



StingRay RF Over Fibre

200 series L-band modules with fixed gain & high linearity

The StingRay 200 Series broadband RF over fibre chassis are designed to give compact fibre links of up to 10 km (up to 300 km with a DWDM system). The transmit modules benefit from a high and wide dynamic range. Resilience is provided by a full hot-swap, modular design.

Other options in the StingRay series: The StingRay range is also available with additional features such as RF monitoring ports, high linearity, switchable 13/18V & 22KHz tone LNB powering, redundancy systems and 10 MHz injection.

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 10 km (up to 300 km with DWDM)

Fibre Modules



850-2150 MHz operating frequency range



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



Fixed Gain 0 dBm, 0 dB link



High isolation between modules for signal quality



High Linearity with high 1dB Gain Compression

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 (ODU201)





| | | RF Parameters (TX & RX Fibre Modules) | | | | | |
|---|------------|---|---|---|--|---|---|
| Model Number | | SRY-T-L1-267A (Transmit / TX) | | | SRY-R-L1-268A (Receive / RX) | | |
| Frequency Range | | 850-2150 MHz (L-band) | | | | | |
| Flatness | | 850-2150MHz: ± 2.0 dB | | Any 36 MHz 850 to 1950 MHz: ± 0.25 dB | 850 to 1950 MHz: ± 1.0 dB | 850 to 2150 MHz: ± 2.0 dB | Any 36MHz 850 to 1950 MHz: ± 0.2 dB |
| | | Any 1 MHz 850 to 1950 MHz: ± 0.01 dB | Any 36MHz 850 to 2150 MHz: ± 0.4 dB | Any 1MHz 850- to 2150 MHz: ± 0.02 dB | Any 1MHz 850 to 1950 MHz: ± 0.01 dB | Any 36MHz 850 to 2150 MHz: ± 0.4 dB | Any 1MHz 850 to 2150 MHz: ± 0.02 dB |
| Return Loss | Typical | 18 dB 50 Ω SMA | | 18 dB 50 Ω BNC | 18 dB 50 Ω SMA | | 18 dB 50 Ω BNC |
| | Minimum | 12 dB 50 Ω SMA | | 12 dB 50 Ω BNC | 12 dB 50 Ω SMA | | 12 dB 50 Ω BNC |
| Monitor Port | | -20 dB \pm 3 dB Mounted on module | | | | | |
| Link Gain | | 0 dB \pm 2.5 (Full TX & RX link, 1m fibre) | | | | | |
| Gain Stability | | ± 0.25 dB 20 $^{\circ}$ C to 30 $^{\circ}$ C | | ± 0.15 dB Over 24H, after warm up | (Full TX & RX link, 1m fibre) | | |
| 1dB Gain Compression | | +6 dBm typical, +2 dBm minimum | | | | | |
| OIP3 | Typical | 18 dBm (Test condition: 1m fibre, 10 dB gain, -22 dBm tones at 2150 and 2152 MHz) | | | | | |
| | Worst Case | 15 dBm (Test condition: 1m fibre, 10 dB gain, -22 dBm tones at 2150 and 2152 MHz) | | | | | |
| CNR (in any 36 MHz) | Typical | 55 dB (Test condition: 1m fibre, 0 dBm RF i/p power, 0 dBm RF o/p total power) | | | | | |
| | Worst case | 52 dB (Test condition: 1m fibre, 0 dBm RF i/p power, 0 dBm RF o/p total power) | | | | | |
| Group Delay Variation | | 2ns over full band (Test conditions: 1m fibre, 0 dBm RF i/p power, 0 dBm RF o/p total power) | | | | | |
| | | 1ns any 36MHz (Test conditions: 1m fibre, 0 dBm RF i/p power, 0 dBm RF o/p total power) | | | | | |
| SFDR | | 112 dB/Hz ^{2/3} typical, 108 dB/Hz ^{2/3} minimum (Test conditions: 1m fibre, 0 dB gain, -22 dBm tones at 2150 and 2152 MHz) | | | | | |
| RF Signal Range | | Input: <0 dBm (total power) Operational I/P range | | | Output: -30 to +10dBm (total power) This is only RF detector readout range, module can be used at lower levels. | | |
| Max RF Input | | 16 dBm total power (Damage level, NOT operational) | | | 16 dBm total power (Damage level, NOT operational) | | |
| 10 MHz Level at Output | | Not Supported | | | | | |
| Automatic Gain Control / Manual Settable Gain | | AGC: None | | | MSG: 0 to - 4 dB | | |
| Noise Figure | Typical | 24 dB (Test condition: 1m fibre, 0 dBm RF i/p power, 0 dBm o/p power) | | | | | |
| | Worst Case | 26 dB (Test condition: 1m fibre, 0 dBm RF i/p power, 0 dBm o/p power) | | | | | |
| Noise Floor | Typical | -150 dBm/Hz (Test conditions: 1m fibre, 0 dBm RF i/p power, 0 dBm o/p power. With input noise of -174dBm/Hz) | | | | | |
| | Worst Case | -148 dBm/Hz (Test conditions: 1m fibre, 0 dBm RF i/p power, 0 dBm o/p power. With input noise of -174dBm/Hz) | | | | | |
| Laser Type | | DFB (Two stage isolator for improved performance) | | | - | | |
| Additive Phase Noise (950-1950MHz) | | 100Hz: -120 dBc/Hz | 1 kHz: -125 dBc/Hz | 10kHz: -135 dBc/Hz | 100kHz: -135 dBc/Hz | 1MHz: -135 dBc/Hz | |
| | | Single sideband additive phase noise (Test condition: 1m fibre, 0 dBm RF i/p power, 0 dBm o/p power) | | | | | |
| Optical Wavelength | | 1310 \pm 10 nm | | | 1100 to 1650 nm Optimised for 1310 nm and 1550 nm | | |
| Optical Power | | Output: +6 \pm 2.5 dBm | | | Input: +2 to 6 dBm, Max 10 dBm | | |
| Power Consumption | | 6W | | | 4W typical | | |
| LNB Power | | None | | | | | |
| MTBF (module) | | > 200,000 hours | | | > 250,000 hours | | |
| RF Connectors | | BNC 50 Ω - B5 / SMA 50 Ω - S5 (contact ETL for 75 ohm units) | | | | | |
| Optical Connectors | | FA - FC/APC or SA - SC/APC | | | | | |
| Spec Version | | 1.4 | | | 1.8 | | |

Please see separate datasheet for 200 series chassis options.