

HDO302 CATV FIBRE TRANSMITTER

HDO302 is a DFB laser transmitter for return path (upstream) fibre optic links in CATV networks. HDO302 transmitter is available at different wavelengths to support WDM applications. The available wavelengths are 1310 nm and ten wavelengths in CWDM grid. The transmitter can be installed into HDX installation frame.

Features

- Small form factor family, 2 RU height
- Standardised input and test point levels
- Adjustable input attenuator and equaliser
- Integrated driver amplifiers
- Pilot generator as OMI reference
- Temperature compensated OMI
- Two output power categories
- Test signal and modem signal input connectors at front and rear
- Fibre connectors can be located at the rear or at the front panel
- Local and remote software control of all adjustments
- Forced cooling through the unit



Management features

- LED indicators for signal and module statuses
- Optical output power
- Laser bias current
- Manual level and slope adjustment
- Internal temperature measurement and monitoring
- Intelligent fan speed control with monitoring
- Non-volatile logging of 32 latest events, including alarms, alarming values, settings changes and application starts.
- Uptime and total uptime counters
- All alarm limits fully user configurable
- Local PC connection through backplane HDO bus with DVX021 cable
- Remote IP connection through HDC100 controller module
- SNMP monitoring and configuration through HDC100 controller module

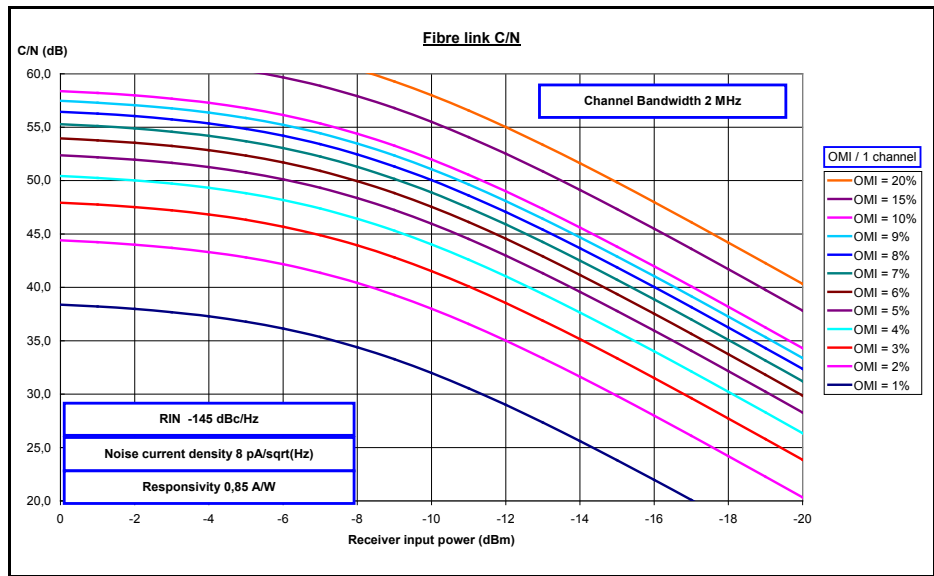
Technical specifications

Parameter	Specification	Note
Optical parameters		
Light source	Uncooled DFB with optical isolator	
Peak wavelength	1310 nm	1)
	1430 nm	1)
	1450 nm	1)
	1470 nm	1)
	1490 nm	1)
	1510 nm	1)
	1530 nm	1)
	1550 nm	1)
	1570 nm	1)
	1590 nm	1)
	1610 nm	1)
Wavelength temperature coefficient	0.1 nm/°C	2)
Output power, nominal value	+3 dBm or +5 dBm	3)
Relative intensity noise	-145 dBc/Hz	4)
Number of optical outputs	1	
RF parameters		
Frequency range	5...300 MHz	
RF impedance	75 Ω	
Input return loss	18 dB	5)
Flatness	±0.5 dB	6)
Laser test point level for 10 % OMI	80 dB _μ V	7)
Input level	80 dB _μ V	8)
External inputs	20 dB	9)
Level adjustment range	15 dB	
Equaliser adjustment range	0...6 dB	
Pilot frequency	4.5...6.5 MHz	10)
Pilot level	4 % OMI	
Noise and distortion performance		
3rd order distortion	-60 dB	11)
2nd order distortion	-55 dB	12)
C/N	see graph	4)
General		
Power consumption	5 W	13)
Supply voltages	25 V / 130 mA	13)
	6.3 V / 300 mA	13)
RF connectors	F female	14)
Optical connector	SC/APC or E-2000	15)
Fan	Replaceable	16)
Dimensions	2U x 7HP x 380 mm	
Weight	1.5 kg	
EMC compatibility	EN 50083-2	17)
Operating temperature range	0...+45 °C	
Storage temperature range	-20...+60 °C	
Operating relative humidity	0...85 %	

