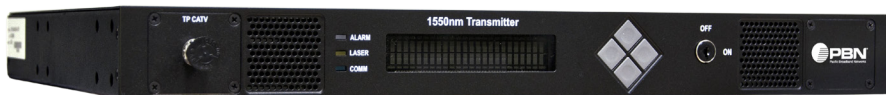


# LTE153-6000

Externally-modulated Laser Transmitter  
for 1550 nm Wavelengths

High performance 1550 nm externally modulated CATV fiber optic transmitters  
Supports both HFC and FTTx networks



## About the Product

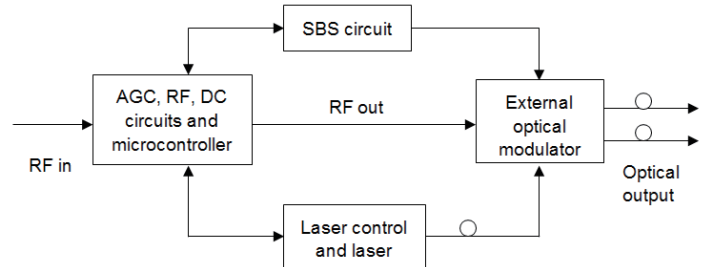
The LTE153-6000 is designed to deliver optimum performance over long-haul fiber with low dispersion. It is the ideal solution whenever the network requires long distance transmissions that support RF applications from 85 to 1003 MHz up to 150 km.

The LTE153-6000 provides a low chirp mode of operation with a very narrow spectrum. This allows the use of any 1550 nm DWDM wavelength for the transmission of broadcast and CATV, while maintaining excellent CNR, CSO, and CTB performance throughout the network.

The LTE153-6000 is packaged in a compact 19" sub-rack housing of 1RU, with dual redundant and hot-swappable power-supply modules.

The transmitter features adjustable dispersion compensation to maximize performance for the channel plan in use.

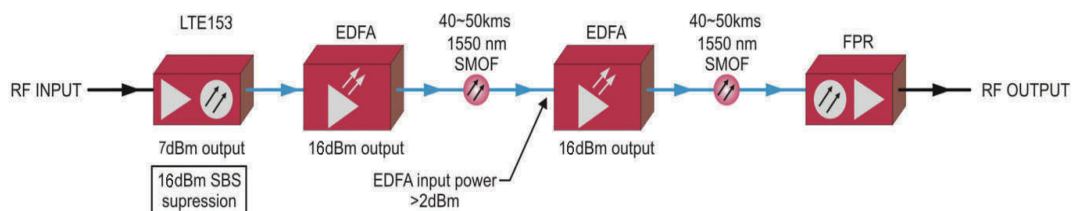
## Block Diagram



## Key Features and Functions

- RF pre-distortion circuit for excellent CSO and CTB performance together with a low distortion profile
- Versions for both long-haul applications and short-haul FTTH customer access networks
- Can be optimized for 60 PAL channels, 89 PAL channels, 80 NTSC channels or 110 NTSC channels. Flat response between 85~1003 MHz
- Dual redundant hot-swappable power supplies for universal mains or for telecom battery
- Field-adjustable Stimulated Brillouin Scattering (SBS) suppression for optimized CSO to suit 13~19 dBm fiber line drive levels.
- Field-adjustable Electronic Dispersion Compensation (EDC)
- Front panel LCD for local monitoring. Integrated SNMP agent for Serial (RS-232) Ethernet (RJ-45) port and remote monitoring
- Front Panel RF Test Point for easy access

## Application Examples



### Specifications

#### Link Performance \*\*

	Distance (km)	Channel Plan	Power (dBm)	Noise (MHz)	SBS Suppression (dBm)	CNR (dB)	CSO (dBc)	CTB (dBc) Max. @ 25 °C	CTB (dBc) Max. @ 0-50 °C
<b>S-Type</b>									
6000-SA	65	NTSC 80	7.0 / 7.0	4	16.0	53.0 / 53.0	-65 / -65	-65	-65
6000-SA	65	PAL 60	7.0 / 7.0	5	16.0	53.0 / 53.0	-65 / -65	-65	-65
6000-SA	65	NTSC 110	7.0 / 7.0	4	16.0	50.0 / 50.0	-65 / -65	-65	-65
6000-SA	65	PAL 89	7.0 / 7.0	5	16.0	50.0 / 50.0	-65 / -65	-65	-65
6000-SA	65	42 CENELEC	7.0 / 7.0	5	16.0	53.0 / 53.0	-65 / -65	-65	-65
<b>Comments</b>			Min. - Higher Power Available		Min.	Min.	Max.	Max.@ 25 °C	Max.@ 0-50 °C

Note: Specifications for the 2 x 10 dBm units, CSO port 2 degraded by 1 dB for Channel Loads 1 and 2, CSO port 2 degraded by 2 dB for Channel Loads 3 and 4. Channel load 1-2 = 80NTSC – 60PAL Channel load 3-4 = 110NTSC and 89 PAL.

