SATCOM OEM TIMING REFERENCE FIBRE-OPTIC-LINK MODULE

The ***ViaLite*** Timing Reference fibre optic link has been designed for the transmission of accurate timing signals. It is optimised for low phase noise, and minimal AM-PM conversion. The OEM version is ideal for manufacturers wishing to add a fibre optic interface into their existing equipment. A Plug-In version is also available (refer to separate datasheet).

The 1MHz to 50MHz bandwidth permits the transmission of a wide range of timing signals including common reference frequencies of 1MHz, 10MHz and 50MHz. It accommodates signal levels of up to +10dBm/2Vp-p.

The Timing Reference link complements PPM's Satcoms fibre links, including the L-Band and 70/140MHz IF bandwidths.

Typical applications for the OEM Timing Reference fibre optic modules:

- Satellite communications ground station equipment
- Synthesised up/down converters
- Modems
- HPAs, LNBs, LNAs
- VSAT equipment

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 OEM Timing Reference fibre optic modules:

- Ultra-low jitter and phase noise
- Ultra-low AM→PM conversion
- Wide signal level range
- 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 OEM Timing Reference 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 SATCOM OEM TIMING REFERENCE MODULE SPECIFICATIONS

Bandwidth

Bandwidth	<1MHz to >50MHz

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 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)	>+20dBm
Input P1dB	>+10dBm
Noise Figure	<48dB, 0dB optical loss
Max. recommended input	+10dBm, 2Vp-p (refer to Abs. Max. RF input)

User Interface

Input/Output Impedance, VSWR	50Ω, VSWR ≤ 2 : 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 10k□
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
Supply Voltage	+12V ±0.5V
Current Consumption	Rx < 260mA, 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

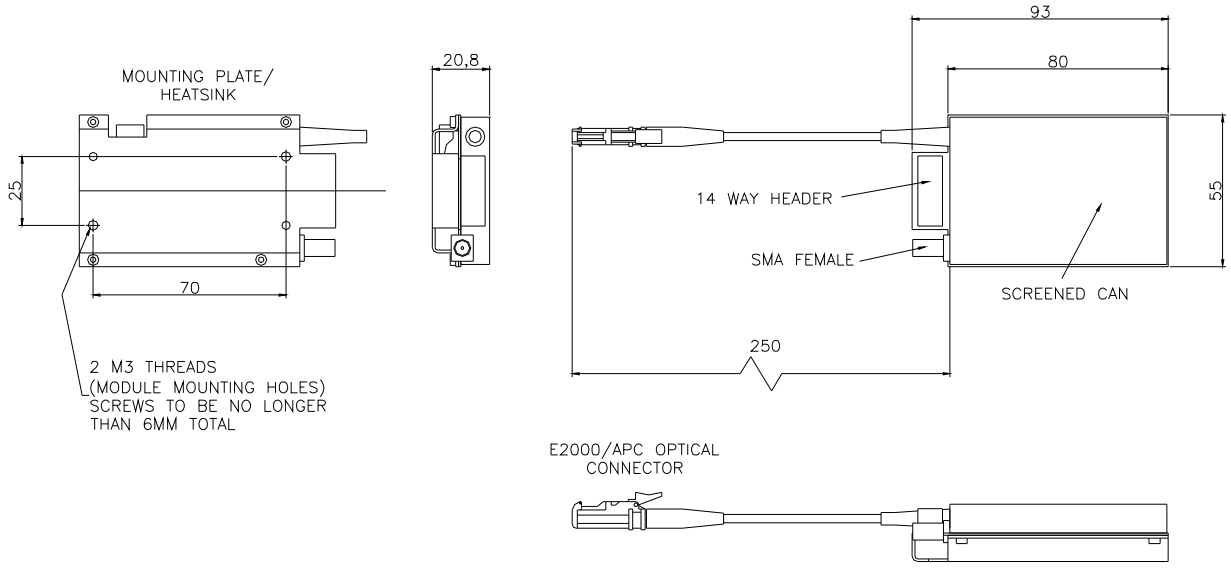
Optical Characteristics

Wavelength	1310 ±20nm
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



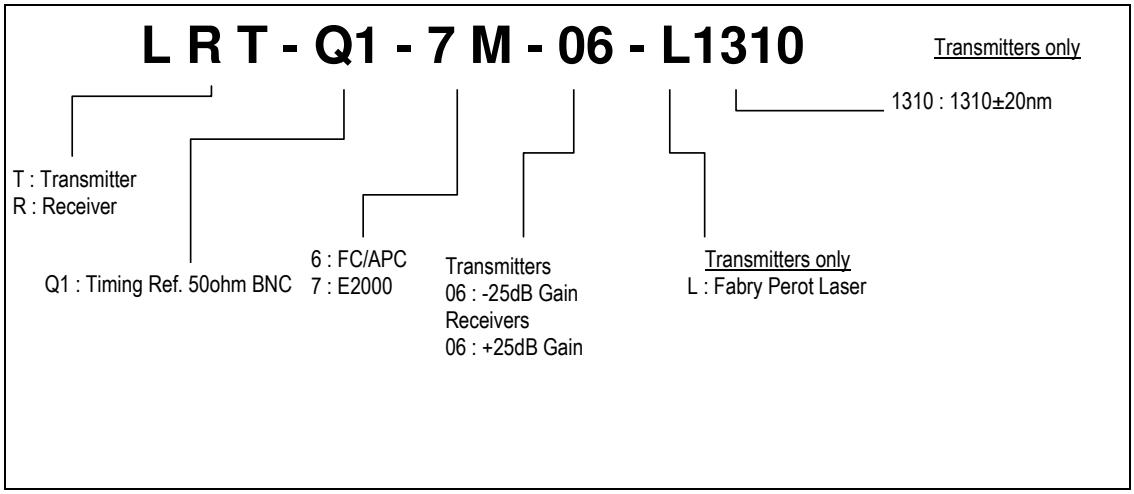
Pin Connections

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	Do not connect	Do not connect
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-Q1-7M-06-L1310
- LRR-Q1-7M-06

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
- Bi-directional RS422 optical data modules
- Broadband links to >3GHz
- 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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