ETL Systems

Excelling in RF Engineering

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)

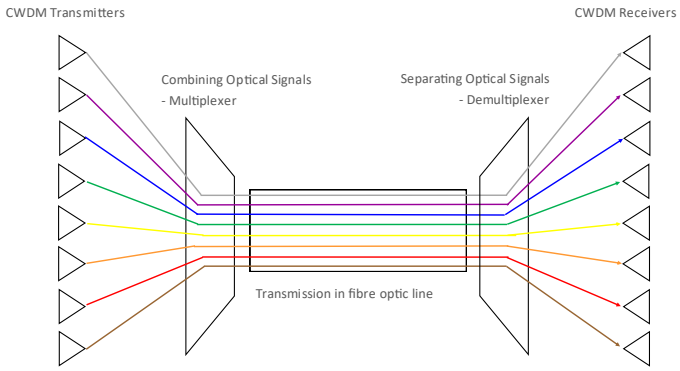
Typical applications:

- 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

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 50 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.



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)

ETL Systems

Excelling in RF Engineering

Model Number: SRY-TxxL1-241
SRY-RX-L1-242
SRY-OCM-08-645-47

PRELIMINARY SPECIFICATIONS

RF Parameters (TX & RX Modules)

Model Number		SRY-TXxxL1-241 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	± 1.2 dB		± 1.5 dB	
	850-2450 MHz	± 1.7 dB		± 2.0 dB	
	Any 36 MHz i/p >-50 dBm	± 0.25 dB		± 0.25 dB	
	Any 36 MHz i/p <-50 dBm	± 0.5 dB		± 0.5 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	18 dB Typical	12 dB Minimum
	50 Ω BNC	18 dB Typical	12 dB Minimum	18 dB Typical	12 dB Minimum
	75 Ω BNC	14 dB Typical	12 dB Minimum	16 dB Typical	12 dB Minimum
	75 Ω F-type	14 dB Typical	12 dB Minimum	16 dB Typical	12 dB Minimum
Monitor Port		-20 dB ±3 dB, mounted on module			
OIP3		17 dBm typical, 14 dBm minimum (**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 minimum		-38 dB typical, -35 dB minimum	
		(**Test condition:** 1m fibre, -10 dBm RF i/p power, -10 dBm RF o/p total power)			
Noise Figure		12 dB typical,15 dB maximum (**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, 10dB gain, -22 dBm tones at 2150 and 2152 MHz)			
IMD3		-65 dBc typical , - 60 dBc minimum (**Test condition:** 1m fibre, 10 dB gain, -22 dBm tones at 2150 & 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: 0 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			

CWDM Channels (SRY-TXxxL1-241)

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: 0°C to 60°C / Storage: -20°C to +85°C
Humidity	20 to 90% non-condensing (relative humidity)
Altitude	10,000 ft AMSL (above mean sea level)

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.

ETL SYSTEMS LIMITED
Coldwell Radio Station
Madley
Hereford
England HR2 9NE

TELEPHONE
+44 (0)1981 259020

EMAIL
info@etlsystems.com

FACSIMILE
+44 (0)1981 259021

WEB
www.etlsystems.com

RoHS COMPLIANT
Pb-Free
ISO 9001 QUALITY MANAGEMENT
UKAS MANAGEMENT SYSTEMS 015