

BOTyyyyZnn-19''

ULTRABROADBAND OPTICAL TRANSMITTER



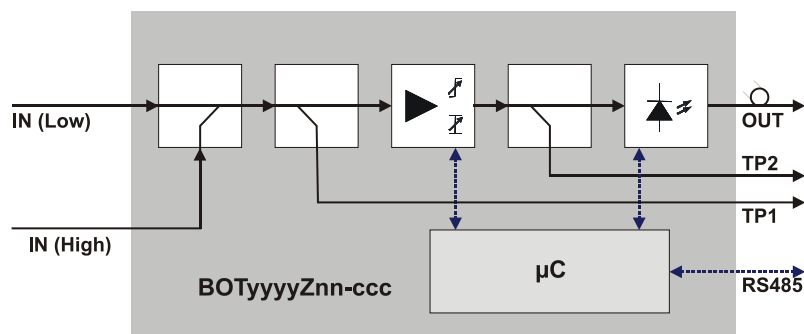
Application

- ▶ Electrical to optical conversion of multi-channel CATV signals like AM-VSB, FM and QAM signals
- ▶ Downstream or upstream transmission in HFC networks
- ▶ BOT1550-19'', BOTDWnn-19'': SBS suppression and pre-chirping technology
- ▶ Ultra broad bandwidth of 5 ... 1000 MHz (5 ... 450 MHz for transmitters with un-cooled lasers)

Features

- ▶ Low noise DFB laser with pre-distortion technology, 1310nm, 1550nm, CWDM and DWDM variants with different optical output power
- ▶ BOTDWnn-19'': ITU-Grid wavelength with adjustable wavelength: +/- 100 GHz
- ▶ Output powers between +3 and +15 dBm (+3 and +6 dBm 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/otrms
- ▶ RS485 control interface
- ▶ SC/APC or E2000 connector as standard
- ▶ Very thin, only 1 RU design for mounting into 19'' ETSI or JIS racks

Block Diagram



Available Types

S Type

BOT1310S03-19''
 BOT1550S03-19''
 BOTCW11S03-19'' ... CW18S03-19''

L Type

BOTDW22L08 ... DW47L08-19'', BOT1310X08-19'', BOT1310X11-19'',
 BOTDW22L11 ... DW47L11-19'', BOT1310X13-19''

X Type

BOT1550X06-19''



Technical Data

BOTyyyyZnn-19" Mnemonic

Wavelength yyyy	1310 and 1550 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 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	X Type
Impedance	75 Ω		
Frequency range	5 ... 450 MHz	5 ... 1000 MHz	5 ... 1000 MHz
Input level (OMI = 5%)	79 dBμV minimum (93 dBμV minimum for coupled input)		
Gain adjustment	0 ... 24 dB		
Slope adjustment	-2 (cable equivalent) ... +16 dB (cable equalization)		
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 optical 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	±1.0 dB	±0.5 dB	±0.5 dB
Optical return loss	> 35 dB	> 45 dB	> 45 dB
Optical wavelength fine tuning	-	-100 ... +100 GHz	-
Power consumption	≤ 11.5 W	≤ 17 W	≤ 17 W
Dimensions	483x240x45 mm (19" /1HE)		
Weight	2 kg		
Power Supply	100...240 VAC		
Transmission Performance Data	S Type	L Type	X Type
CNR *)	-	≥ 51 dB	1310nm: ≥51.5dBc 1550nm: ≥ 51 dBc
CSO *) fiber length (chirp) compensation adjustment set to 10 km	-	- 1550nm: ≥ 46dBc	1310nm: ≥ 66dBc 1550nm: ≥50dBc ^{†)}
CTB *)	-	- 1550nm: ≥ 58dBc	1310nm: ≥ 66dBc 1550nm: ≥ 62dBc
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	Class 3.1 acc. ETS 300 019-1-3 (temperature contr. loc.)		

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

†) 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 $P_{opt,m} = 0$ dBm and $I_{eq} = 7.0$ pA/√Hz used