



**ETL Systems**

New technologies  
in RF distribution

Model Number: SRY-TxxL1-241

SRY-RX-L1-242

SRY-OCM-08-645-47

# StingRay RF over Fibre

## CWDM, up to 50 km distance, 200 series L-band modules with 13/18V LNB powering (on TX module)

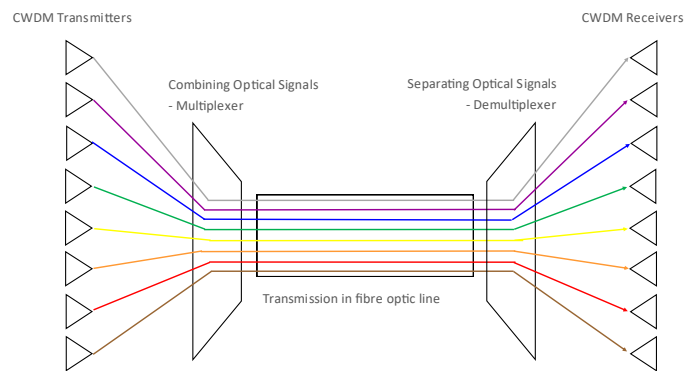
The StingRay CWDM 200 Series of L-band RF over fibre units are designed to provide compact fibre links, with eight wavelengths on a single fibre cable, and transmission distance of up to 35 km. The transmit modules benefit from a high and wide dynamic range with automatic link optimisation ensuring high quality L-band transmission.

The StingRay CWDM system comprises of transmit modules and a multiplexer module to combine up to 8 wavelengths on to a single fibre cable at the transmit end. A demultiplexer module and receive modules are then used at the receive end to split the separate wavelengths.

For more wavelengths and longer distances, please contact us.

### 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 transmission distances up to 50 km



### Fibre Modules

- 850 - 2450 MHz** operating frequency range
- Up to 8 wavelengths** on a single fibre cable
- LNB Powering** 13/18V on TX modules only
- High isolation** between modules for signal quality
- 50 km transmission distance** with transmit and receive module options



TX / RX Fibre Module



Multiplexer / Demultiplexer Module

### 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
- 10 MHz Inject** from an external source chassis option
- 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 & fans



Outdoor Unit (ODU)





