

HES-26D

47~2600MHz

Satellite TV & Digital TV

1550nm Externally Modulated Optical
Transmitter

Technical Specification

CONTENTS

1.0 PRODUCT DESCRIPTION.....	1
2.0 PRODUCT FEATURE.....	2
3.0 MAIN APPLIANCE.....	2
4.0 TECHNICAL INDEX.....	3
5.0 HES-26D OPTICAL TRANSMITTER ELECTRICAL SCHEMATIC DIAGRAM	4
6.0 APPLICATION OF HES-26D IN FTTX PON.....	5
7.0 PRODUCT SERIES.....	6
8.0 ORDERING INFORMATION.....	6

1.0 PRODUCT DESCRIPTION

With the development of satellite TV technology, direct broadcast satellite TV (DBS) develop rapidly with its particular advantage, Digital Video Broadcasting-satellite (DVB-S), Digital Video Broadcasting-terrestrial (DVB-T) and Digital Video Broadcasting-cable competition and fusion be sparked.

Huatai HES-26D series 1550nm external modulation optical transmitter can transmit 47~2600MHz analogue signal and digital signal via one single fiber by frequency division multiplexing. It is compatible with any FTTx PON technology, and provides a complete set of high quality low cost fiber trunk transmission and fiber to the building (FTTB), fiber to the house (FTTH) solution for the direct broadcast satellite TV (DBS) and cable analogue TV (CATV) fusion.

HES-26D has ITU standard wavelength, $\pm 1.6\text{nm}$ adjustable optional. Adopts multi-wavelength application of DWDM system, achieve network upgrade and expansion.

HES-26D adopts narrow line width, low noise, continuous wave DFB laser as light source. It adopts LiNbO₃ externally modulated as signal modulated, eliminate chirp of 1550nm laser direct modulated and Huatai independent intellectual property rights of optimize control technical, the key equipments are all world up-level brand. Whole unit equipped perfect RS232 communicate interface and SNMP network management, 1+1 power supply back-up, chassis temperature auto control. The whole unit has high quality and reliability and excellent P/P ratio.

HES-26D-2 □ □ -1550: dual fiber output, 1547~1563nm CATV operating wavelength.

HES-26D-2 □ □ -15 □ □ : dual fiber output, 1528~1563nm ITU standard wavelength, $\pm 1.6\text{nm}$ adjustable.

HES-26D-1 □ □ -1550: single fiber output, 1547~1563nm CATV operating wavelength operating wavelength.

HES-26D-1 □ □ -15 □ □ : single fiber output, 1528~1563nm ITU standard wavelength, $\pm 1.6\text{nm}$ adjustable.

2.0 PRODUCT FEATURE

- High linearity: External modulation technology has no laser chirp, no chromatic dispersion distortion, large extinction ratio
- Narrow line width (<1MHz), low noise, DFB continuous wave laser, be propitious to reduce dispersion
- Be compatible with FTTx PON technique
- Bandwidth: 47~2600MHz, suitable for digital TV and satellite TV
- ITU standard wavelength, user can step $\pm 0.05\text{nm}$ on front panel. In $\pm 200\text{GHz}$ ($\pm 1.6\text{nm}$) range, to adjust and set laser wavelength, suitable for upgrade and dilatation of WDM system and network
- Perfect RS232 communicate interface and SNMP network management
- 1+1 power back-up
- Excellent P/P ratio

3.0 MAIN APPLICATION

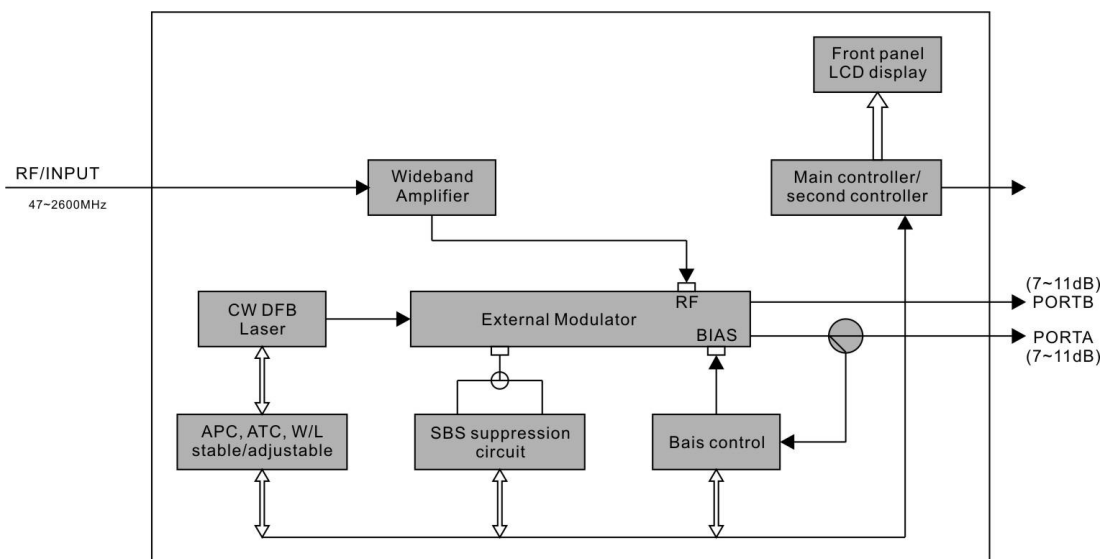
- Apply to the extra-long trunk of the central office to transmit analogue (<10CH) and digital signal and IF/SAT.
Pure digital transmission (without dispersion compensation) >400Km. (with dispersion compensation) >700Km.
- Apply to sub-office(sub-head), providing value-added service like high quality analogue and digital TV, satellite direct TV, also the IPTV、VOD to the users in secondary service area, avoid CSO deterioration and distance limitation caused by the laser chirp when adopting 1550nm direct modulation optical transmitter.

