

# MN9625A/9626A

## Programmable Optical Attenuator

1.2 to 1.65  $\mu\text{m}$



*High Attenuation Accuracy, Low Polarization Dependent Loss, Excellent Wavelength Flatness*

The MN9625A/9626A Programmable Optical Attenuator has excellent attenuation accuracy. It is calibrated with a high-accuracy calibration system over an attenuation range of 0 to 60 dB.

The MN9625A has a superior wavelength flatness of 0.2 dBp-p max. by using an attenuation element with very flat wavelength characteristics. It is the ideal instrument for evaluating WDM (wavelength division multiplexing) optical amplifiers in which gain flatness vs. wavelength is an important factor. Moreover, the MN9626A has a built-in optical monitor output for monitoring the level of through light.

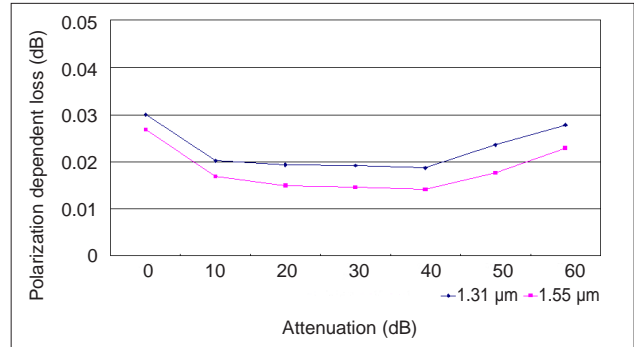
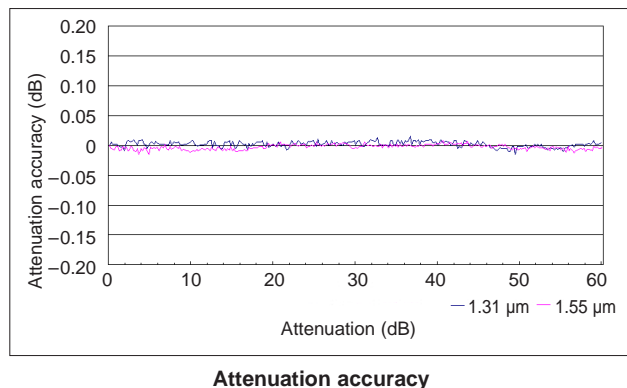
### Features

- Attenuation accuracy of  $\pm 0.05$  dB (typical)
- Wavelength flatness of 0.1 dBp-p (typical, 1.52 to 1.57  $\mu\text{m}$ , MN9625A)
- Low polarization dependent loss of 0.05 dBp-p max. (MN9625A)
- Return loss of 45 dB min. (PC connector) and 60 dB min. (APC: Angled PC connector)
- Removable optical connector for easy cleaning and replacement

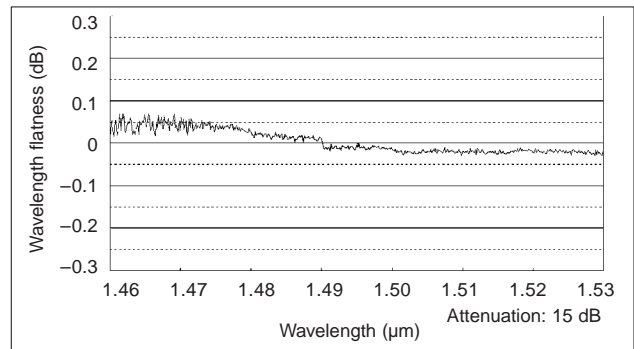
### Applications

- R&D and manufacturing of WDM optical amplifiers — Adjusting input optical level, evaluating gain flatness
- R&D and manufacturing of optical transmission systems — Adjusting optical output and reception optical levels, testing error rates
- R&D and manufacturing of optical components — Measuring optical fiber amplifier I/O and wavelength characteristics, measuring optical loss of isolators, etc.

