



Features

- 20 MHz – 6500 MHz
- Up to Four Flange-Mount Modules per 1U chassis
- 50 Ohm SMA
- Variable RF Gains

Applications

- TVRO
- Broadcast
- Earth Stations
- Headends
- VSAT
- Radios
- Wireless
- Cellular



The 5200 Series 6.5 GHz Fiber Optic Inter-Facility Link (IFL) is a high-performance, cost-effective alternative to coaxial cable for 20 MHz to 6500 MHz communications applications.

EMCORE's fiber optic IFLs function as transparent RF fiber links. These IFLs eliminate the limitations of copper systems by enabling longer transmission distance while retaining the highest level of signal quality.

In addition, EMCORE's fiber optics provide several other significant network advantages, including simplified network design, ease of installation, and immunity from EMI/RFI and lightning.

Performance Highlights

| Parameter | Minimum | Typical | Maximum | Units |
|--|---------|---------|---------|-------|
| Wavelength | 1300 | 1310 | 1320 | nm |
| Transmitter Optical Output | - | 4 | 7 | dBm |
| Receiver Optical Input | -25 | - | - | dBm |
| Link Gain @ 1 dB Optical Loss, Max RF Gain | 17 | 22 | - | dB |
| Temperature Range | -20 | - | +65 | °C |
| Frequency Range | 20 | - | 6500 | MHz |

See following pages for complete specifications and conditions.

Absolute Maximum Ratings

Stresses in excess of the absolute maximum ratings can cause permanent damage to the device. These are absolute stress ratings only. Functional operation of the device is not implied at these or any other conditions in excess of those given in the operational sections of the data sheet. Exposure to absolute maximum ratings for extended periods can adversely affect device reliability.

| Parameter | Condition | Min | Max | Units |
|------------------------|-----------|-------------|-------------|-------|
| Operating Temperature | | -40 | +75 | °C |
| Storage Temperature | | -40 | +85 | °C |
| Transmitter RF Input | | - | 0 | dBm |
| Receiver Optical Input | | - | 7 | dBm |
| DC Voltage | | 10 (Tx, Rx) | 16 (Tx, Rx) | VDC |
| Transmitter DC Current | 10-16 VDC | - | 200 | mA |
| Receiver DC Current | 10-16 VDC | - | 150 | mA |

Electrical / Optical Characteristics

| Parameter | Condition | Min | Typ | Max | Units |
|----------------------------------|------------------------------|------|-----|------|-------|
| Transmitter Wavelength | | 1300 | - | 1320 | nm |
| Transmitter Optical Output Power | | - | 4 | 7 | dBm |
| Receiver DC Responsivity | | - | 0.9 | - | A/W |
| Fiber | Corning SMF-28 or equivalent | - | - | - | - |
| Connector | SC/APC -- Standard | - | - | - | - |
| Connector Return Loss | | 40 | - | - | dB |

RF Characteristics, Tx

| Parameter | Min | Typ | Max |
|------------------------------|------------|------------|-------|
| Tx Gain (TG)* | -5 dB | -2 dB | - |
| Tx Gain Adjustment | - | - | 30 dB |
| Noise Figure, Max Gain* | - | 17 dB | 19 dB |
| Input IP3, Over Temp Range* | 0 dBm | 2 dBm | - |
| Gain vs Temperature | - | 0.05 dB/°C | - |
| Amplitude Flatness Full Band | ± 2.0 dB | | |
| Return Loss | -10 dB | | |
| Input Impedance | 50 Ohm SMA | | |

*Tested with 1m fiber

RF Characteristics, Rx

| Parameter | Min | Typ | Max |
|------------------------------|------------|------------|-------|
| Rx Gain (RG)* | 22 dB | 24 dB | - |
| Rx Gain Adjustment | - | - | 30 dB |
| Gain vs Temperature | - | 0.05 dB/°C | - |
| Amplitude Flatness Full Band | ± 2.0 dB | | |
| Return Loss | -14 dB | | |
| Output Impedance | 50 Ohm SMA | | |

Link Characteristics, 1 dB Optical

| Parameter | Condition | Performance | | |
|------------------------------|---------------------------|-------------|-------------------------|-----|
| | | Min | Typical | Max |
| Link Gain | Max RF Gain | 17 dB | 22 dB | - |
| Spurious Free Dynamic Range | Max RF Gain, -20 dBm/tone | - | 106 dB-Hz ²³ | - |
| Gain vs Temperature | | - | 0.05 dB/°C | - |
| Amplitude Flatness Full Band | | ± 3.0 dB | | |

DC Voltage*

| Input Voltage | 10 to 16 V | 10 to 16 V |
|---------------|------------|------------|
| Transmitter | 200 mA | - |
| Receiver | - | 150 mA |