#### Optical Performance

<b>Operating wavelength</b>	Y 1555 nm ± 5 nm ITU-DWDM grid channel 18~40
<b>Output power</b>	7.0 / 7.0 dBm output version 10.0 / 10.0 dBm output version
<b>SBS suppression</b>	13 to 19 dBm

#### RF Performance

<b>RF bandwidth</b>	85 ~ 1003 MHz
<b>RF flatness</b>	± 0.75 dB @ 85 ~ 1003 MHz
<b>RF input return loss</b>	≥ 16 dB
<b>RF input impedance</b>	75 Ω
<b>Front Panel RF test point</b>	-20 dB ± 1 dB down from RF input
<b>RF connector</b>	SCTE F-Type
<b>Nominal RF input level per TV channel</b>	<b>CW/Video mode</b> <b>Manual mode</b>
<b>PAL 60 ch</b>	20 ± 2 dBmV/ch      18 ± 1 dBmV/ch
<b>PAL 89 ch</b>	18 ± 2 dBmV/ch      16 ± 1 dBmV/ch
<b>NTSC 80 ch</b>	19 ± 2 dBmV/ch      17 ± 1 dBmV/ch
<b>NTSC 110 ch</b>	17 ± 2 dBmV/ch      15 ± 1 dBmV/ch
<b>CELENEC 42 ch</b>	20 ± 2 dBmV/ch      18 ± 1 dBmV/ch

#### SNMP Management

<b>Network Port</b>	RJ45-10/100baseTx
<b>MIB</b>	SCTE MIB for HFC optical transmitters, and associated MIBs

#### General

<b>Power supplies</b>	2 slots for redundant and hot-swappable units, AC or DC: AC: 90~265 Vac 50~60 Hz; DC: 36~72 Vdc
<b>Power consumption:</b>	≤ 65 Watt
<b>Operating temperature</b>	0 °C to +50 °C
<b>Storage temperature</b>	-20 °C to +70 °C
<b>Dimensions (H x W x D)</b>	44 x 485 x 381 mm (width includes 19" front panel ears, depth includes, connectors, fans & front panel)
<b>Shipping size (H x W x D)</b>	80 x 600 x 670 mm (107 dm <sup>3</sup> )
<b>Weight</b>	6.0 kg
<b>Shipping weight</b>	6.5 kg

### Long Haul Fiber Planning

The Stimulated Brillouin Scattering (SBS) suppression of the LTE153-6000 externally-modulated laser transmitter must be optimized for the best possible Composite Second Order (CSO) distortion performance. The selected SBS value must correspond with the projected maximum optical drive level in the fiber lines. For short lines this level can be slightly higher than for very long lines.

A reduced line drive level, together with a reduced SBS suppression threshold in the transmitter, increases the maximum achievable system range. The LTE153-6000 incorporates field-adjustable SBS thresholds. This ensures that the selected level will match the fiber line drive level as close as possible for best the possible performance.

In very long line systems, the CSO will be highly affected by fiber dispersion. This is most visible on analog TV channels at the high end of the 85-1003MHz bandwidth. The quality of the applied fibers is very important, and for the best performance these fibers should be dispersion-shifted with minimum dispersion in the 1550nm region.

It is recommended that RF analog loads are below the 600MHz RF domain and all digital RF channels above 600 MHz. This will ensure optimum RF performance of the LTE153-6000 transmitter. The digital RF in the upper RF band is more resilient for fiber impairments issues than analog RF signals.

### Order Details

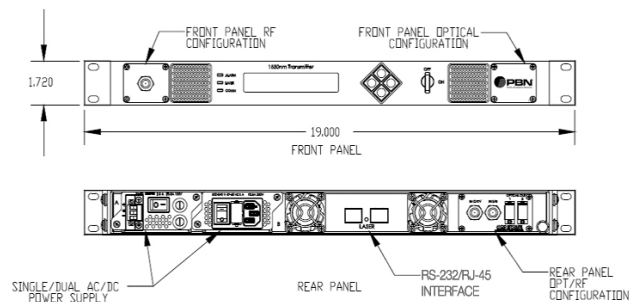
**LTE153-6000-[UV]-[WXY]-[Z]** ..... Laser transmitter, externally modulated, 19" 1RU, with SNMP

#### Options:

- U** Link type
- S**
- V** Output power
  - A** 7.0/7.0 dBm optical output
  - D** 10.0/10.0 dBm optical output
- W** Optical connectors
  - 1** SC/APC angle polished connector
- X** Optical wavelength
  - 00** 1555nm ± 5nm
  - 01** 1550nm ± 5nm
  - xx** ITU DWDM grid channel 18-40  
(refer to relevant ITU DWDM standards)

Note: Transmitters operating on ITU grid have an increased delivery time up to 4-6 weeks.
- Y** Power supply options
  - AC = 90-265 Vac 50-60 Hz, DC = 36-72 Vdc**
  - 3** Dual: AC primary, AC secondary
  - 4** Dual: AC primary, DC secondary
  - 5** Dual: DC primary, DC secondary

- Z** Power Cable \*
  - EU** Power Cable for Europe (not for use in UK)
  - CN** Power Cable for China
  - CH** Power Cable for Switzerland
  - US** Power Cable for USA
  - UK** Power Cable for UK
  - AU** Power Cable for Australia



### Examples

**LTE153-6000-SA-1013-EU** ..... Laser transmitter, in stand-alone 19" sub rack, 1 RU, externally modulated, 1550nm ± 5nm, 2 x 7 dBm outputs with SC/APC connectors, Dual redundant universal mains AC power supplies. Integrated SNMP, Power Cable for Europe (not for use in UK).