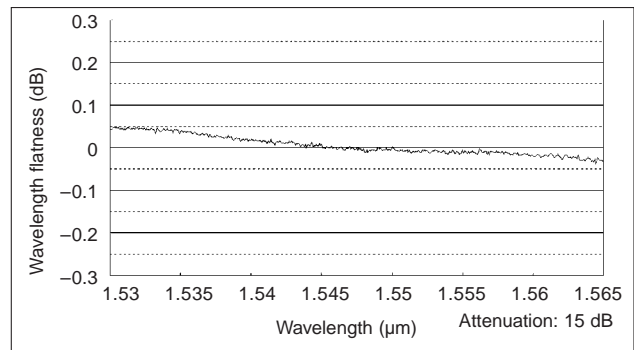
### Typical Characteristics



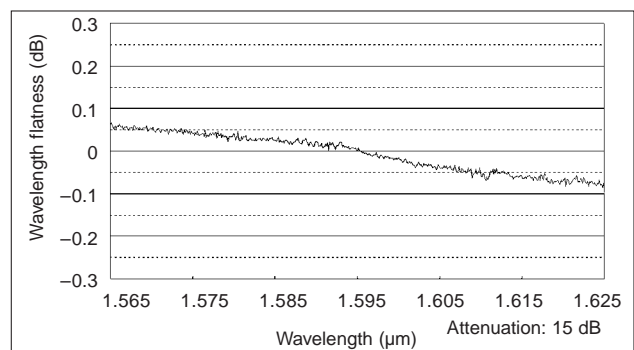
**Polarization dependent loss (MN9625A)**



**Wavelength flatness: 1.46 to 1.53  $\mu\text{m}$  (MN9625A)**



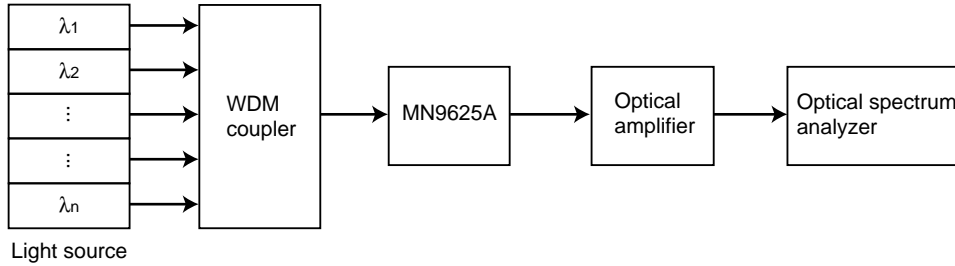
**Wavelength flatness: 1.53 to 1.565  $\mu\text{m}$  (MN9625A)**



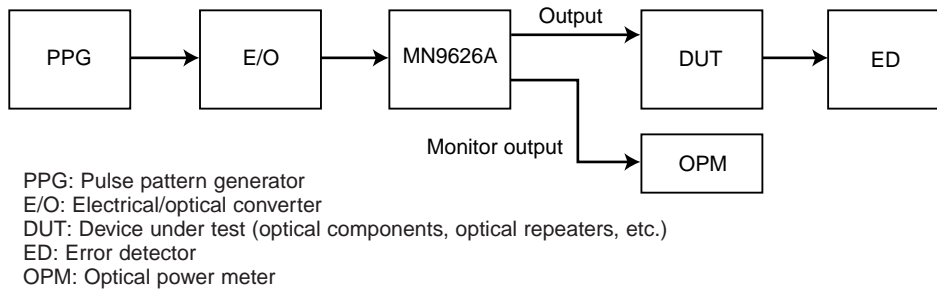
**Wavelength flatness: 1.565 to 1.625  $\mu\text{m}$  (MN9625A)**

