

HDS-26S series
950~2600MHz
SAT-IF Direct Modulated Optical Transmitter
Technical specification

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1.0 PRODUCT DESCRIPTION

Huatai HDS-26S (original model: HDBS-3000TX) series satellite L-Band optical transmitter, adopts high linearity DFB laser and direct modulated way. It can transmit 950~2600MHz L-Band analog or digital satellite signal (SAT-IF) receiving by satellite aerial radio high frequency head, to realize total transparency, high quality, long distance transmission through optical fiber. It also can sue satellite L-Band up/down link.

Optical operating wavelength of HDS-26S is optional as 1310nm or 1550nm.

1550nm optical transmitter, ITU standard wavelength can be selected, suitable for DWDM to realize network-upgrading and capability-expansion. It can work together with EDFA, YEDFA to amplify the optical power. It can be compatible with any FTTx PON technology.

HDS-26S series, covering essence of satellite L-Band optical fiber link in present market. Various specifications and performances and excellent cost price advantage provide more choose space for carriers. Flexible network organization is solution of the lowest cost price in present market.

HDS-26S has various wavelengths and lasers to select.

HDS-26S-1-□□-A1310: 1310nm with cooling DFB laser.

HDS-26S-1-□□-A1550: 1550nm with cooling DFB laser.

HDS-26S-1-□□-A15□□: Cooling DFB laser, C-Band ITU wavelength adjustable.

HDS-26S-□□□-B1310: 1310nm non-cooling optical isolated DFB laser.

HDS-26S-□□□-B1550: 1550nm non-cooling optical isolated DFB laser.

HDS-26S-□□□-B1□□□: CWDM wavelength non-cooling DFB laser.

HDS-26S has multiple performances to choose, suitable for different scale network application.

HDS-26S-1□□: 1RU 19" Standard frame, the working parameters of the unit is controlled by micro-processor. LCD on the front panel can display the working status and failure diagnosis. Standard RS232 communication interface, SNMP function. It is suitable for application of engineering degree.

HDS-26S-2□□: Desktop, the minimum size in the field.

HDS-26S-3□□: Wall-mounted (aluminum alloys die-casting).

HDS-26S-9 □□: Rain-proof, convenient for outdoor install.

2.0 PRODUCT FEATURE

- Various specification and performances, covering essence of satellite L-band optical fiber link in present market
- 950~2600MHz operating bandwidth, transmitting all satellite L-Band analogue and digital signals
- Optical wavelength: 1310nm, 1550nm, CWDM optional, supply the biggest output power in the field
- Laser type: A type (cooling), B type (non-cooling) high linearity, optical isolated DFB laser optional
- TG optical transmitter (standard type), build-in AGC linearity amplifier
- TO optical transmitter (type optional), build-in no IF amplifier, VOH input allowed, suitable for VOH output L-Band externally optical transmitter
- Perfect laser APC, ATC control electric, prove long lifetime and high reliable work
- Optical transmitter can supply 13VDC or 18 VDC to LNB
- It realizes automatic switchover between main and spare link by choosing RF Switch (HRS-201) or Optical Switch (HOSW5000)
- Capacity of resisting electromagnetic, radio frequency, thunderstorm
- Excellent P/P ratio

3.0 MAIN APPLICATION

- Satellite L-Band building fiber distribution system
- Ocean steamer satellite fiber distribution system
- Satellite L-Band up/down fiber link