*Ripple and noise: 100 mVp-p >100 kHz; 200 mVp-p <100 kHz

Pin Information

| Plug-in | Transmitter | Receiver |
|--------------|--|--|
| D-Sub | | |
| 1 | Laser On / Off (0 V = OFF, Open ON) | NC |
| 2 | RS-232 Tx (Monitor & Control) | RS-232 Tx (Monitor & Control) |
| 3 | RS-232 Rx (Monitor & Control) | RS-232 Rx (Monitor & Control) |
| 4 | +10 to +16 VDC | +9 to +24 VDC |
| 5 | GND | GND |
| 6 | NC | NC |
| 7 | Laser bias monitor (1 v = 50 mA) | PD optical level monitor (1v = 1 dBm/mV) (see table below) |
| 8 | Open Collector Alarm (see figure below) | Open Collector Alarm (see figure below) |
| 9 | Laser RF level monitor (see table below) | RF level output monitor |
| 10 | 5 VDC (GPS only) | 5 VDC (GPS only) |
| 11 | NC (reserved for factory) | NC (reserved for factory) |
| 12 | NC (reserved for factory) | NC (reserved for factory) |
| 13 | NC | NC |
| 14 | NC | NC |
| 15 | NC | NC |

Transmitter Monitoring

| LED Indicator | RF Status | Summary Status |
|---------------|----------------|----------------|
| Off | -- | No Power |
| Blink Red | Low | Normal |
| Green | Normal | Normal |
| Blink Green | High | Normal |
| Red | Excessive High | Alarm |

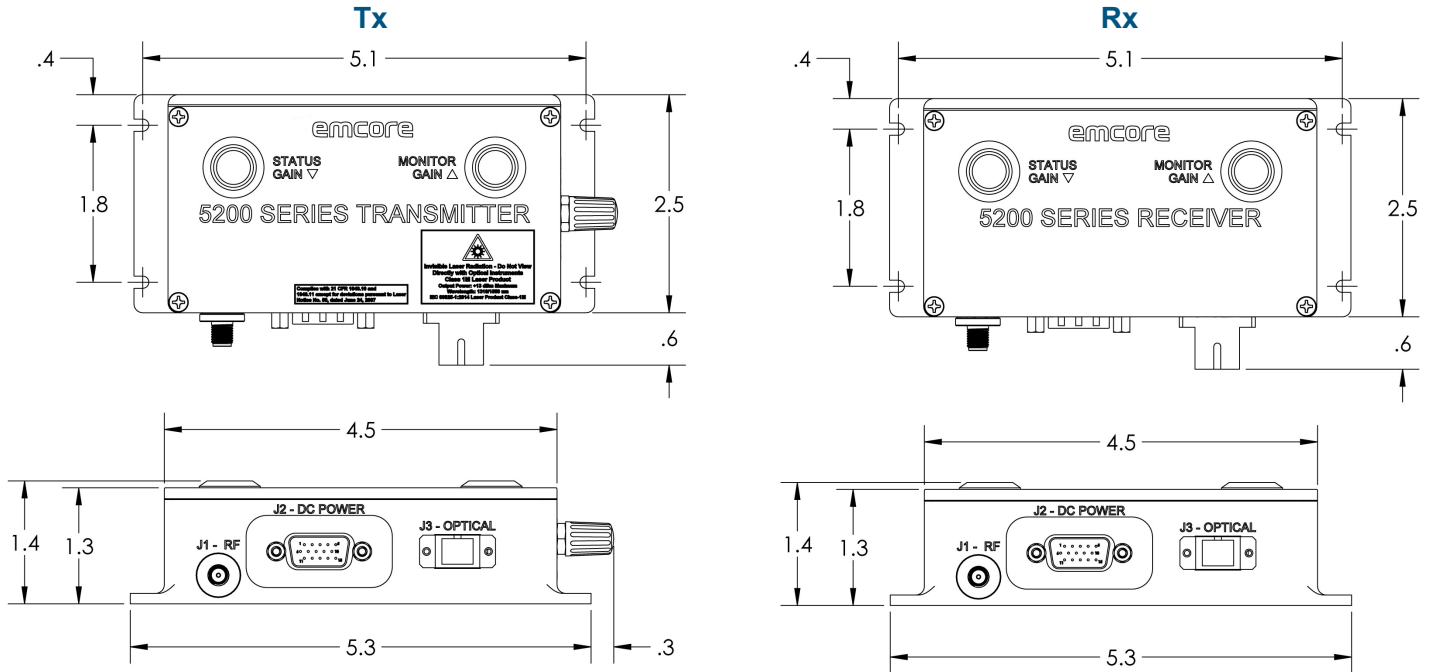
Receiver Monitoring

| LED Indicator | RF Status | Summary Status |
|---------------|----------------|----------------|
| Off | -- | No Power |
| Blink Red | Low | Normal |
| Green | Normal | Normal |
| Blink Green | High | Normal |
| Red | Excessive High | Alarm |

