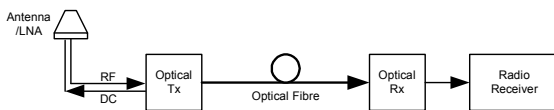


GPS RF OEM FIBRE-OPTIC-LINK MODULE

The **ViaLite** GPS RF fibre-optic-link provides a high reliability, transparent cross-site connection between a GPS antenna and a GPS receiver. The OEM version is ideal for manufacturers wishing to add a fibre optic interface to their equipment. It is also of interest to end users and installers wishing to use PPM's Outdoor Housing (refer to separate datasheet). A Plug-In version is also available (refer to separate datasheet).

Using optical fibre, the GPS antenna may be positioned 10km or more away from the GPS receiver, whilst overcoming problems due to path loss and electro-magnetic interference etc.

It is ideal for providing a GPS derived timing signal reference to equipment positioned where no GPS signal is available (in a tunnel or underground mine for example).



The wide dynamic range of the link results in negligible degradation of the satellite signals due to noise or interfering signals.

Benefits of fibre optic transmission:

The use of optical fibre has a number of inherent advantages over conventional coaxial alternatives:

- Low loss - enabling very long path lengths with minimal degradation of carrier-to-noise.
- Lightweight, highly flexible, small diameter cable.
- Frequency response is independent of path length.
- Immunity to electrical interference - the signal is not corrupted by radiated interference.
- Non-conductive - provides electrical isolation.
- Lower cost compared to coaxial cable over long distances.



Benefits of PPM's GPS RF OEM fibre optic modules:

- Carries L1 and L2 GPS frequencies
- Supplies LNA voltage to GPS antenna
- Operation from 0 to >10km
- Outdoor Housing compatible
- High reliability
- Compact sub-module design
- Alarm and status outputs
- Compatible 19" **ViaLite** Plug-In product line

Complementary products also available in the **ViaLite** range:

The GPS RF OEM modules can be used in conjunction with optical Transmitters and Receivers from PPM's **ViaLite** 19" Plug-In product range, featuring:

- 70/140MHz, L-Band, GPS fibre optic links
- Broadband links to >3GHz
- Bi-directional RS422 optical data modules
- Dual redundant power supplies
- 1:1 RF redundancy switch
- 2-channel RF power splitter
- Remote alarm monitoring over fibre
- Cross site fibre optic cable solutions
- Outdoor housing solutions

For more information on PPM's range of Satellite Communication Products, see the ViaLite Accessories Datasheet at www.vialite.co.uk.

ViaLite GPS RF OEM MODULE SPECIFICATIONS

Bandwidth

Bandwidth	L1 and L2 GPS frequencies
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Gain

RF Gain at 0dB optical loss	0dB nominal when connected to matching ViaLite equipment ¹ Subtract [2 x Optical Loss]dB for >0dB optical loss Optical Losses: Fibre = 0.4dB/km typ. for 1310nm Tx, 0.25dB/km typ. for 1550nm Tx Connectors = 0.5dB per connector typ.
Gain Accuracy	±3.0dB
Gain Flatness across band	±1.0dB
Gain Stability over Temperature Tx Rx	< ±3dB over operating range <0.08dB/°C below 40°C typ., <0.1dB/°C above 40°C typ. <0.05dB/°C typ.

Dynamic Range

Input Third Order Intercept (IIP3)	>0dBm
Input P1dB	>-10dBm
Noise Figure	<18dB, 0dB optical loss

User Interface

Input/Output Impedance, VSWR	50Ω, VSWR ≤ 1.5 : 1 (9dB min.)
Transmitter Alarm Output	Monitors laser back-monitor photocurrent and laser diode forward current. Open collector alarm is raised when laser health is degraded.
Receiver Alarm Output	Monitors received light level. Open collector alarm is raised when optical loss reaches 20dB.
Open Collector Alarm Rating	+15V max. 500mA max.
Transmitter Monitor Output	Analogue measurement of laser diode forward current (IFL). This analogue output voltage monitors the efficiency of the laser diode. VIFL = 68 x Ifwd (A).
Receiver Monitor Output	Analogue measurement of received light level (RLL). The VRLL is set to give +7.75V when link gain is 0dB ¹ , and varies by 0.125V/dB of RF link gain when the gain is reduced by optical path losses.
Monitor Output Range	+12V max. 0V min., maximum load 10kΩ
RF Connector	50Ω SMA Jack
Optical Connector	E2000 singlemode angle-polished connector Suhner FLSH-2000-A608 or FC/APC Narrow key, >60dB return loss, Suhner FCPC-Z/M-A601
Optical Cable	0.25m pigtail, yellow jacket
LNA Feed on Transmitter	±36V max. 330mA max. via RF centre conductor
Dummy LNA load on optical receiver	500Ω resistor to ground, max. 0.25W. This emulates presence of an LNA to a GPS receiver.
Supply Voltage	+12V ±0.5V
Current Consumption	Rx < 150mA, Tx < 180mA

Operating Conditions

Absolute Maximum RF Input (Tx)	>+15dBm, 5Vdc
Operating Temperature	-10°C to +50°C
Storage Temperature	-40°C to +70°C

