

BK Optical System

optical transmitters **BOTNDWmmY09**

Features

- DFB laser with optical isolator
- thermoelectric cooler
- enhanced performance, bandwidth 5 ..1000 MHz
- high reliability design
- incl. pre-amplifier with automatic load control
- SBS suppression and pre-chirping technology
- DWDM ITU-Grid wavelength with adjustable wavelength: +/- 100 GHz
- separate input for insertion of additional RF-channels (NC) with high isolation
- RS 485 interface for electronically adjustment of slope, gain, output power, OMI and fiber length
- BK modular technique, 3 multi-color LED display

Introduction

The optical transmitter BOTNDWmmY09 is a directly modulated 1550 nm DFB laser transmitter for DWDM applications in CATV networks. This extreme linear analogue transmitter is equipped with a cooled DFB laser with an output level of 9 dBm.

The transmitter is developed to fulfill the requirements of modern Hybrid Fiber Coax networks distributing not only broadband CATV, but also cable phone and cable data signals using narrowcast DWDM applications. The BOTNDW is calibrated for standard frequency plans such as Cenelec-42. Other frequency plans possible on request.



The transmitter is equipped with state of the art electronic circuitry supporting fully electronically (no mechanical) adjustments.

The transmitter has 3 RF inputs, allowing easily combining of RF-signals:

- BC_{in} : standard level input for broadcast
- $BC_{in,high}$: high level input for broadcast (+14 dB)
- NC_{in} : standard level input for narrowcast

One input test-point (TP1) allowing measuring and supervising of the BC_{in} RF input signals. Additionally a laser driver test-point (TP2) is available, enabling measuring:

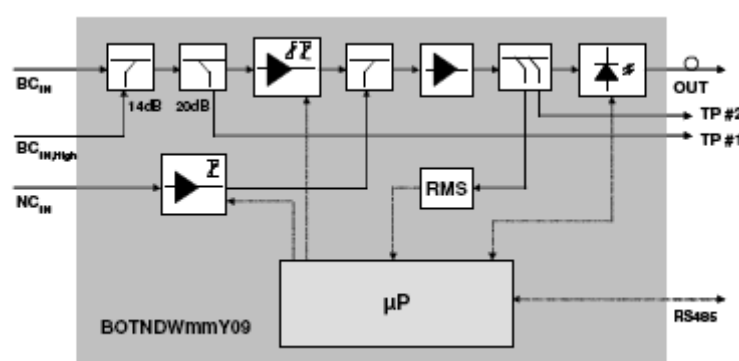
- the DC output power of the transmitter;
- the combined RF signal (BC_{in} and NC_{in}) driving the laser.

Future proof operation is accomplished due to the possibility of downloading updates of the transmitter firmware using the RS-485 element management system interface.

There are several options available for optical connectors such as SC/APC, FC/APC and E2000.

The optical transmitter comes in a modular BK-type housing to be mounted either on BK-sub-rack type BBT00x or BKH 099.

Block diagram:



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Technical specifications:

Model Number		BOTDWmmY09
Typical performance data		
Optical Output Power	[dBm]	9
Optical power tolerance	[dB]	±0.5
Optical power adjustment range	[dB]	0..-3
Optical Wavelength DWDM	[nm]	1550 ITU grid
Optical Wavelength Fine-tuning	[GHz]	-100..+100
Optical Connector		any HRL type
Optical Return Loss	[dB]	>45
Laser output level test-point	[V/mW]	0.1 ±0.02
RIN	[dBc/Hz]	-157
RF bandwidth	[MHz]	7..1000
Flatness		
47..606 MHz	[dB]	±0.5
606..862 MHz		±0.75
862-1000 MHz		±1.5
RF Input level/channel (OMI=5%)	[dBμV]	80
RF Input level/channel (OMI=5%) min.	[dBμV]	73
RF high level input (OMI=5%)	[dBμV]	94
RF gain adjustment range BC	[dB]	-17..+7
RF gain adjustment range NC	[dB]	-14..+1
RF slope adjustment range	[dB]	-3..+16
CSO (CENELEC 42)	[dBc]	≥58 ^{1) 2)}
CTB (CENELEC 42)	[dBc]	≥62
CXM (CENELEC 42)	[dBc]	≥57
Measurement test-point	[dB]	-20, ±1
RF Input impedance	[ohm]	75
RF Return loss (-1.5 dB/oct.)	[dB]	20 at 47 MHz
Supply Voltage	[VDC]	24
Power consumption /stand-by	[W]	<12 / <4
Operating Climatic Specification		ETS 300 019-1-3 class 3.1
Safety		EN 50 083-01 EN 60 950 laser class 1M
EMC		EN 50 083-2
Operational lifetime	[Year]	19,5
MTBF	[FIT]	5900
Size	[BK]	1

- 1) CSO/CTB measured on link 20km with fiber length compensation adjusted to 20km
- 2) Special version available with compensation based on Ziggo grid.