4.0 Technical index

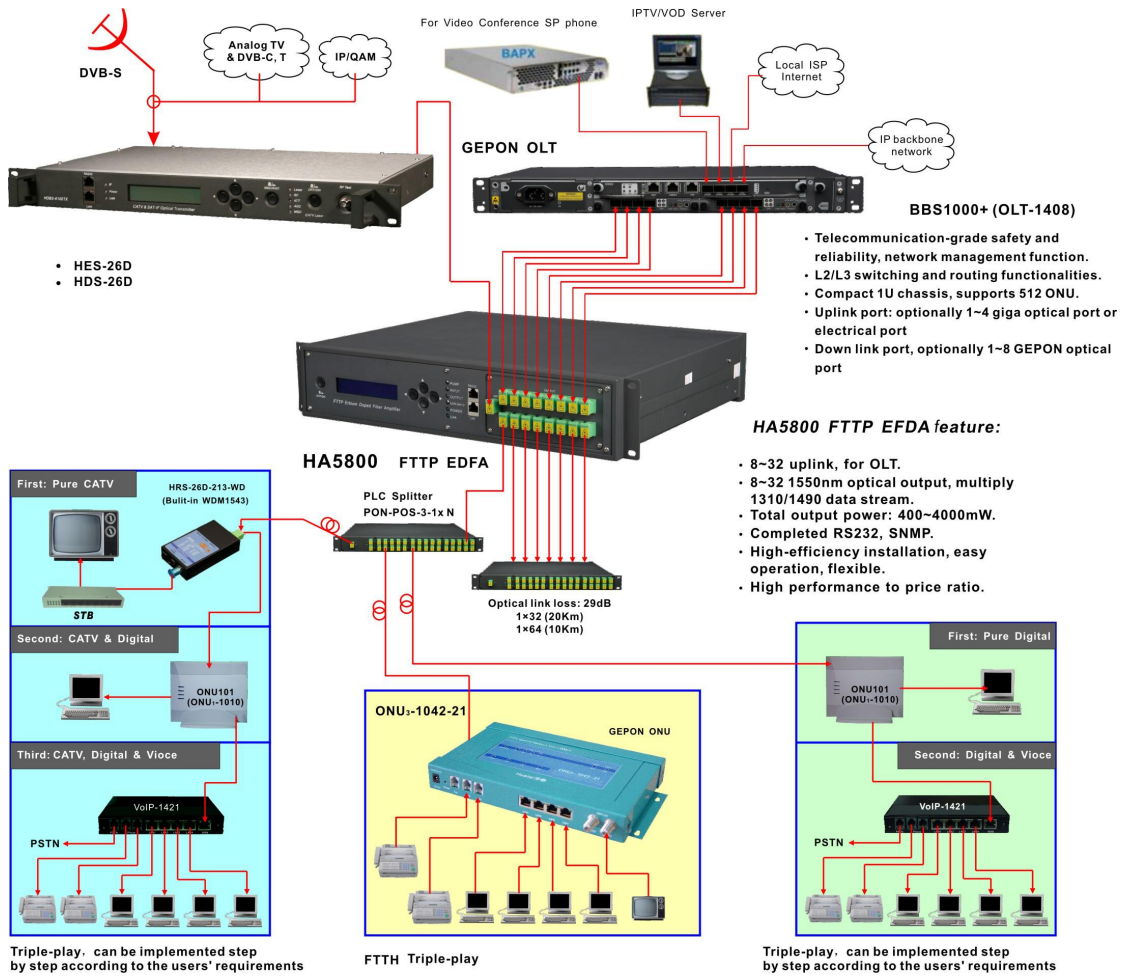
Performance			Index			Supplement
			Min.	Typ.	Max	
Optical feature	Operating wavelength	(nm)	1547		1563	1550
			1528.77		1563.83	15□□ ITU-TG.692
	Wavelength adjustable range	(nm)	-1.6		+1.6	15□□ (200GHz)
	Wavelength adjustable mode	(nm)	Step ±0.05nm			15□□
	Wavelength stability	(Pm/°C)	-1		0	TC=20~70°C
	Equivalent noise temperature	(dB/Hz)			-160	RIN (20~1000MHz)
					-145	RIN (20~2700MHz)
	Laser linewidth	(MHz)			1.0	(Δλ)
	sidemode suppression ratio	(dB)	45			
	Optical isolation	(dB)	30			
	Extinction ratio	(dB)	20			
	Optical output port No.			1		HES-26D-100
				2		HES-26D-200
	Optical output power	(dBm)	1×3, 1×5, 1×6, 1×7			103, 1056, 106, 107
			2×5, 2×7, 2×8.5, 2×10			205, 207, 209, 210
	SBS suppression	(dBm)		13		
Optical Return loss	(dB)	50				
Fiber optical connector		FC/APC			LC/APC, SC/APC optional	
RF feature	Working bandwidth	(MHz)	47		2600	
	Input level	(dBm)	-40		-14	AGC
	Flatness	(dB)	-1.0		+1.0	47~860MHz
			-0.5		+0.5	40MHz
			-1.5		+1.5	950~2400MHz
	Return loss	(dB)	14			47~860MHz
			12			950~2400MHz
	Channel load				10	Analogue TV
			64QAM		Digital TV	
			36		QPSK or FM	