## Applications

### • Evaluating WDM Optical Amplifiers

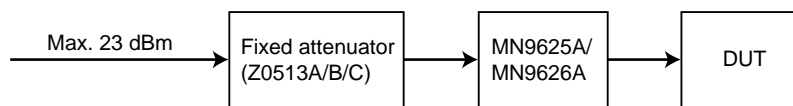


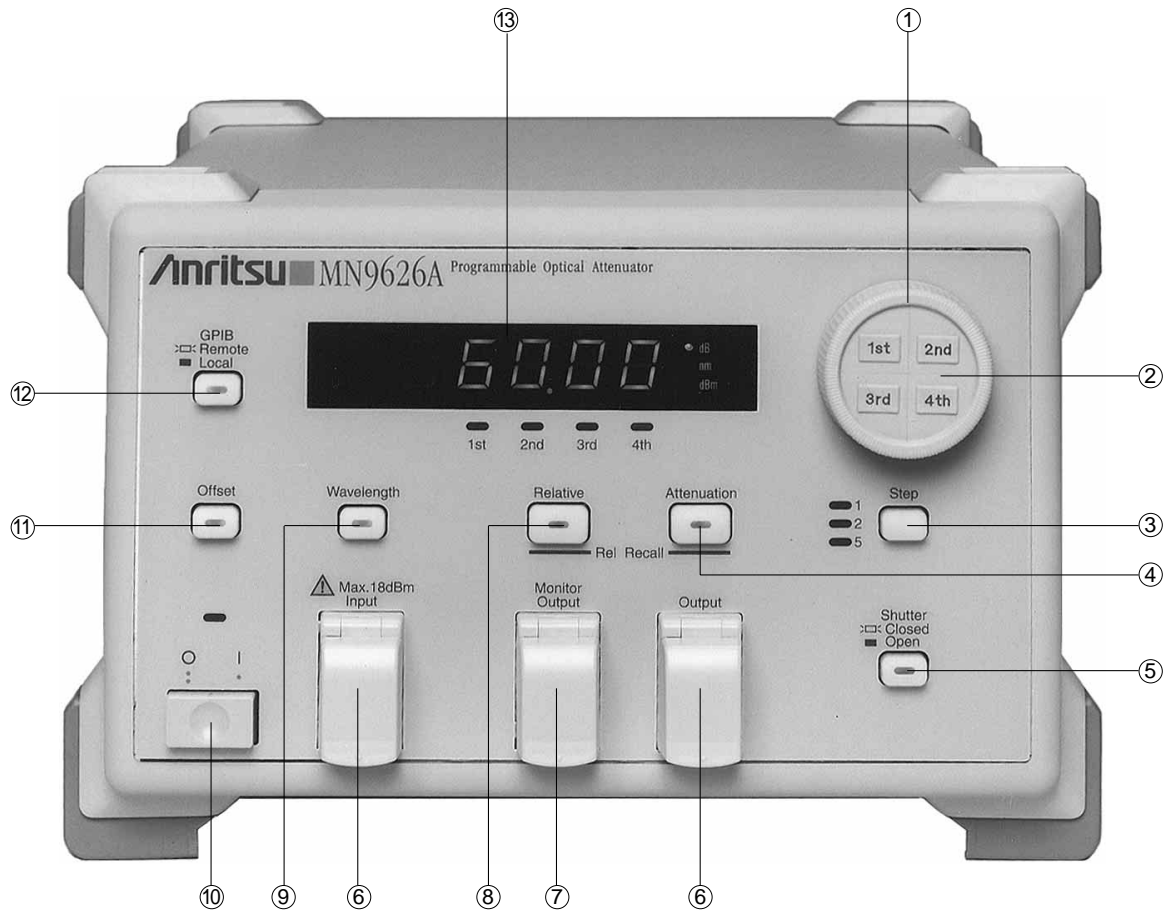
### • Testing Error Rate



### • Attenuating Optical Input Level

When used in combination with a 6 dB fixed optical attenuator (optional accessories), light with a maximum input level of 23 dBm (200 mW) can be attenuated. The maximum combined insertion loss is 10 dB using the MN9625A, and 12 dB using the MN9626A.





- ① **Rotary encoder:** Sets attenuation, offset, and wavelength
- ② **Digit setting:** Sets attenuation, offset, and wavelength setting digit
- ③ **Step:** Sets attenuation, offset and wavelength setting step to 1, 2 or 5.
- ④ **Attenuation:** Sets attenuation
- ⑤ **Shutter:** Opens/closes internal shutter
- ⑥ **Input/Output:** Optical I/O connector
- ⑦ **Monitor Output:** Connector for monitoring optical output power (MN9626A only)
- ⑧ **Relative:** Displays relative attenuation value
- ⑨ **Wavelength:** Sets wavelength. The set wavelength is toggled between 1310 and 1550 nm each time the switch is pressed.
- ⑩ **Power switch:** Switches power on/off
- ⑪ **Offset:** Changes offset in range of  $\pm 99.99$  dB. The output power of the optical attenuator can be read directly by adjusting the offset according to the amount of input power and attenuation in dB.
- ⑫ **GPIB:** Switches from Remote to Local control
- ⑬ **Display:** Displays attenuation, offset and wavelength

# Specifications

(Specifications at 1.31/1.55  $\mu\text{m}$  measured using master optical fiber cord. Typical values are not guaranteed.)

