advanced media technologies®

MODEL

LTM15

LASER TRANSMITTER MODULE FOR OCM

LIGHT LINK® SERIES 3

PBN Pacific Broadband Networks

Description

The Light Link® Series 3 CATV laser transmitter module has been designed to provide the OCM system with 1550 nm wavelength range DWDM capability. The transmitter employs a high performance, thermally stabilised DFB low-chirp isolated laser to transmit AM-VSB CATV or DVB-QAM signals on one ITU frequency grid optical wavelength within the 1550 nm range.

The LTM15 suits single mode optical fibres with or without dense wavelength division multiplexing (DWDM). The transmitter can be used with erbium doped fibre amplifiers (EDFA or EDFAM) in short haul fibre-to-the-home (FTTH) applications with a maximum of up to 10 km of normal fibre, or up to 30 km on fibres with 1550 nm low dispersion.

Light Link® Series 3 optical transmitters incorporate a comprehensive alarm and status monitoring system of all laser operating parameters such as DC laser bias current, cooler current and optical output power. These parameters are available for either local or remote-site monitoring.

Control features include laser shut down and manual or automatic gain control, which is controlled via the front panel keypad on the OCM user interface or managed remotely using the OCM network management system, NMS3.

Features

- ✓ Plug and play OCM module.
- ✓ Analogue InGaAsP DFB low-chirp laser with optical isolator and thermoelectric cooler.
- ✓ CENELEC and NTSC standards up to 110 channels (both analogue and digital).
- ✓ Available in most ITU optical frequency grid wavelengths for DWDM applications.
- ✓ Remote laser monitoring and shutdown facilities via module status port and network management system.
- ✓ Local laser shutdown via OCM user interface and through module status port.
- ✓ Alarm monitoring via module status port and network management system.
- ✓ Automatic gain control for constant optical modulation index (OMI).
- ✓ Automatic Peltier thermo-cooler control for constant laser temperature.
- ✓ Automatic laser power control for constant optical output.
- ✓ Integrated 4.5 MHz pilot carrier generator for return path models.

Specifications

Optical Performance

Operating wavelength:	One ITU optical DWDM grid channel in the 1550 nm range.
Output power options:	6 mW (8 dBm) 8 mW (9 dBm) 10 mW (10 dBm)
Optical return loss:	> 60 dB
Optical connectors:	SC/APC, E2000/APC, FC/APC
Laser RIN:	< -155 dB/Hz

RF Performance

RF frequency range:	
LTM15-[W]-200-[Y]-[Z]:	5~220 MHz
LTM15-[W]-862-[Y]-[Z]:	45~862 MHz
LTM15-[W]-1000-[Y]-[Z]:	45~1000 MHz
RF flatness:	± 0.75 dB
RF input level:	nominal 25 dBmV for 4% OMI
RF input range:	
LTM15-[W]-200-[Y]-[Z]:	12~32 dBmV
LTM15-[W]-862-[Y]-[Z]:	10~30 dBmV
LTM15-[W]-1000-[Y]-[Z]:	10~30 dBmV
RF input connectors:	75 Ω SCTE Type-F
RF test points:	
Connector:	75 Ω mini SMB
RF In:	-20 dB ±1 dB
AUX In:	-20 dB ±1 dB

General

Power:	by OCM system
Operating temperature:	0°C to 45°C
Dimensions *(HxWxD):*	160 x 44 x 360 mm
Ship size *(HxWxD):*	280 x 70 x 570 mm
Weight:	1.5 kg
Ship weight:	2 kg
Network management:	NMS3 via OCM

Link Performance

Measured in a typical system with PBN FPRM, 10 km single mode optical fibre, 0 dBm input with 4% OMI.

64 PAL B/G, D channels

CNR: *(5 MHz RNB)*	> 53 dB
CSO:	> 56 dB
CTB:	> 62 dB

42 CENELEC channels (as per EN50083-3)

CNR: *(5 MHz RNB)*	> 53 dB
CSO:	> 55 dB
CTB:	> 61 dB

79 NTSC CW channels + 450 MHz

CNR: *(4 MHz RNB)*	> 54 dB
CSO:	> 56 dB
CTB:	> 61 dB

Order Details

Model code:

LTM15-[W]-[X]-[Y]-[Z]

Options:

W *Optical output power*
- 06 6 mW (8 dBm)
- 08 8 mW (9 dBm)
- 10 10 mW (10 dBm)

X *RF bandwidth*
- 200 5~220 MHz return path
- 862 45~862 MHz forward path
- 1000 45~1000 MHz forward path

Y *ITU grid channel (Optical wavelength)*
- 21 192.1 THz (1560.61 nm)
- 23 192.3 THz (1558.98 nm)
- 25 192.5 THz (1557.36 nm)
- 27 192.7 THz (1555.75 nm)
- 29 192.9 THz (1554.13 nm)
- 31 193.1 THz (1552.52 nm)
- 33 193.3 THz (1550.92 nm)**
- 34 193.4 THz (1550.12 nm)
- 35 193.5 THz (1549.32 nm)

