

# DWDA-1000 (100GHz)

VOA DWDM with EDFA With VOA, EDFA Dense Wavelength Division Multiplexer

#### **PRODUCT DESCRIPTION**

DWDA-1000 series is integrated by DWDM, VOA and EDFA module in a 1RU or 3D rack. Each channel of DWDM with a high-resolution factor electronic control adjustable optical attenuator will adjust and equilibrium the power. The insertion loss, power loss because of the channel equilibrium of DWDM will be amplified and compensation by the build-in gain flatness EDFA. Compact and simple device structure, thereby reducing the connections between devices to improve the index and reliability of the system. Can be used in DWDM system power equilibrium, optical add and drop multiplexed (OADW) flexible and expediently.

Each of the DWDA-1000 has a optical output power monitor, inspect precision≤±0.1dB. It can be set auto power control mode. According to different network application DWDA-1000 has MU, DE, DM and AD four types optical electric mode and configure relevant EDFA (PA, LA, BA and MSA) available. RS232 and RJ45 provide communicate and network management interface, LCD in front panel provide the working parameter and fault alarm of the whole unit. All of the optical ports can be installed in front panel; also can choose the back panel.

DWDA-1000: 100GHz channel spacing.

DWDA-2000: 200GHz channel spacing (Optional).

#### PRODUCT FEATURE

- ▶ ≤0.1dBhigh resolution voltage-controlled adjustable attenuator.
- ▶ ≥20dB attenuation dynamic range, option≥30dB.
- ► Attenuation value set accuracy≤±0.2dB.
- ▶ Power value set accuracy≤±0.1dB.
- Automatic power controlled (APC) mode can be set.
- ▶ Based on mature tech of think film>16CH Optional PLC.
- ▶ 100Ghz channel space, optional 200Ghz channel space (DWDA-2000).
- ▶ Four types of optical line mode, configure relevant PA, BA, LA or MSA, suitable with different network application.
- ► High channel isolation.
- ► Loss insertion loss, low polarization dependence loss.
- ▶ LCD displays working status and parameters.
- ▶ Perfect RS232 and SNMP.



- ► High stability, high reliability.
- Structure compact.
- ► Excellent P/P ratio.

### MAIN APPLICATION

- ► DWDM system channel power adjust and equilibrium
- ► OADM
- ► CATV
- ► FTTx PON
- Satellite L-Band fiber link
- ► Lab application

# **TECHNIQUE INDEX**

	Da	formance			Index	Supplement	
	Pe	normance		Min.	Тур.	Mzx.	Supplement
	Operrating wavelen	gth	(nm)	1528		1564	
	Center wavelength		(nm)		ITU-T		
	Center wavelength	accuracy	(nm)	-0.03		+0.03	
	Channel spacing		(GHz)		100		DWDA-1000
	Channel spacing	(GHZ)		200		DWDA-2000	
D	Channel pass band		(nm)	0.22			DWDA-1000
DWDM feature	(@-0.5dB bandwidt	h)	(nm) -	0.5			DWDA-2000
featu	In-band ripple		(dB)			0.5	
re	Insertion loss		(dB)	4		8	
	Insertion loss disuni	formity	(dB)			1.5	
	Isolation	Adjacent	(dB)	30			
	ISUIAUUT	Non-adjacent	(UD)	40			
	Polarization depend	lence loss	(dB)			0.15	
	Polarization mode d			0.1			
	Resolution		(dB)			0.1	
VOA feature	Insertion loss		(dB)		0.7	1.2	
	Dynamic range	(dB)	20				
	Dynamic range		(UD)	30			
	VOA setting accurate	су	(dB)	-0.2		+0.2	
	Optical power settin	g accuracy	(dB)	-0.1		+0.1	