4.0 Related products

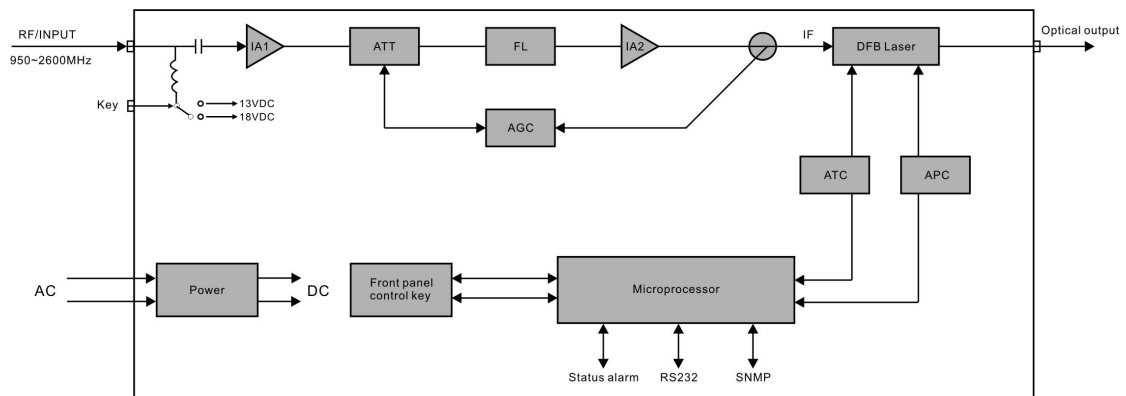
- Applicable receiver: HRS-26S

5.0 TECHNICAL INDEX

Performance			Index			Supplement	
			Min.	Typ.	Max.		
Optical feature	Laser type	A type	Cooling DFB			A1310, A1550, A15□□	
		B type	Non-cooling DFB with optical isolation			B1310, B1550	
	Operating wavelength		(nm)	1300	1310	1320	A1310, B1310
				1530	1550	1563	A1550, B1550
					ITU-G		A15□□
				1270	CWDM	1610	B1□□□
	Wavelength adjustable range		(nm)	-1.6		+1.6	A15□□
	Wavelength adjustable mode			In steps $\pm 0.01\text{nm}$			A15□□
	Wavelength stability		(Pm/°C)	-1		0	TC=20~70°C
	Equivalent noise temperature		(dB/Hz)			-155	
	Side mode suppression ratio		(dB)	35			
	Optical isolation		(dB)	30			
	Extinction ratio		(dB)	8.2			
	SBS		(dBm)	16			1310nm
				18			1550nm
	Optical output power		(mW)	1		10	B1310
				10		30	A1310
1					4	B1550, B1□□□	
4					10	A1550, A15□□	
Return loss		(dB)	50				
Optical connector			SC/APC & LC/APC				
RF feature	Operating bandwidth		(MHz)	950		2600	
	Input range		(dBm)	-40		-25	TX, SAT-IF with AGC amplification
					-8	TX, SAT-IF without IF amplification	

	Flatness	(dB)	-2.0	0.5	+2.0	40MHz	
						950~2600MHz	
	Return loss	(dB)	10			950~2400MHz	
	Input impedance	(Ω)	75				
	CNR	(dB)	28				
	CTB	(dB)			-36		
	CSO	(dB)			-36		
	To LNB voltage	(V)		13/18			
To LNB current	(mA)			300			
General feature	SNMP interface		RJ45			HDS-26S-1-□□	
	Communication interface		RS232			HDS-26S-1-□□	
	Power supply	AC	(V)	90	220	265	
		DC		-30	-48	-72	
	Power consumption	(W)			5	Single PS	
	Operating temp	($^{\circ}$ C)	-5		-65		
	Storage temp	($^{\circ}$ C)	-40		+85		
	Relative humidity	(%)	5		95		
	Size		(")	19 × 14.5 × 1.75			HDS-26S-1-□□
				59 × 98 × 23			HDS-26S-2-□□
		(mm)	117 × 72 × 29			HDS-26S-3-□□	
			150 × 135 × 98			HDS-26S-9-□□	

