ETL Systems

*Excelling in RF Engineering*

Model Number:
**SRY-TX-S4-487**

# Broadband to Optical Fibre Transmit Module

- Single mode optical transmitter for RF over Fibre (RoF)
- A resilient solution for satellite teleports with transition distances up to 10km
- Has monitor port
- Can provide LNB powering 13/18V, 22kHz at up to 500mA total current
- Used in conjunction with S-band RX module SRY-RX-S4-488

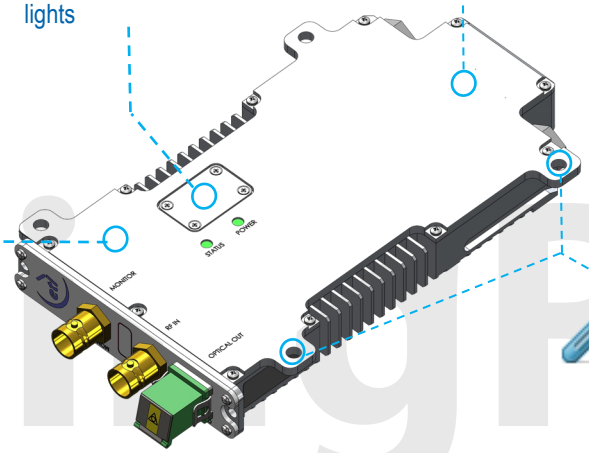
Available with Optical Connectors:
- FC/APC
- SC/APC

or RF Connectors:
- 50 Ω SMA

**Compact**
EMC sealed standalone housing with RF monitoring port

**Settings**
Controlled by 5 position switch with power & status indicator lights

**500 to 3150 MHz**
S-Band input converted to Optic
**1310nm**




**Flexible Mounting**
Tapped screw & through hole mounting options

StingRay

| RF Parameters | | |
|---|---|---|
| Frequency Range | 500 to 3150 MHz | |
| Flatness in Fixed Gain Mode | ±1.5 dB 850 to 2150 MHz<br>±2.5 dB 850 to 2450 MHz<br>±3.0 dB 500 to 3150 MHz<br>±0.25 dB, any 36 MHz > -50dBm<br>±0.5 dB, any 36MHz i/p < -50dBm | Full TX &RX link with 10km fibre link using SRY-TX-S4-487. Fixed gain mode. |
| Flatness in AGC mode | ±1.5 dB 850 to 2150 MHz<br>±2.5 dB 850 to 2450 MHz<br>±5.5 dB 500 to 3150 MHz<br>±0.25dB, any 36MHz<br>±0.5 dB, any 36MHz i/p < -50dBm | Full TX &RX link with 10km fibre link using SRY-RX-S4-288 in AGC mode. NOTE- In AGC mode the wideband gain control results in sharp increase in gain above 2.5GHz. |
| Return Loss | 18 dB typ., 10 dB min | Only Available in SMA 50 ohm connectors. |
| Monitor port | -20 ± 3 dB | Mounted on module |
| OIP3 | Typical 17 dBm<br>Worst Case 14 dBm | **Test condition:** 1m fibre 10 dB gain, -22 dBm tones at 2150 and 2152 MHz |
| CNR (in any 36MHz) | Typical -50 dB<br>Worst Case –45 dB | **Test condition:** 1m fibre -10 dBm RF i/p power, -10 dBm RF o/p total power. |
| NF | Typical 10 dB<br>Worst Case 12 dB | **Test condition:** 1 m fibre, -50 dBm RF i/p power, -10 dBm o/p power |
| Group Delay variation | 2ns over full band<br>1ns over any 36MHz. | |
| SFDR | 105 dB/Hz$^{2/3}$ typ., 100 dB/Hz$^{2/3}$ min | **Test condition:** 1m fibre 10 dB gain, -22 dBm tones at 2150 and 2152 MHz |
| IMD3 | -65 dBc typ., -60 dBc min. | **Test condition:** 1m fibre 10 dB gain, -22 dBm tones at 2150 and 2152 MHz |
| RF Input Signal Range | -60 to -10 dBm (total power) | Operational i/p range |
| Max RF input | 16dBm total power | Damage level, NOT operational. |

**Broadcast**

**Marine Oil & Gas**

**SNG & VSAT**

**Satellite Teleport**

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# Model Number: SRY-TX-S4-487

