OTyyyyZnn

Ultrabroadband Optical Transmitter

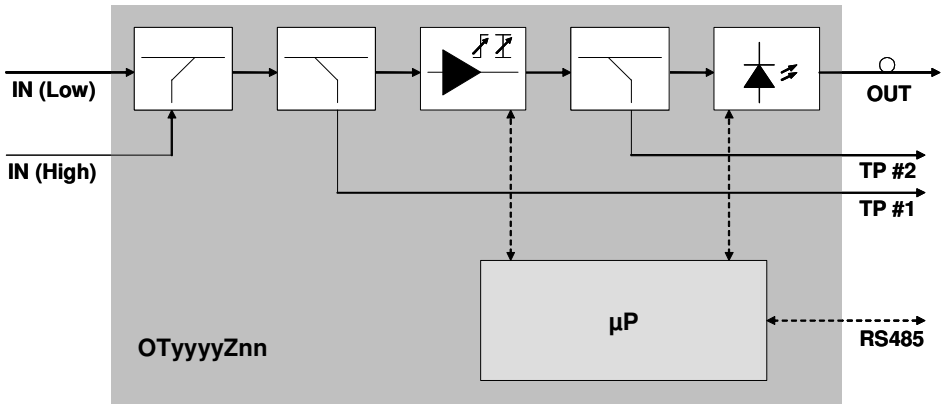
Application

- Electrical to optical conversion of multi-channel CATV signals like AM-VSB, FM and QAM signals
- Downstream or upstream transmission in HFC networks

Features

- Low noise DFB laser with pre-distortion technology, 1310nm, 1550nm, CWDM and DWDM variants with different optical output power
- OTDWnn: ITU-Grid wavelength with adjustable wavelength: +/- 100 GHz
- Output powers between +3 and +15 dBm (+3 and +6 dBm with un-cooled lasers)
- OT1550, OTDWnn: SBS suppression and pre-chirping technology
- Ultra broad bandwidth of 5 … 1000 MHz (5 … 450 MHz for transmitters with un-cooled lasers)
- Dual RF inputs: low and high level inputs
- All-electronically adjustments: slope, gain, output power, OMI, pre-chirping etc
- Automatic load control (ALC) for constant OMI_{totrms}
- RS485 remote supervision and control interface
- SC/APC or E2000 connector as standard

Block Diagram



Technical Data

OTyyyyZnn Mnemonic					
Wavelength yyyy		1310 and 1550 (given in nm) CWmm – CWDM laser (ITU grid channel number mm) DWmm – DWDM laser (ITU grid channel number mm)			
Type Z		S – standard uncooled laser for return path applications L – linear cooled laser for forward path applications N – standard linear cooled laser for forward path applications X – extremely linear cooled laser for broadcast applications			
Optical output power nn		nn denotes output power in dBm			
General Performance Data		**S Type**	**L Type**	**N Type**	**X Type**
Frequency range		5 ... 450 MHz	5 ... 1000 MHz	45 ... 862 MHz	5 ... 1000 MHz
Input level (OMI = 5%)		73 dBµV minimum (87 dBµV minimum for coupled input)			
Gain adjustment		0 … 24 dB			
Slope adjustment		-3 (cable equivalent) … +16 dB (cable equalization)			
Impedance		75 Ω			
RF return loss		> 20 dB (at 47 MHz) - 1.5 dB/oct, min. 15 dB > 18 dB for 5 … 65 MHz			
Testpoint TP1 attenuation		20 dB			
Testpoint TP2 (AC voltage for RF signal and DC voltage for opt. output power indication)		80 dBµV+2ΔPopt ± 2.0 dB at OMI = 5% (AC) 0.1 V/mW ± 0.02 V/mW (DC)			
Optical output power adjustment		0 … -3 dB			
Output power tolerance	1310 nm: 1550 nm:	±1.0 dB ±1.0 dB	 ±0.5 dB	±0.7 dB	±0.5 dB -0.5 … +3.0 dB
Optical wavelength fine tuning		-	-100…+100 GHz	-	-
Optical return loss		> 35 dB	> 45 dB	> 40 dB	> 45 dB
Power consumption		≤ 11.5 W	≤ 17 W	≤ 17 W	≤ 17 W
Dimensions		Module width 1 slot for 2G6 chassis			
Weight		2 kg			

Typ. Transmission Performance Data		**S Type**	**L Type**	**N Type**	**X Type**
CNR *)	1310 nm: 1550 nm:	- -	- ≥ 53 dB	≥ 54dB -	≥ 55 dB ≥ 54 dB
CSO *)	1310 nm: 1550 nm: +)	- -	- ≥ 46 dBc	≥ 60 dBc -	≥ 65 dBc ≥ 50 dBc ++)
CTB *)	1310 nm: 1550 nm: +)	- -	- ≥ 58 dBc	≥ 63 dBc -	≥ 66 dBc ≥ 62 dBc
IM2 #)		≥ 46 dBc	-	-	-
IM3 #)		≥ 54 dBc	-	-	-

Safety, EMC, Environmental Conditions		
Safety	EN 50 083-1 and EN 60 950 Laser Class 1M acc. IEC 60 825-1 (eyesafe for normal viewing)	
EMC	EN 50 083-2	
Equipment operation environmental conditions	Operation:	ETS 300 019, class 3.1
	Storage temperature:	ETS 300 019, class 1.2

*) Cenelec 42 channel allocation (15) with OMI = 4%, 20km non-dispersion shifted fiber and optical receiver with $P_{opt,in}$=0 dBm and I_{eq}=7.0 pA/√Hz used, 4 MHz bandwidth

**) German channel allocation 33x PAL B/G, 36x FM (-4dB), 2x 64QAM (-10dB), 16x 256QAM (-4dB); OMI = 3.6%

+) When only frequencies up to 600 MHz are measured, value is 6dB better!

#) two-tone with OMI = 20% per carrier, no fiber, opt. receiver with $P_{opt,in}$=0 dBm and I_{eq}=7.0 pA/√Hz used

Available Types

S -Type

OT1310S03

OT1550S03

OTCW11S03 … CW18S03

L -Type

OTDW22L08 … DW47L08,
OTDW22L11 … DW47L11

N -Type

OT1310N03,
OT1310N04,
OT1310N05,
…
OT1310N15

X -Type

OT1310X05, OT1310X08,
OT1310X11,
OT1310X13,
OT1310X15

OT1550X06