	IM3	(dB)	-65				
	HUM	(dB)	-60				
	IP1	(dBm)	20				
	Input impedance	(Ω)		75		50 Ω optional	
	RF connector	F-female type			75 Ω		
SMA-F			50 Ω				
General feature	SNMP network management interface		RJ45				
	Communication port		RS232				
	Power supply	VAC	(V)	90	220	264	
		VDC		-30	-48	-72	
	Power consumption	(W)			30	Single power supply	
	Operating temp.	($^{\circ}$ C)	-5		+65	Auto control by housing	
	Storage temp.	($^{\circ}$ C)	-40		+85		
	Relative humidity	(%)	5		95		
Size	(")	19 \times 14.5 \times 1.75			(W) \times (D) \times (H)		

5.0 HES-26D optical transmitter electrical schematic diagram



6.0 Application of HES-26D in FTTx PON



7.0 Product series

Model	Output power (dBm)	Operating wavelength (nm)	SBS threshold value (dBm)
HES-26D-103-1550	Single fiber 1×3	1540~1563	13
HES-26D-105-1550	Single fiber 1×5		
HES-26D-106-1550	Single fiber 1×6		
HES-26D-107-1550	Single fiber 1×7		
HES-26D-103-15 □□	Single fiber 1×3	1528.77~1563.83nm ITU wavelength ±1.6nm adjustable	13
HES-26D-105-15 □□	Single fiber 1×5		
HES-26D-106-15 □□	Single fiber 1×6		
HES-26D-107-15 □□	Single fiber 1×7		
HES-26D-205-1550	Single fiber 2×5	1540~1563	13
HES-26D-207-1550	Single fiber 2×7		
HES-26D-209-1550	Single fiber 2×8.5		
HES-26D-210-1550	Single fiber 2×10		
HES-26D-205-15 □□	Single fiber 2×5	1528.77~1563.83nm ITU wavelength ±1.6nm adjustable	13
HES-26D-207-15 □□	Single fiber 2×7		
HES-26D-209-15 □□	Single fiber 2×8.5		
HES-26D-210-15 □□	Single fiber 2×10		

8.0 Ordering information

HES - 26D - □ □ □ - □ □ □ □ - □ / □ □ - □ □ □

Product type		Operating bandwidth	Number of output port		Output power		Operating wavelength		Position of optical port		Connector		Number of power supply		Power supply		
HES	Satellite Externally Modulated Optical Transmitter	26A	47~862MHz & 950~2600MHz Analog TV + SAT-IF	1	Single fiber output	03	3dBm	1550	1548~1563nm	F	Front panel	FA	FC/APC	S	Single PS	22	220VAC
				2	Dual fiber output	05	5dBm	15××		1528~1563nm ITU wavelength adjustable	B	Back panel	SA	SC/APC	D	Dual PS	11
HDS	Satellite Direct Modulated Optical Transmitter	26D	47~2600MHz Digital TV + SAT-IF			06	6dBm							LA	LC/APC		
						07	7dBm										
HRS	Satellite Optical Receiver	26S	950~2600MHz SAT-IF			09	8.5dBm										
						10	10dBm										