*Optical Fibre to S-Band Transmit Module*

## Technical specifications and operating parameters

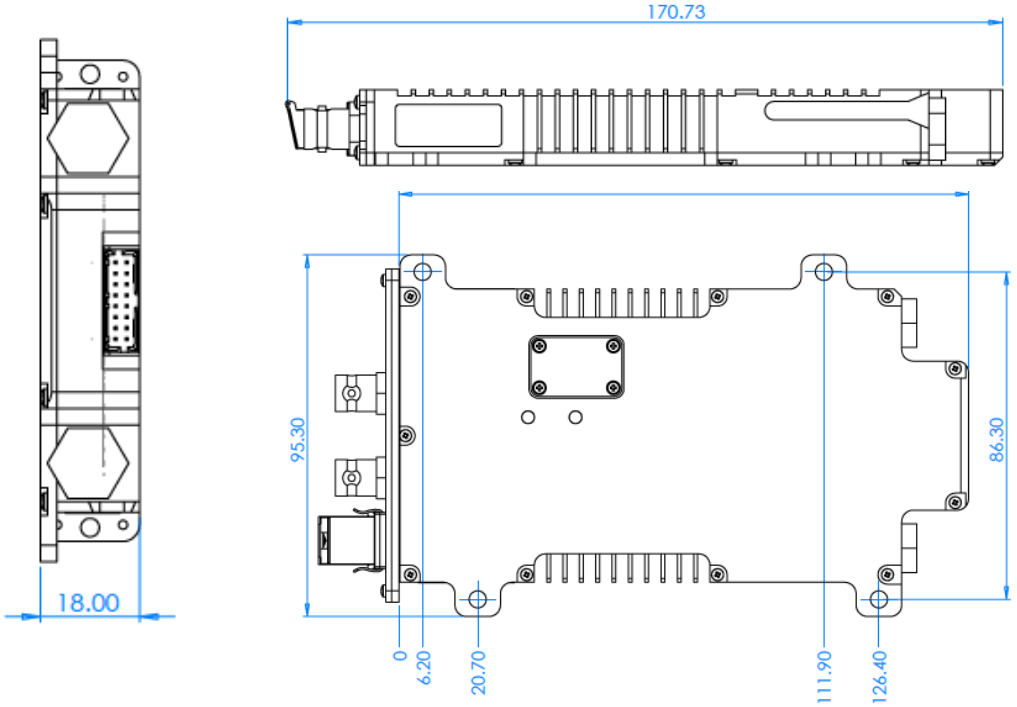
| Optical Parameters | | |
|---|---|---|
| Laser Type | DFB | Optical isolator for improved performance |
| Optical Wavelength | 1310 ± 10 nm | |
| Optical Power output | 4.5 ±2.5 dBm | |
| Optical Connectors | FC/APC<br>SC/APC | Single mode fibre<br>Use angle polish connectors only |
| **Non RF Parameters** | | |
| Module swap | Hot swap | |
| Power supply voltage | 12V ±1V | Single or dual redundant power |
| Power consumption | 15W typical | With 18V 500 mA LNB power |
| LNB power | 18/13V ±5 %, 500 mA max | Short circuit current 750 mA max. |
| MTBF | >120,000 hours | Module MTBF |

| Environmental conditions | | |
|---|---|---|
| Operating Temperature | -20°C to +65°C | Mount away from sources of heat.<br>Forced air cooling may be required dependant on application. |
| Storage Temperature | -40°C to +90°C | |
| Location | Indoor use | Outdoor use as part of ETL ODU only |
| Humidity | 20 to 90% non-condensing | Relative Humidity |
| Altitude | 10,000 ft AMSL operational<br>30,000 ft AMSL storage/transport | Above mean sea level |
| Mass | 0.35 Kg typical | |

| Control, Monitoring & Alarms | | | |
|---|---|---|---|
| Control DIP Switch Position | 1<br>2<br>3<br>4<br>5 | LNB on/off<br>LNB 13/18 v<br>LNB 22 kHz on/off<br>AGC on/Gain fixed<br>Reserved | Remove cover to access DIP switch |
| Indicator lights<br>Power<br>Status Green<br>Status Red | | <br>Module powered<br>Module OK<br>Internal monitoring alarm | |
| Monitoring includes | | Laser Optical Output Power<br>Status of amplifier stages<br>Module temperature | Monitored in each module |
| AGC | | Factory set | Once AGC level set, gain can be fixed |

❗ Operation beyond these limits may cause instantaneous and permanent damage.

## Physical Dimensions




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.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