Ver. 2.3en

VOD1504 Series

VOD Overlay 1550nm Direct Modulated Optical Transmitter

(ITU Standard wavelength adjustable)

Technical Specification

CONTENT

1.0 PRODUCT DESCRIPTION

VOD1504 is a high performance 1550nm direct modulated inter-cut (narrow-bandwidth multiplex) optical transmitter which design and manufacture specially for realizing two-way television interact operation (VOD) for CATV network, mainly used in second service area to inter-cut IP/QAM or local program. In the content distribute network system (CON), VOD1504 is the VOD flow rate loading equipment, also often called the edge IP/QAM optical transmitter.

According to the multi-year application experience in inter-cut system designed all the functions for VOD1504 that Overlay need, which make it convenient for customers to apply and debug.

Build-in WDM, realizing the multiplex of main signal and inter-cut optical. The panel with main signal optical input port and join-wave output port can extra simplify the connection.

Build-in electronic-control VOA, customer can set the optical power ratio of inter-cut and main signal according to system demand. After setting, the whole unit system software can in line with the change of main signal optical power, via VOA, adjust the inter-cut output optical power automatically that can make the difference controlled in the range of customer set, extra simplify the system debugging.

Excellent optical modulation degree controlled automatically, can in line with inter-cut channels automatically, keep the modulation degree consistent. For convenient adjustment, inside equipment adds one set manual operation modulate level control circuit (MGC).

VOD1504 adopts high linearity DFB laser. ITU standard wavelength ±1.6nm adjustable. Excellent predistortion compensation, perfect APC,ATC, AWC control, 1+1 power backup, support hot plug. The advanced SNMP network management function, support remote management and control.

2.0 PRODUCT FEATURES

- ITU standard wavelength, ±1.6nm adjustable
- Build-in WDM, the panel with main signal optical input port and join-wave output port, offer simple connection
- The difference of main signal input optical power and inter-cut optical power can be set by panel and SNMP
- Identify and track the main signal optical power automatically, adjust the inter-cut output optical power automatically via VOD, to keep the difference in the range set by customer
- High performance optical modulation degree auto-control, can keep the modulation degree consistent, in line with inter-cut channels
- Independent manual operation modulate level control circuit (MGC), make the system convenient to debug
- High linearity 1550nm DFB laser
- High performance predistortion correction, excellent APC,ATC, AWC control
- Low (No) optical input, inter-cut optical shut automatically
- High performance SNMP network management function, support remote management and control
- 1+1 power backup, support hot plug
- Industrial excellent cost performance

3.0 MAIN APPLICATION

- VOD flow rate loading inter-cut optical transmitter
- Edge IP/QAM optical transmitter
- Full optical 1550nm, video data inter-cut operation

4.0 NETWORK APPLICATION (VIEW USER MANUAL)

a) VOD1540 application of VOD Triple-play in CMTS network

b) VOD1540 application of VOD Triple-play in FTTx PON network

c) The VOD in RFoG (CMTS) FTTB’ s Application Drawing (Single fiber two-wave, single fiber four-wave)

d) ITU Grid Channel Table

5.0 TECHNICAL INDEX

Performance			Index			Supplement
			Min.	Typ.	Max.	
Optic feature (Main signal)	Main signal operating wavelength	(nm)	1548.40		1563.86	CR(Red-Band)
			1528.77		1563.86	XX (ITU wavelength code)
	Pass loss	(dB)	1.0	1.0	1.5	DW、CW、BW
			1.5	2.0	2.5	MW
	Input optical power range	(dBm)	0		+7	
	Optical power ratio setting range	(dB)	0		+8	The main, vice optical power ratio
	Input minimum setting range	(dB	-5		+5	Laser OFF when main signal low than this value
Optic feature (Inter-cut optical)	Inter-cut optical operating wavelength	(nm)	1528.77		1563.86	XX(ITU wavelength code)
			1528.77		1543.3	CB (Blue-Band)
	Wavelength adjustable range		-1.6		+1.6	±220GHz
	Wavelength adjustable mode		±0.05nm stepping			
	Wavelength stability	(Pm/℃)	-1		0	Tc=20~70℃
	Line width	(MHz)			5	
	Side suppression ratio	(dB)	45			
	Equivalent noise intensity				-160	
	Output optical power	(dBm)	6		10	
	VOA insertion loss	(dB)			1.0	
	VOA adjustable range		-20		0	
	VOA adjustable accuracy		-0.1		+0.1	
	VOA polarization relative loss	(dB)			0.3	
RF feature	Operating bandwidth	(MHx)	47		1000	
	Input level	(dBmV)	75		85	
	Flatness	(dB)	-0.75		+0.75	
	AGC stability	(dB)	-0.4		+0.4	
	MGC adjustable range	(dB)	-7.0		+7.0	
	MGC adjustable step	(dB)		0.1		

	Reflection loss	(dB)	16			
	Input impedance	(Ω)		75		
	RF connector		F type English system			
Analog link	Test Channel	(CH)		8		PAL-D
	Modulation degree	(%)		12		
	CNR	(dB)	54			10Km optic fiber receiving, 0dBm receiving
	CTB	(dB)	58			
	CSO	(dB)	58			
Digital link	Test Channel	(CH)		32		QAM
	Modulation degree	(%)		12		
	MER	(dB)	36			
General feature	SNMP connector		RJ45			
	General feature		RS232			
	Power supply	(VAC)	90		265	50/60Hz
		(VDC		-48		70~72VDC
	Power consume	(W)			50	Single power supply working
	Operating temperature	(℃)	-5		65	Chassis temperature auto-control
	Operating temperature	(℃)	-40		85	
	Relative humidity	(%)	5		95	
	Size	(mm)	483×386×44			

6.0 ORDER INFORMATION

VOD 1504 – □ – □□ – □□ – □□ – □□

VOD flow rate loading inter-cut optical transmitter, IP/QAM inter-cut optical transmitter	Type		Optical power range of main link		Multiplexer type		Work wavelength		Connector		Power supply	
	1504	1550nm Direct Modulated Optical Transmitter	A	-2~+3dBm	CW	CWDM	CB	1528~1543	SA	SC/APC	22	220VAC
			B	-5~+5dBm	MW	MWDM	CR	1548~1563	FA	FC/APC	48	-48VAC
	1505	1550nm External Modulated Optical Transmitter	C	0~+7dBm	DW	DWDM	XX	ITU wavelength code	LA	LC/APC	42	-48VDC &220VAC
					BW	BWDM						
	1585	All C-Band tunable External Modulated Optical Transmitter										