** *Default wavelength if none is specified.*

Z *Optical connector*
- E E2000/APC
- FC FC/APC narrow key
- SC SC/APC

Example

LTM15-08-1000-33-SC

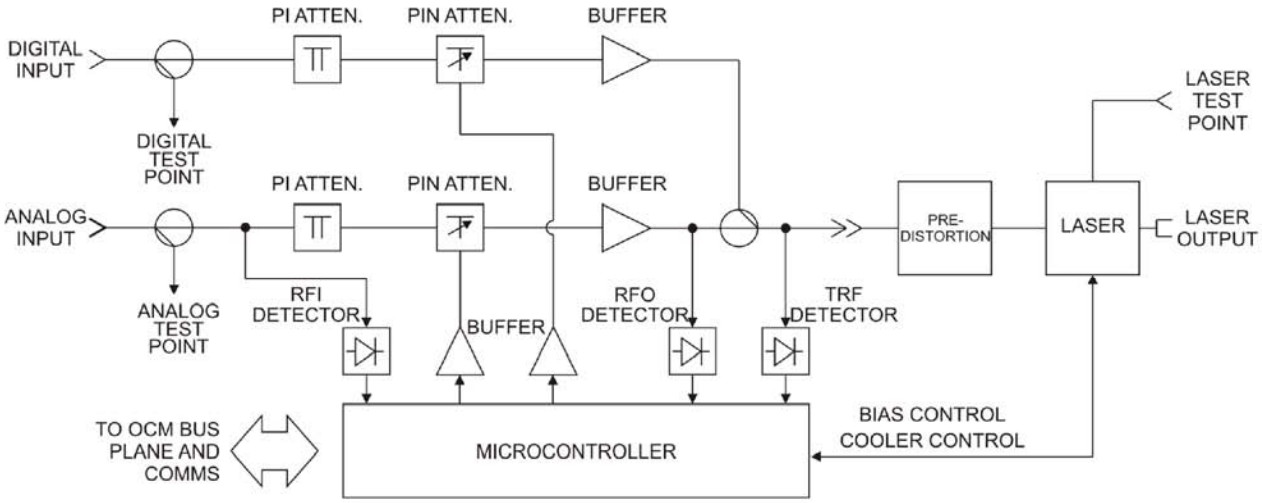
Plug in laser transmitter module with 8 mW optical output, 45~1000 MHz RF bandwidth, 1550.92 nm wavelength, and SC/APC optical connector.

Example

LTM15-10-200-33-SC

Plug in laser transmitter module with 10 mW optical output, 5~220 MHz RF bandwidth, 4.5 MHz pilot generator, 1550.92 nm wavelength, and SC/APC optical connector.

Block Diagram - Forward Path Model



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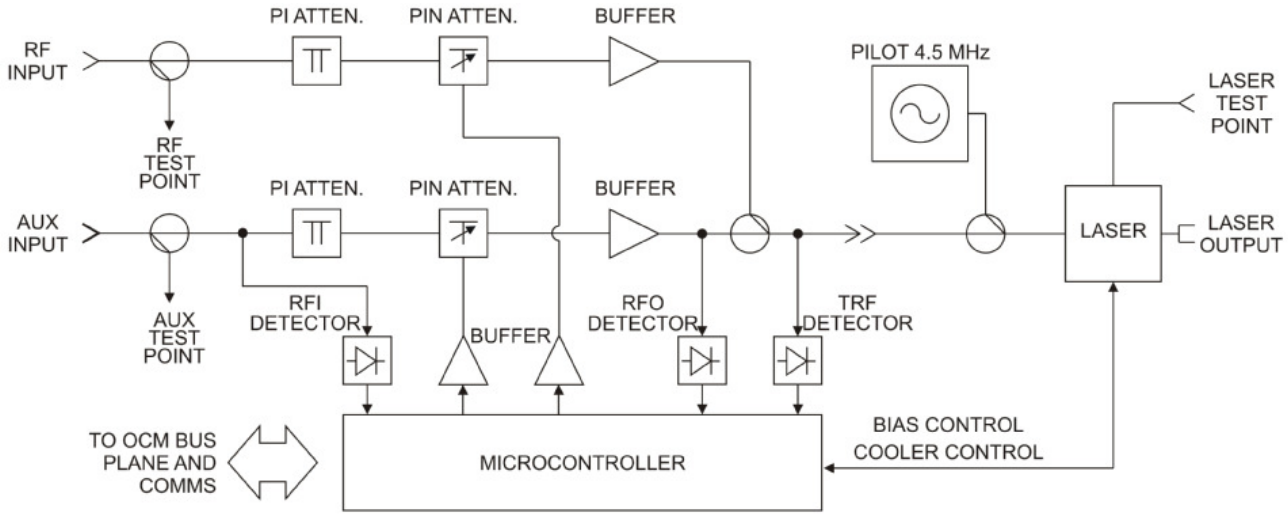
Block Diagram - Return Path Model



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