ETL Systems

Excelling in RF Engineering

Model Number:
SRY-TxxB2-143
& SRY-RX-B2-144

StingRay RF over Fibre

CWDM, up to 50 km distance, 100 series Broadband modules with 18V LNB powering (on TX module)

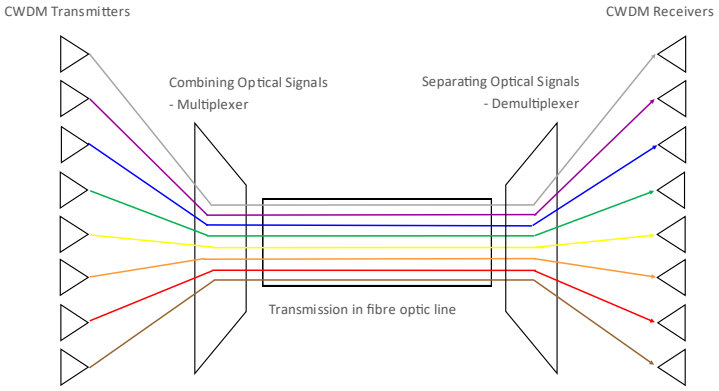
Typical applications:

- 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 100 Series of broadband (50 - 2450MHz) 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 broadband 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 distance options, please contact us.



Fibre Modules

50 - 2450 MHz operating frequency range

Up to 8 wavelengths on a single fibre cable

50 km transmission distance with transmit and receive module options

LNB Powering 18V on TX modules only

High isolation between modules for signal quality

Chassis Options

Compact indoor 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

Local control & monitoring via front panel push buttons & display

10MHz Inject from an external source chassis option

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

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RF Parameters (TX & RX Modules)

Model Number		SRY-TxxB2-143 CWDM Broadband Transmit Fibre Module	SRY-RX-B2-144 CWDM Broadband Receive Fibre Module
Frequency Range		50 to 2450 MHz (Broadband)	
Flatness	850-2450 MHz	± 2.0 dB	
	50-200 MHz	± 2.0 dB	
	Any 36 MHz i/p >-50 dBm	± 0.25 dB	
	Any 36 MHz i/p <-50 dBm	± 0.5 dB	
Output AGC Flatness		-	± 2.0 dB over two bands above. Input –10 to –40 dBm.
AGC/MSG		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	16 dB 75 Ω BNC / 16 dB 75 Ω F-type
	Minimum	12 dB 50 Ω SMA / 12 dB 50 Ω BNC	12 dB 75 Ω BNC / 12 dB 75 Ω F-type
OIP3		18 dBm typical, 14 dBm minimum (**Test condition:** 1m fibre 10 dB gain, -23 dBm tones at 2150 & 2152 MHz)	
CNR (in any 36 MHz)		-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		10 dB typical,12 dB maximum (**Test condition:** 1m fibre, -50 dBm RF i/p power, -10 dBm o/p power)	
Group Delay Variation		± 2ns over full band, ±0.5ns over any 36MHz	± 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, -23 dBm tones at 2150 & 2152 MHz)	
IMD3		-65 dBc typical , - 60 dBc minimum (**Test condition:** 1m fibre, 10 dB gain, -23 dBm tones at 2150 & 2152 MHz)	
RF Signal Range		Input: -60 to -10 dBm (total power)	Output: -30 to -10 dBm (total power)
Gain Control: AGC		-	-30 dBm to -10 dBm output levels
Max RF Input		16 dBm total power (Damage level, NOT operational)	-
Laser Type		DFB Optical isolator for improved performance	
Optical Wavelength		± 2nm	1100 to 1650 nm. Optimised for 1310nm & 1550nm
Optical Power		Output: 4.5 ± 2.5 dBm	Input: -10 to -5.5 dBm (Max.10 dBm)
Power Consumption		3.5 W	2 W
LNB Power		Dependant on chassis	-
MTBF		211,600 hours	292,550 hours
Module Swap		Hot swap	
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	

Environmental Conditions

Operating Temperature	0°C to 50°C
Storage Temperature	-20°C to +75°C
Location	Indoor use only
Humidity	20 to 90% non-condensing (relative humidity)
Altitude	10,000 ft AMSL (above mean sea level)
Mass	0.18kg
Size	43.5 x 18 x 209.5 mm

RF Parameters (Multiplexer/Demultiplexer)

Model Number	SRY-OCM-08-545-47 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	RF connectors: BNC 50 Ω - B5 / SMA 50 Ω - S5 / SMA 50 Ω - S5 / Optical connectors: FA - FC/APC or SA - SC/APC

Centre Wavelengths (SRY-TxxB2-143)

Wavelength	Band	Max. Loss dB/km Corning SMF-28e	Typical Loss dB/km Typical single mode fibre
1470	S-band		0.21 dB/km
1490	S-band	0.24 dB/km	0.20 dB/km
1510	S-band		0.20 dB/km
1530	C-Band		0.19 dB/km
1550	C-band	0.20 dB/km	0.19 dB/km
1570	L-band		0.19 dB/km
1590	L-band		0.20 dB/km
1610	L-band	0.23 @1623 nm dB/km	0.20 dB/km

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.

TX / RX Fibre Module

Multiplexer / Demultiplexer Module

Please see separate datasheet for 100 series chassis options.

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