6.0 HDS-26S ELECTRICAL SCHEMATIC DIAGRAM



7.0 LINK PERFORMANCE

Optical input (dB)	Link loss (dB)	CNR (dB)	Link gain (dB)	RF output level (dBm/Ch.)
-13	14	30.18	-2	-38
-12	13	32.18	0	-36
-11	12	34.13	2	-34
-10	11	38.59	6	-32
-8	9	40.11	8	-30
-7	8	42.18	10	-28
-6	7	44.24	12	-26
-5	6	45.67	14	-24
-4	5	46.53	16	-22
-3	4	46.76	18	-20
-2	3	46.92	20	-18
-1	2	47.01	22	-16
0	1	47.03	24	-14

- Remark: 1. General input level of digital satellite receiver: -60dBm ~ -30dBm
 2. TX Output=1dBm
 3. RX adopt HRS26S/P

8.0 PRODUCT SERIES

8.1 HDS-26S-1□□ SERIES (19"frame)

Model	Wavelength	Output power	Performance	Connector
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		(mW)		
HDS-26S-1-10-TG/A1310-SA	1310nm Cooling DFB	10	19"frame	SC/APC
HDS-26S-1-12-TG/A1310-SA		12		SC/APC
HDS-26S-1-14-TG/A1310-SA		14		SC/APC
HDS-26S-1-16-TG/A1310-SA		16		SC/APC
HDS-26S-1-18-TG/A1310-SA		18		SC/APC
HDS-26S-1-20-TG/A1310-SA		20		SC/APC
HDS-26S-1-24-TG/A1310-SA		24		SC/APC
HDS-26S-1-30-TG/A1310-SA		30		SC/APC
HDS-26S-1-01-TG/B1310-SA	1310nm Non-cooling DFB	1	19"frame	SC/APC
HDS-26S-1-02-TG/B1310-SA		2		SC/APC
HDS-26S-1-03-TG/B1310-SA		3		SC/APC
HDS-26S-1-04-TG/B1310-SA		4		SC/APC
HDS-26S-1-06-TG/B1310-SA		6		SC/APC
HDS-26S-1-08-TG/B1310-SA		8		SC/APC
HDS-26S-1-10-TG/B1310-SA		10		SC/APC
HDS-26S-1-04-TG/A1550-SA		1550nm Cooling DFB		4
HDS-26S-1-06-TG/A1550-SA	6		SC/APC	
HDS-26S-1-08-TG/A1550-SA	8		SC/APC	
HDS-26S-1-10-TG/A1550-SA	10		SC/APC	
HDS-26S-1-01-TG/B1550-SA	1550nm Non-cooling DFB	1	19"frame	SC/APC
HDS-26S-1-02-TG/B1550-SA		2		SC/APC
HDS-26S-1-03-TG/B1550-SA		3		SC/APC
HDS-26S-1-04-TG/B1550-SA		4		SC/APC

- Remark: 1. TO type optional, without IF drive amplify
2. ITU standard wavelength adjustable in 1550 nm
3. CWDM working wavelength optional

8.2 HDS-26S-2□□ SERIES (Desktop)

Model	Wavelength	Output power (mW)	Performance	Connector
HDS-26S-2-01-TG/B1310-SA	1310nm	1	Desktop	SC/APC

HDS-26S-2-02-TG/B1310-SA	Non-cooling DFB	2		SC/APC
HDS-26S-2-03-TG/B1310-SA		3		SC/APC
HDS-26S-2-04-TG/B1310-SA		4		SC/APC
HDS-26S-2-06-TG/B1310-SA		6		SC/APC
HDS-26S-2-08-TG/B1310-SA		8		SC/APC
HDS-26S-2-10-TG/B1310-SA		10		SC/APC
HDS-26S-2-01-TG/B1550-SA	1550nm Non-cooling DFB	1	Desktop	SC/APC
HDS-26S-2-02-TG/B1550-SA		2		SC/APC
HDS-26S-2-03-TG/B1550-SA		3		SC/APC
HDS-26S-2-04-TG/B1550-SA		4		SC/APC

Remark: 1. TO type optional, without IF drive amplify
2. CWDM working wavelength optional