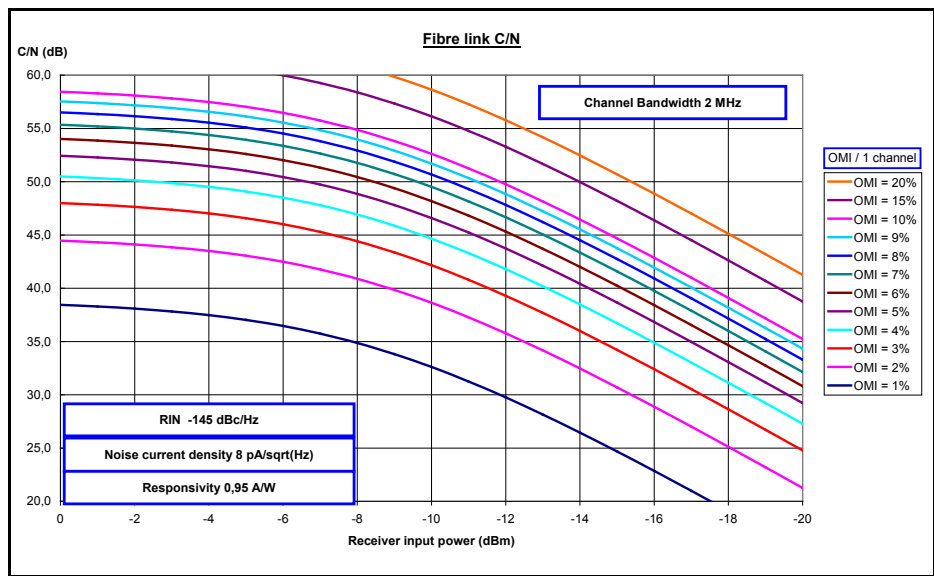
Notes

- 1) Nominal peak wavelength at 25°C. The peak wavelength variation range of 1310 nm transmitters is ±20 nm on the whole temperature range. The nominal wavelength variation of CWDM transmitters is ±3 nm at 25°C.
- 2) Typical value.
- 3) See "Configuration map" in the end of the document.
- 4) Maximum value. See C/N curves below.

1310 nm wavelengths:



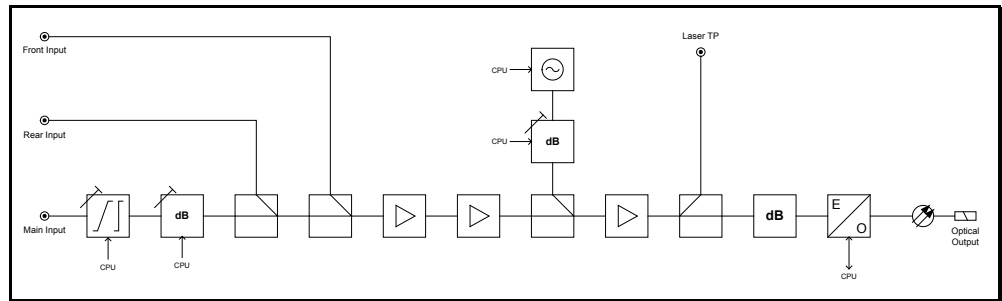
1550 nm wavelengths:



- 5) Minimum value up to 200 MHz. Between 200 and 300 MHz minimum value is 10 dB.
- 6) Typical value. Maximum value is ±0.75 dB.
- 7) Typical accuracy is ±0.4 dB. Maximum value is ±0.75 dB.
- 8) Input level required to reach 10 % OMI with adjustments in 0 dB positions.

- 9) Attenuation compared to main input.
- 10) The frequency can be adjust with 200 kHz steps.
- 11) Typical distortion distance for two carriers between 5 and 65 MHz at 10 % OMI.
- 12) Typical distortion distance for two carriers between 5 and 65 MHz at 10 % OMI.
- 13) Typical power consumption at 25°C.
- 14) Fixed connections are located at the rear panel. Test points are located at the front panel.
- 15) Fibre connectors can be located at the rear or at the front panel.
- 16) The fan is replaceable without a need to disconnect the signal. The fan is installed into the module front panel.
- 17) Radiation limit 20 dBpW.

Block diagram



Ordering information

	1-		2-	
HDO302	1		1	2

1-1 Wavelength and output power	
3103	1310nm +3dBm
4303	1430nm +3dBm CWDM
4503	1450nm +3dBm CWDM
4703	1470nm +3dBm CWDM
4903	1490nm +3dBm CWDM
5103	1510nm +3dBm CWDM
5303	1530nm +3dBm CWDM
5503	1550nm +3dBm CWDM
5703	1570nm +3dBm CWDM
5903	1590nm +3dBm CWDM
6103	1610nm +3dBm CWDM
4305	1430nm +5dBm CWDM
4505	1450nm +5dBm CWDM
4705	1470nm +5dBm CWDM
4905	1490nm +5dBm CWDM
5105	1510nm +5dBm CWDM
5305	1530nm +5dBm CWDM
5505	1550nm +5dBm CWDM
5705	1570nm +5dBm CWDM
5905	1590nm +5dBm CWDM
6105	1610nm +5dBm CWDM

2-1 Fibre location	
F	Front panel
R	Rear panel
2-2 Fibre connector type	
A	SC/APC, 9 deg
B	FC/APC
C	E-2000
D	SC/APC, 8 deg
H	SC/APC with shutter.