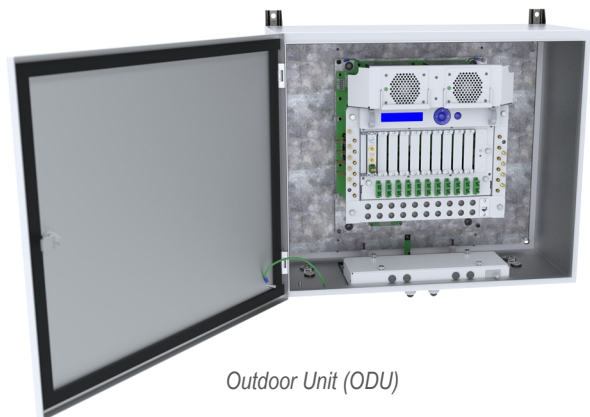
**Resilience** from dual redundant hot-swap power supplies, hot-swap fibre modules & fans



**Local control & monitoring** via front panel push buttons & display



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



Outdoor Unit (ODU)





RF Parameters (TX & RX Modules)					
Model Number		SRY-TX-L1-291-xxxx		SRY-RX-L1-292-xxxx	
		Module only Specification	Redundant System Specification (inside C209)	Module only Specification	Redundant System Specification (inside C209)
Frequency Range		850 to 2450 MHz (Extended L-band)			
Flatness	850-2150 MHz	± 1.7 dB (Test condition: 10km fibre, fixed gain mode, -10 dBm RF i/p power, -10 dBm RF o/p total power)	± 1.6 dB (Test condition: 10km fibre, fixed gain mode, -10 dBm RF i/p power, -10 dBm RF o/p total power)	± 1.7 dB (Test condition: 10km fibre, fixed gain mode, -10 dBm RF i/p power, -10 dBm RF o/p total power)	± 1.6dB (Test condition: 10km fibre, fixed gain mode, -10 dBm RF i/p power, -10 dBm RF o/p total power)
	850-2450 MHz	± 2.2 dB (Test condition: as above)	± 1.9 dB (Test condition: as above)	± 2.2 dB (Test condition: as above)	± 1.9 dB (Test condition: as above)
	Any 36 MHz	± 0.25 dB (Test condition: as above)			
Output AGC Flatness		-		± 2.0 dB full band (Input -10 to -40 dBm)	± 3.0 dB full band (Input -10 to -40 dBm)
AGC Mode		Once AGC level set, gain can be fixed if required		Once AGC level set, gain can be fixed if required	
Return Loss (50 Ω SMA)	Typical	18 dB	16 dB	18 dB	16 dB
	Minimum	12 dB	10dB	12dB	10dB
Monitor Port		-20 dB ± 3 dB (Mounted on module)			
OIP3		17 dBm typical, 14 dBm worst case (Test condition: 1m fibre 10 dB gain, -22 dBm tones at 2150 and 2152 MHz)	12 dBm typical, 9 dBm worst case (Test condition: 1m fibre 10 dB gain, -22 dBm tones at 2150 and 2152 MHz)	17 dBm typical, 14 dBm worst case (Test condition: 1m fibre 10 dB gain, -22 dBm tones at 2150 and 2152 MHz)	12 dBm typical, 9 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)	-45 dB typical, -40 dB worst case (Test condition: 1m fibre, -10 dBm RF i/p power, -10 dBm RF o/p total power)	-50 dB typical, -45 dB worst case (Test condition: 1m fibre, -10 dBm RF i/p power, -10 dBm RF o/p total power)	-45 dB typical, -40 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)	13 dB typical, 16 dB worst case (Test condition: 1m fibre, -50 dBm RF i/p power, -10 dBm o/p power)	12 dB typical, 15 dB worst case (Test condition: 1m fibre, -50 dBm RF i/p power, -10 dBm o/p power)	13 dB typical, 16 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		112 dB/Hz <sup>2/3</sup> typical, 108 dB/Hz <sup>2/3</sup> minimum (Test condition: 1m fibre, 10 dB gain, -22dBm tones at 2150 and 2152 MHz)	108 dB/Hz <sup>2/3</sup> typical, 104 dB/Hz <sup>2/3</sup> minimum (Test condition: 1m fibre, 10 dB gain, -22dBm tones at 2150 and 2152 MHz)	112 dB/Hz <sup>2/3</sup> typical, 108 dB/Hz <sup>2/3</sup> minimum (Test condition: 1m fibre, 10 dB gain, -22dBm tones at 2150 and 2152 MHz).	108 dB/Hz <sup>2/3</sup> typical, 104 dB/Hz <sup>2/3</sup> minimum (Test condition: 1m fibre, 10 dB gain, -22dBm tones at 2150 and 2152 MHz)
RF Input Signal Range		Input: -60 to -10 dBm (total power)	Input: -55 to -10 dBm (total power)	Output: -30 dBm to -10dBm (total power)	Output: -32 dBm to -12dBm (total power)
10 MHz level at output		N/A		-	
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 (3.8 dBm typical)		In: 0 to 4.5 dBm (Max. 10 dBm)	
Power Consumption		6W typical	See C209 Chassis spec.	4W typical	
LNB Power		N/A		-	
MTBF (module)		>200,000 hours		>250,000 hours	
Connector Options		RF connectors: SMA 50 Ω - S5		Optical connectors: FA - FC/APC or SA - SC/APC	
Operating Temperature		-20°C to +60°C (see C209 chassis specifications for the redundant system specification)			
Storage Temperature		-40°C to +90°C (see C209 chassis specifications for the redundant system specification)			
Location		Indoor use—outdoor use as part of ETL ODU only (see C209 chassis specifications for the redundant system specification)			
Humidity		20 to 90% non-condensing, Relative humidity (see C209 chassis specifications for the redundant system specification)			
Altitude		10,000 ft Above Mean Sea Level (AMSL) operational, 30,000 ft AMSL storage/transport (see C209 chassis specifications for the redundant system specification)			
Weight		0.35kg typical (see C209 chassis specifications for the redundant system specification)			
Dimensions		87.8 x 18 x 150mm			
Spec. issue		1.6			

These modules can only be housed in indoor chassis Model SRY-C209-2U and outdoor chassis Model ODU209. Please see separate datasheet for 200 series chassis options.