8.3 HDS-26S-3□□ SERIES (Wall hanging)

Model	Wavelength (nm)	Output power (mW)	Performance	Connector
HDS-26S-3-01-TG/B1310-SA	1310nm Non-cooling DFB	1	Wall hanging	SC/APC
HDS-26S-3-02-TG/B1310-SA		2		SC/APC
HDS-26S-3-03-TG/B1310-SA		3		SC/APC
HDS-26S-3-04-TG/B1310-SA		4		SC/APC
HDS-26S-3-06-TG/B1310-SA		6		SC/APC
HDS-26S-3-08-TG/B1310-SA		8		SC/APC
HDS-26S-3-10-TG/B1310-SA		10		SC/APC
HDS-26S-3-01-TG/B1550-SA	1550nm Non-cooling DFB	1	Wall hanging	SC/APC
HDS-26S-3-02-TG/B1550-SA		2		SC/APC
HDS-26S-3-03-TG/B1550-SA		3		SC/APC
HDS-26S-3-04-TG/B1550-SA		4		SC/APC

Remark: 1. TO type optional, without IF drive amplify
2. CWDM working wavelength optional

8.4 HDS-26S-9□□ SERIES (Outdoor rainproof)

Model	Wavelength (nm)	Output power (mW)	Performance	Connector
HDS-26S-9-01- TG/B1310-SA	1310nm	1	Outdoor	SC/APC

HDS-26S-9-02- TG/B1310-SA	Non-cooling DFB	2	rainproof	SC/APC
HDS-26S-9-03- TG/B1310-SA		3		SC/APC
HDS-26S-9-04- TG/B1310-SA		4		SC/APC
HDS-26S-9-06- TG/B1310-SA		6		SC/APC
HDS-26S-9-08- TG/B1310-SA		8		SC/APC
HDS-26S-9-10- TG/B1310-SA		10		SC/APC
HDS-26S-9-01- TG/B1550-SA	1550nm Non-cooling DFB	1	Outdoor rainproof	SC/APC
HDS-26S-9-02- TG/B1550-SA		2		SC/APC
HDS-26S-9-03- TG/B1550-SA		3		SC/APC
HDS-26S-9-04- TG/B1550-SA		4		SC/APC

Remark: 1. TO type optional, without IF drive amplify
2. CWDM working wavelength

9.0 ORDERING INFORMATION

HDS - 26S - □ - □□ - □□ / □ □□□□ - □ / □□ - □□

Product type		Operating bandwidth		Product feature		Output power		Type	Type of laser		Tx wavelength & transmission distance		Optical port position		Connector		Power supply					
HDS	Satellite Direct Modulated Optical Transmitter	26S	950~2600MHz SAT-IF	1	19" standered type	01	1mW	TG	TX, SAT-IF with AGC amplification	A	Cooling DFB	1310	1310nm	F	Front panel	SA	SC/APC	48	-48VDC			
				2	Desktop type, TX adopt non-cooling DFB laser direct type, TX with AGC, be used for FTTX	02	2mW			B	Non-cooling DFB	1550	1550nm	B	Back panel	FA	FC/APC	22	220VAC			
HES	Satellite Externally Modulated Optical Transmitter	26A	47~862MHz & 950~2600MHz Analog TV + SAT-IF	3	Wall mounted type, TX adopt non-cooling DFB laser direct type, TX with AGC, be used for FTTX	03	3mW	TO	TX, SAT-IF without IF amplification			15**	ITU			LA	LC/APC	11	110VAC			
				4	04	4mW					1***	CWDM										
HRS	Satellite Optical Receiver	26D	47~2600MHz Digital TV + SAT-IF	5		05	5mW															
				6		06	6mW															
				9	Aluminum die-casting rainproof type	08	8mW															
				10		10	10mW															
				0	OEM	12	12mW															
				8	2U, 3U plug-in	14	14mW															
				16		16	16mW															
18		18	18mW																			
20		20	20mW																			
24		24	24mW																			
30		30	30mW																			