**RF Parameters (TX & RX Modules)**

Model Number	SRY-TxxL1-241 CWDM L-band Transmit Fibre Module	SRY-RX-L1-242 CWDM L-band Receive Fibre Module
Frequency Range	850 to 2450 MHz (Extended L-band)	
Flatness	850-2150 MHz	± 1.5 dB
	850-2450 MHz	± 2.0 dB
	Any 36 MHz i/p > -50 dBm	± 0.25 dB
Output AGC Flatness	-	± 2.5 dB over 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	50 Ω SMA	18 dB Typical, 12 dB Minimum
	50 Ω BNC	18 dB Typical, 12 dB Minimum
	75 Ω BNC	14 dB Typical, 12 dB Minimum
	75 Ω F-type	14 dB Typical, 12 dB Minimum
Monitor Port	-20 dB ±3 dB, mounted on module	
OIP3	17 dBm typical, 14 dBm minimum	17 dBm typical, 14 dBm minimum
	(Test condition: SRY-RX-L1-242, 1m fibre, 10 dB gain, -22 dBm tones at 2150 and 2152 MHz)	(Test cond.: SRY-TxxL1-241 & SRY-TxxL1-257, 1m fibre, 10 dB gain, -22 dBm tones at 2150 and 2152 MHz)
CNR (in any 36 MHz)	50 dB typical, 45 dB minimum	50 dB typical, 45 dB minimum
	(Test condition: SRY-RX-L1-242, 1m fibre, -10 dBm RF i/p power, -10dBm RF o/p total power)	(Test cond.: SRY-TxxL1-241 & SRY-TxxL1-257, 1m fibre, -10 dBm RF i/p power, -10dBm RF o/p total power)
Noise Figure	12 dB typical, 15 dB maximum	(Test cond.: SRY-TxxL1-241 & SRY-TxxL1-257, 1m fibre, -50 dBm RF i/p power, -10dBm RF o/p total power)
Group Delay Variation	2ns over full band, 1ns over any 36MHz	
SFDR	110 dB/Hz <sup>2/3</sup> typical, 106 dB/Hz <sup>2/3</sup> minimum	
	(Test condition: SRY-RX-L1-242, 1m fibre, 10 dB gain, -22 dBm tones at 2150 and 2152 MHz)	(Test condition: SRY-TxxL1-241, 1m fibre, 10 dB gain, -22 dBm tones at 2150 and 2152 MHz)
RF Signal Range	Input: -60 to -10 dBm (total power)	Output: -30 to -15 dBm (total power) o/p range for all i/p at 14 dB optical loss -30dBm to -10dBm (total power) o/p range for optical loss < 11 dB
Max RF Input	16 dBm total power (Damage level, NOT operational)	-
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	-
10MHz isolation	-40 dB, between adjacent modules in same chassis	-
Laser Type	DFB. Optical isolator for improved performance	-
Optical Wavelength	CWDM see CWDM channels table	1100 to 1650 nm Optimised for 1310nm and 1550 nm
Optical Power	Output: 4.5 ± 2.5 dBm (3.8 dBm typical)	Input: -8 to 4.5 dBm (Max. 10 dBm)
Power Consumption	15W typical, With 18V 500 mA LNB power	4W typical
LNB Power	13/18V ±5 %, 500 mA max Dependent on chassis - see chassis specifications	-
MTBF	>200,000 hours	>250,000 hours
Connector Options	RF connectors: BNC 50 Ω - B5 / BNC 75 Ω - B7 / SMA 50 Ω - S5 / F-type 75 Ω - F7 Optical connectors: FA - FC/APC or SA - SC / APC	RF connectors: SMA 50 Ω - S5 or BNC 50 Ω - B5 / F-type 75 Ω - F7 or BNC 75 Ω - B7 Optical connectors: FC/APC or SC/APC
Spec Version	V1.2	V1.6

**CWDM Channels (SRY-TxxL1-241)**

Wave length/nm	Band	Max loss dB/km Corning SMF-28e	Typical loss dB/km Typical Single mode fibre
1270	O-Band		0.36
1290	O-Band		0.35
1310	O-Band	0.35	0.32
1330	O-Band		0.30
1350	O-Band		0.30
1370	E-Band		0.50
1390	E-Band	0.35 @1381 nm	0.46
1410	E-Band		0.35
1430	E-Band		0.28
1450	E-Band		0.24
1470	S-Band		0.21
1490	S-Band	0.24	0.20
1510	S-Band		0.2
1530	C-Band		0.19
1550	C-Band	0.20	0.19
1570	L-Band		0.19
1590	L-Band		0.20
1610	L-Band	0.23 @1623	0.20

**RF Parameters (Multiplexer/Demultiplexer)**

Model Number	SRY-OCM-08-645-47 8 channel CWDM Mux/Demux Module
Operating wavelength	1471 / 1491 / 1511 / 1531 / 1551 / 1571 / 1591 / 1611 nm
Insertion Loss	2.5 dB
Isolation	>30 dB
Return Loss	>45 dB
Maximum optical power	250 mW
Power Consumption	0W
Connector Options	Optical connectors: FA - FC/APC or SA - SC / APC

**Environmental Conditions**

Operating / Storage Temperature	Operating: -20°C to +60°C / Storage: -40°C to +90°C
Humidity	20 to 90% non-condensing (relative humidity)
Altitude	Operational
	Storage

Note 1: The specification is subject to regular reviews and will be updated from time to time as part of our continuing product development and improved spec accuracy.  
Note 2: Operation beyond the quoted limits stated above may cause instantaneous and permanent damage.

Please see separate datasheet for 200 series chassis options.