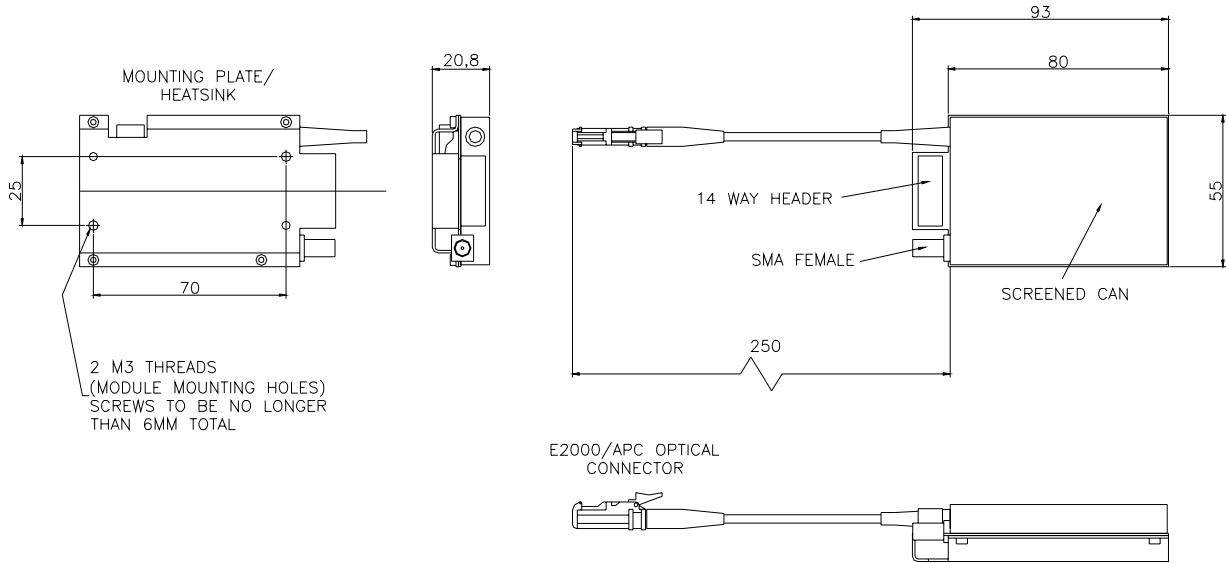
Optical Characteristics

Wavelength	1310 ±20nm, (1550 ±20nm and CWDM options available)
Pigtail Fibre	Singlemode 9/125, Corning SMF28 or equivalent
Output Power	+4.5dBm/3mW nominal

All parameters specified after 15 minutes warm-up.

1 - some exceptions apply - please check with PPM

Mechanical Drawing



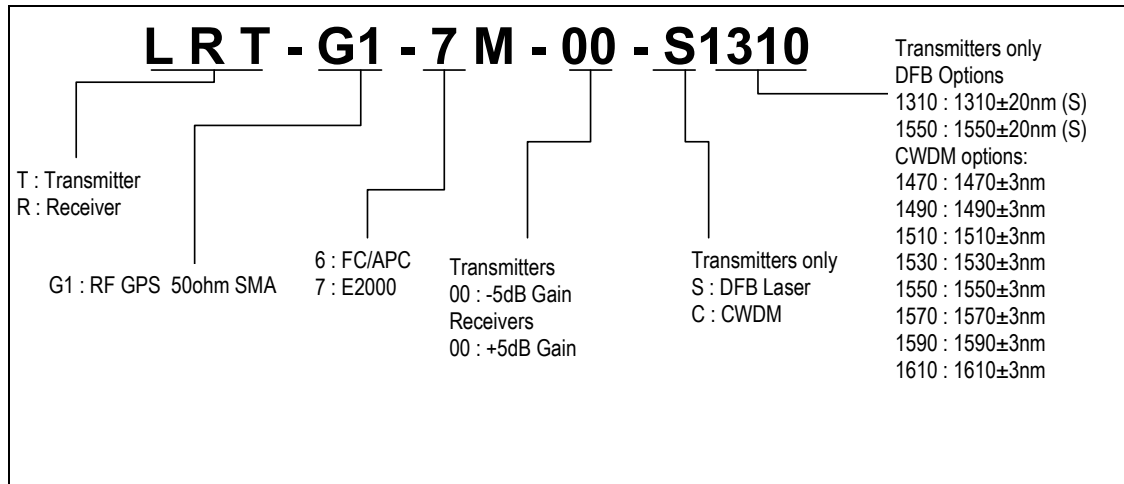
Pin Connections

Electrical connection to the module is via a 14way header *.

Pin No.	Optical Transmitter	Optical Receiver
1	Do not connect	Do not connect
2	Do not connect	Do not connect
3	Do not connect	Do not connect
4	Do not connect	Do not connect
5	Laser Alarm (Open Collector)	Low Optical Power (Open Collector)
6	Do not connect	Do not connect
7	+12V Module Power Supply	+12V Module Power Supply
8	Ground	Ground
9	Do not connect	Do not connect
10	Do not connect	Do not connect
11	Ground	Ground
12	Do not connect	Do not connect
13	LNA Feed Voltage	LNA Feed Voltage
14	Laser Current Monitor	Receiver Light Level Monitor

* Cableform is supplied with latching connector and 250mm flying leads.

Ordering Information



Standard parts available on short lead times:

- LRT-G1-7M-00-S1310
- LRR-G1-7M-00

Accessories

Part Number	Description
56181	E2000 panel mounting adaptor
56172	FC/APC panel mounting adaptor
73664	Replacement Power Cable Assembly

Complementary Products

PPM offer a wide range of supporting products in OEM module and 19" rack mount formats.

- 70/140MHz, L-Band, GPS fibre optic links
- Broadband links to >3GHz
- Bi-directional RS422 optical data modules
- Dual redundant power supplies
- 1:1 RF redundancy switch
- 2-channel RF power splitter
- Cross site fibre optic cable solutions
- Outdoor housing solutions
- Remote alarm monitoring over fibre
- Custom designs to suit your application



Contact Us

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