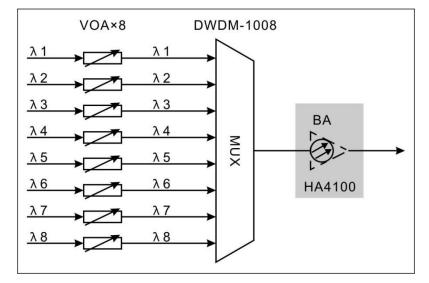


Wavelength depend	ence ripple	(dB)			0.2	
Polarization depend	ence loss	(dB)			0.2	
Polarization mode d	ispersion	(ps)			0.1	
Operating waveleng	Ith	(nm)	1528		1564	
	ВА		-13		+12	
Input power	LA	(dBm)	-25		+7	
	PA、MSA		-35		+3	
Output power		(dBm)	13		25	
Noise figure		(dB)	3.8		5.8	Pin=0dBm
Gain flatness		(dB)	-0.5		+0.5	
Polarization depend	ence loss	(dB)			0.3	
Polarization mode d	ispersion	(ps)			0.3	
Input/output isolation	n	(dB)	30			
Pump Optical leaka	ge	(dBm)			-30	
Poturn loop		(dP)	40			UPC
Return loss		(UD)	55			APC
SNMP network man	agement interface			RJ45		
Serial interface				RS232		
Dowor oupply		0.0	90		265	
		(V)	30		72	
Power consume		(W)			50	
Operating temp.		(°C)	0		65	
Storage temp.		(°C)	-40		80	
Relative humidity		(%)	5		95	
Size (W)×(D)×(H)		(")		19×14.5×1.75		1RU (19")
	Polarization depend Polarization mode d Operating waveleng Input power Noise figure Gain flatness Polarization depend Polarization mode d Input/output isolatio Pump Optical leaka Return loss SNMP network man Serial interface Power supply Power consume Operating temp. Storage temp. Relative humidity	Input power LA PA, MSA Output power Output power Noise figure Gain flatness Polarization dependence loss Polarization mode dispersion Polarization mode dispersion Input/output isolation Pump Optical leakage Return loss SNMP network margement interface Serial interface Serial interface Power supply Power consume Operating temp. Storage temp.	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(Y)</td></td<>	Polarization dependence loss(dB)(dP)Polarization mode dispersion(ps)(DP)Operating wavelengtment(nm)1528Operating wavelengtment(nm)1528Input powerBA(dBm)LA(dBm)-25Output power(dBm)13Output power(dBm)13Noise figure(dBm)13Sain flatness(dBm)3.8Polarization depender loss(dBm)-0.5Polarization mode dispersion(dBm)-0.5Input/output isolation(dBm)-0.5Pourp Optical leakage(dBm)-0.5Return loss(dBm)-0.5Serial interface(dBm)-0.5Power supply(dBm)-0.5Power consume(Mm)-0.5Power consume(Mm)-0.5Operating temp.(Mm)-0.5Storage temp.(°C)0Heative humidity(°C)-40	Polarization dependence loss         (dB)         (dB)         0.2           Polarization mode dispersion         (ps)         0.1         0.1           Operating wavelerstm         (nm)         1528         1564           Input power         BA         113         +12           Input power         LA         (dBm)         -25         +7           PA, MSA         -25         +3         -35         +3           Output power         (dBm)         13         25         -35           Noise figure         (dBm)         13         25         -35           Polarization dependence loss         (dB)         -0.5         +0.5           Polarization mode dispersion         (ps)         0.3         -30           Input/output isolation         (ps)         30         -25           Return loss         (dBm)         30         -25           SNMP network management interface         KJ45         -30           SNMP network management interface         Power supply         90         265           Power supply         (Y)         -20         -20           Over consume         (Y)         50         50           Operating temp.         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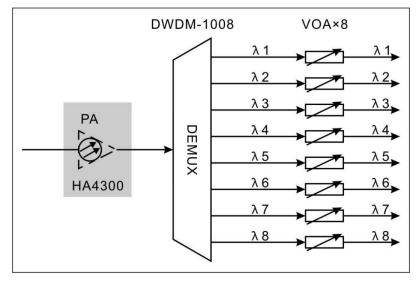


# **OPTICAL ROUTE DIAGRAM**

DWDA-1000MU-100 (MU+BA)

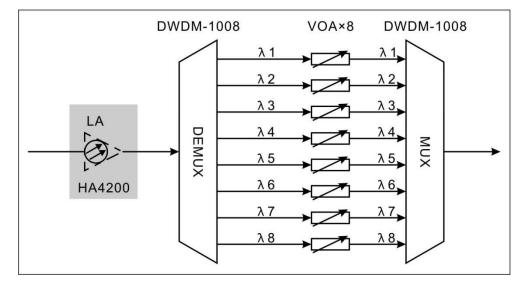


#### DWDA-1008DE-330 (DE+PA)

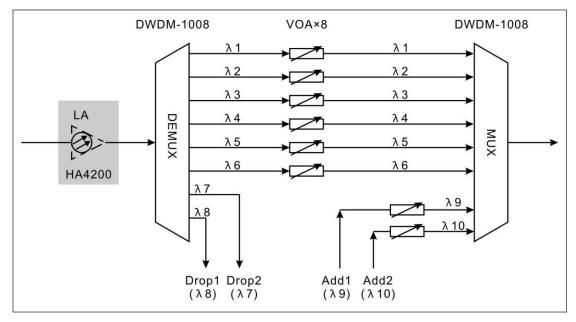




DWDA-1000DM2-200 (DM2+LA)

