

1550nm Direct Modulated AGC Optical Transmitter



Description

The External modulation technology, with the laser working in direct current, has the advantages of no laser chirp, low dispersion distortion, large extinction ratio, and high speed. It also has the disadvantages of high cost and high difficulty in manufacturing.

Direct modulation will lead to high laser chirp (Laser's bias current is modulated by signal and the optical spectrum shifts and shakes). Laser chirp will interact with dispersion effect caused by standard single mode fiber (SMF-28), which will generate serious distortion in the place of 1550nm. This kind of distortion will become more serious with the increase of transmission distance, bandwidth and channel number.

At present, international high performance 1550nm direct modulation has no obvious performance inferior while transmitting an analog and digital multiplexing full channel signal with transmission distance $\leq 15\text{Km}$ or transmitting digital load with transmission distance $\leq 40\text{Km}$.

Idealphotonics IT1500A is a 1550nm direct modulation optical transmitter with high index and AGC function. It adopts high linearity and low chirp DFB laser, built-in pre-distortion compensation and AGC, APC, ATC closed loop control, which improves the system index obviously. IT1500A direct modulated optical transmitter can be used in FTTx ($\leq 10\text{Km}$) of second-grade service area (Sub-HE), also can be used in WDM narrow-band multiplexing and IP/QAM.

IT1500AC optical transmitter: CATV wavelength.

IT1500AU optical transmitter: ITU standard wavelength.

Feature

Low chirp, high linearity DFB laser, chirp compensation.

Dual module RF driver, high efficient laser pre-distortion adjustment.

Full-automatic OMI control, AGC & MGC.

Intuitionistic modulation status display.

Built-in dual back-up power supply, switch automatically.

Casing temperature auto-control, ensure the long life of the laser.

Application

Provide IPTV, VOD value-added service in second-grade service area (Sub-HE). Analog digital mixed transmit <15Km (common distance ≤ 10km).

Pure digital load <40Km.

WDM narrow band multiplex >70Km.

Specification

Performance			Index	Supplement
Optic feature	Wavelength	(nm)	1548~1563	IT1500AC: CATV wavelength
			1530~1563	IT1500AU: ITU standard wavelength
	Linewidth	(MHz)	≤1	FWHM($\Delta\lambda$)
	Side mode suppression ratio	(dB)	≥45	SMSR
	Extinction ratio	(dB)	≥20	XP
	Equivalent noise intensity	(dB/Hz)	≤-160	RIN (20~1000MHz)
	Output power	(dBm)	6	3, 10 Options
	Return loss	(dB)	≥55	
	optical fiber connector		FC/APC	Optional SC/APC
RF feature	Work bandwidth	(MHz)	45-862	
	Input level	(dBmV)	20±2	MGC
	Flatness	(dB)	≤±0.75	45~862MHz
	Return loss	(dB)	>16	
	Input impedance	(Ω)	75	RF/INPUT
	RF test	(dB)	0±1	

Link feature	Transmit channel		PAL-D/60CH	NTSC/80CH
	CNR	(dB)	≥ 50	-1dBm receive
	CTB	(dB)	≤ -63	
	CSO	(dB)	≤ -57	
	SBS restrain	(dBm)	≥ 17	
General feature	Network management interface		RJ45, RS232	Support I.E. & SNMP
	Power supply	(V)	90~265city power	-48VDC optional
	Power Consume	(W)	≤ 50	Single power works
	Work temp.	($^{\circ}\text{C}$)	-5~65	Machine temp. control automatically
	Storage temp.	($^{\circ}\text{C}$)	-40~85	
	Operating relative humidity	(%)	5~95	
	Size (W)x(D)x(H)		19×10×1.75 (") 483×254×44 (mm)	

Test condition: 1. 47~550MHz, PAL-D/59CH.

2. -1dBm input receiver

Product series

Model	Distance(Km)	Output power(dBm)	CNR(dB)	CTB(dB)	CSO(dB)	SBS(dBm)
IT1503A-05	5	3	50	-63	-57	17
IT1506A-05		6	50	-63	-57	17
IT1510A-05		10	50	-63	-57	17
IT1503A-10	10	3	50	-63	-57	17
IT1506A-10		6	50	-63	-57	17
IT1510A-10		10	50	-63	-57	17

IT1503A-15	15	3	50	-63	-57	17
IT1506A-15		6	50	-63	-57	17
IT1510A-15		10	50	-63	-57	17

Ordering information

Product type		Output power		Quality		Wavelength		Transmission distance		Network management		Number of output port		Connector		Power supply	
HT15	1550nm Direct modulation CATV optical transmitter	03	3dBm(2mW)	A	Top-class	C	CATV	05	5Km	0	Without	1	1 port	FA	FC/APC	22	220VAC
		06	6dBm(4mW)	B	Standard type	U	ITU	10	10Km	N	With	2	2 ports	SA	SC/APC	11	110VAC
		10	10dBm(10mW)					15	15Km			4	4 ports	LA	LC/APC	48	-48VDC
												8	8 ports				