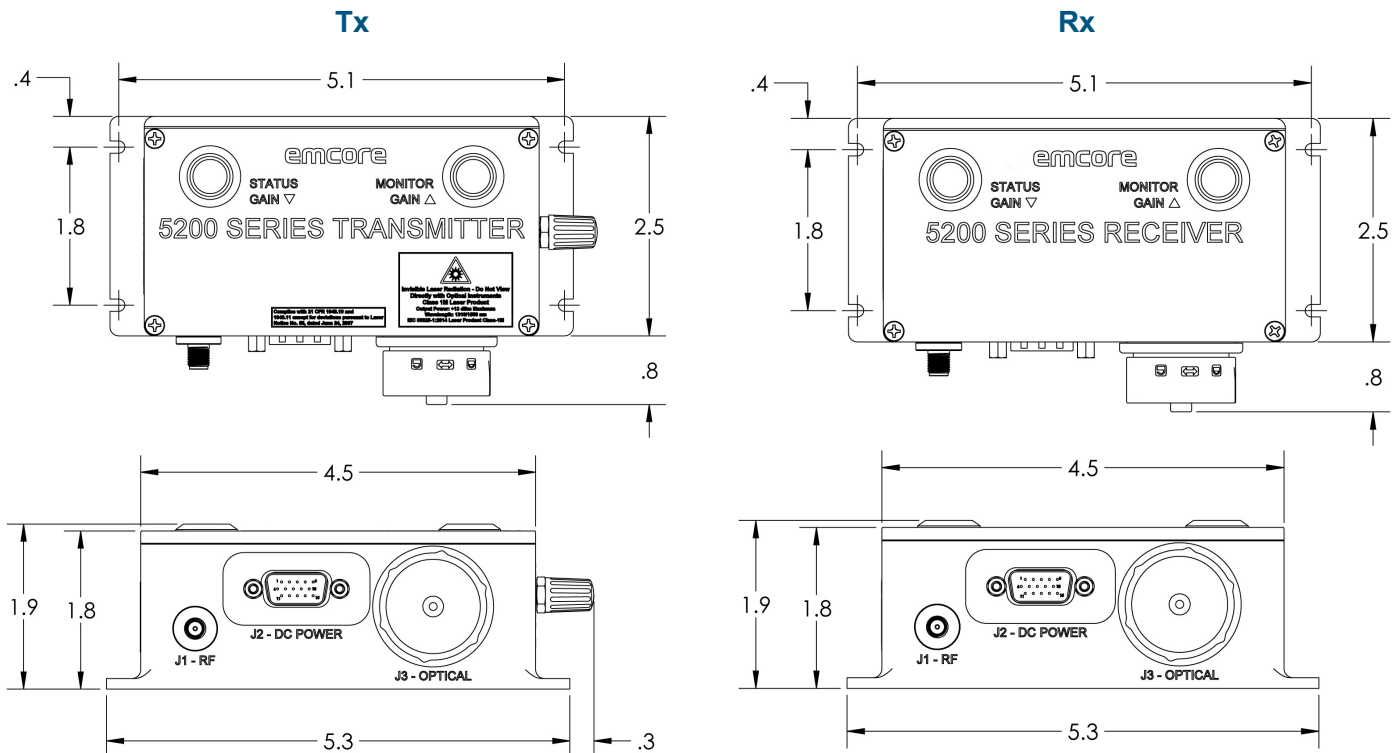
Pin #8 -- Open Collector Alarm Circuit



Flange Mount Package - 5.3" x 2.50" x 1.4" (13.46 cm x 6.35 cm x 3.56 cm)



Flange Mount Package - Outdoor 5.3" x 2.50" x 1.9" (13.41 cm x 6.35 cm x 4.83 cm)



Ordering Information - Transmitter

| Part Number | Model Number | Description |
|---------------|----------------------|--|
| G1526-002-001 | 5206TV-S5-1304-SA-66 | Tx, 20-6500 MHz, 1310 nm, +4 dBm, 50 Ohm SMA, SC-APC, Variable Gain, Outdoor |
| G1526-004-001 | 5206TV-S5-1304-SA | Tx, 20-6500 MHz, 1310 nm, +4 dBm, 50 Ohm SMA, SC-APC, Variable Gain |

Contact factory for custom versions of the fiber transmitter

Ordering Information - Receiver

| Part Number | Model Number | Description |
|---------------|-----------------|---|
| G1527-002-002 | 5206RV-S5-SA-66 | Rx, 20-6500 MHz, 50 Ohm SMA, SC/APC, Variable Gain, Outdoor |
| G1527-004-002 | 5206RV-S5-SA | Rx, 20-6500 MHz, 50 Ohm SMA, SC/APC, Variable Gain |

Contact factory for custom versions of the fiber receiver

Laser Safety

This product meets the appropriate standard in Title 21 of the Code of Federal Regulations (CFR). FDA/CDRH Class 1M laser product. This device has been classified with the FDA/CDRH under accession number 0220191. All Versions of this laser are Class 1M laser product, tested according to IEC 60825-1:2007 / EN 60825-1:2007

Wavelength = 1.3 μm.

Maximum power = 30 mW.

Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007



*Caution - Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

*IEC is a registered trademark of the International Electrotechnical Commission.