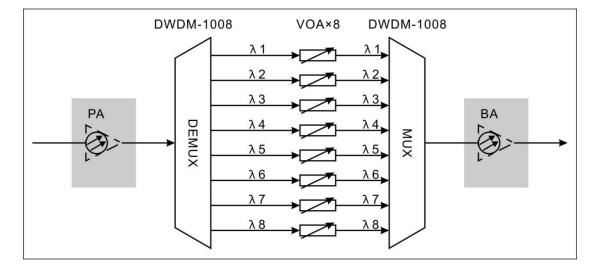


#### DWDA-1000AD2-200 (AD2+LA)

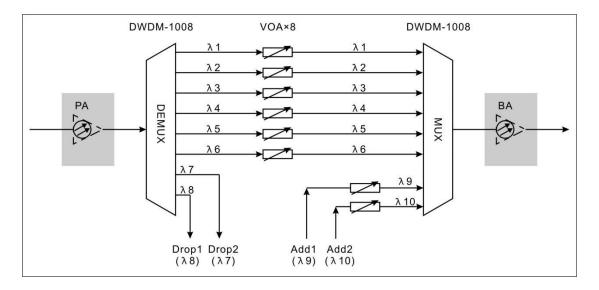




#### DWDA-1000DM2-700 (DM2+MSA)



#### DWDA-1000AD2-700 (AD2+MSA)





## **PRODUCT SERIES**

Model	Channel spacing	Number of channels	EDFA type	Output power	VOA dynamic range		
DWDA-1004MU-116-20		4CH		16dBm			
DWDA-1008MU-119-20	100GHz	8CH	BA	19dBm	20dB		
DWDA-1016MU-122-20	100002	16CH	DA	22dBm	2008		
DWDA-1032MU-125-20		32CH		25dBm			
DWDA-1004DE-314-20		4CH		14dBm			
DWDA-1008DE-314-20		8CH	PA	14dBm			
DWDA-1016DE-314-20	100GHz	16CH	PA	14dBm	20dB		
DWDA-1032DE-314-20	-	32CH		14dBm			
DWDA-1004DM1-216-20		4CH		16dBm			
DWDA-1008DM1-219-20	100GHz	8CH	LA	19dBm	20dB		
DWDA-1016DM2-222-20	100GH2	16CH	LA	22dBm	2006		
DWDA-1032DM2-225-20		32CH		25dBm			
DWDA-1004AD1-216-20		4CH		16dBm			
DWDA-1008AD1-219-20	100GHz	8CH	LA	19dBm	20dB		
DWDA-1016AD2-222-20	100GH2	16CH	LA	22dBm	2006		
DWDA-1032AD2-225-20		32CH		25dBm			
DWDA-1008DM2-719-20		8CH		19dBm			
DWDA-1016DM2-722-20	100GHz	16CH	MSA	22dBm	20dB		
DWDA-1032DM2-725-20		32CH		25dBm			
DWDA-1008AD2-719-20		8CH		19dBm			
DWDA-1016AD2-722-20	100GHz	16CH	MSA	22dBm	20dB		
DWDA-1032AD2-725-20		32CH		25dBm			

Remarks: 1. Channel spacing optional 200GHz (DWDA-2000).

2. Attenuate dynamic range can choose≥30dB.

3. EDFA type and output power can be user-defined.

4. Diagram mode can be chose by users.



# MODEL EXPLANATION

	DWE	<u>AC</u>	- 10				-  -	<u>ן</u>			- 1		- E	///				/ /		/	
P	roduct series	Char	nnel spacing	Num	ber of channel	Op	tical path mode		EDFA type	Out	put power	Atte	nuator range		Exterior	(	Optical port position	Co	onnector	Po	wer supply
DWDA	With VOA & EDFA	10	100GHz	04	4 channels	MU	Multiplexing	1	Booster	14	14dBm	20	20dB	1U	19" 1RU	F	Front panel	FA	FC/APC	22	220VAC
DWDA	With VOA & EDFA DWDM	20	200GHz	08	8 channels	DE	Demultiplexing	2	Line-Amplifier	16	16dBm	30	30dB	ML	Modulator	в	Back panel	FP	FC/UPC	11	110VAC
DWDM	DWDM			16	16 channels	DM	DEMUX/MUX	3	Pre-Amplifier	19	19dBm			OEM	Appearance			SA	SC/APC	48	-48VDC
DWDV	With VOA DWDM			32	32 channels	AD	OADM	7	MSA	22	22dBm			UEM	user customized			SP	SC/UPC		
										25	25dBm	1				-		LA	LC/APC	1	
																		LP	LC/UPC	]	