Model	MN9625A	MN9626A
Wavelength range	1.2 to 1.65 $\mu\text{m}$	
Applicable optical fiber	SM fiber (ITU-T G.652)	
Maximum attenuation	60 dB (except insertion loss)	
Display resolution	0.01 dB	
Attenuation accuracy	$\pm 0.1$ dB (typical: $\pm 0.05$ dB)	
Polarization dependent loss	$\leq 0.05$ dBp-p (typical: 0.03 dBp-p)	$\leq 0.1$ dBp-p (typical: 0.07 dBp-p)
Wavelength flatness*1	$\leq 0.2$ dBp-p (1.46 to 1.53 $\mu\text{m}$ ) $\leq 0.2$ dBp-p (1.53 to 1.565 $\mu\text{m}$ ) $\leq 0.25$ dBp-p (1.565 to 1.625 $\mu\text{m}$ )	–
Insertion loss	$\leq 2.8$ dB (typical: 1.8 dB)	$\leq 4.2$ dB*2
Switching repeatability	$\pm 0.01$ dB*3 (typical: $\pm 0.005$ dB)	
Switching time	$\leq 150$ ms (attenuation variation: 0.01 dB), $\leq 500$ ms (attenuation variation: 60 dB)	
I/O crosstalk	$\leq -80$ dB (shutter closed)	
Return loss	$\geq 45$ dB (PC connector)*4, $\geq 60$ dB (APC connector)*5	
Optical monitor output*6	Output ratio	–
	Loss difference	–
	Output stability	–
	Crosstalk attenuation	–
I/O connector	PC*7: FC, SC, DIN, ST, HMS-10/A APC*8: FC, SC, HRL-10	
Maximum input level	18 dBm (63 mW)	
Operating temperature range	0 to 50°C	
Power*9	85 to 132 Vac, 170 to 250 Vac, 47.5 to 63 Hz, $\leq 45$ VA	
Dimensions and mass	132.5 (H) x 213 (W) x 351 (D) mm, $\leq 6.5$ kg	
EMC	EN61326: 1997/A1, 1998 (Class A) EN61000-3-2: 1995/A2, 1998 (Class D) EN61326: 1997/A1, 1998 (Annex A)	
LVD	EN610101-1: 1993/A2, 1995 (Installation Category II, Pollution degree 2)	

\*1: Attenuation range of 0 to 30 dB

\*2: Including optical fiber coupler loss

\*3: At constant temperature in operating temperature range

\*4: Depends on connector (using PC connector with return loss of 48 dB min.)

\*5: Depends on connector (using APC connector with return loss of 63 dB min.)

\*6: Between output and optical monitor output

\*7: User replaceable (One connector type supplied as standard accessory. When connector type is not specified in the order, FC connectors are supplied.)

\*8: Factory option, attachable/detachable front shell

\*9: Specify 100 Vac or 200 Vac system when ordering (factory setting only).

# Ordering Information

Please specify model/order number, name, and quantity when ordering.

Model/Order No.	Name	Remarks
MN9625A MN9626A	<b>Main frame</b> Programmable Optical Attenuator Programmable Optical Attenuator	With optical monitor output
W1834AE	<b>Standard accessories</b> MN9625A/9626A operation manual: 1 copy	
F0010	Power cord, 2.5 m: 1 pc Fuse, 1.6 A: 2 pcs	T1.6A250V
MN9625A/9626A-38	<b>Options</b> ST connector	Both input and output
MN9625A/9626A-39	DIN connector	Both input and output
MN9625A/9626A-40	SC connector	Both input and output
MN9625A/9626A-43	HMS-10/A connector	Both input and output
MN9625A/9626A-25	FC (APC) connector	Both input and output, factory option
MN9625A/9626A-26	SC (APC) connector	Both input and output, factory option
MN9625A/9626A-47	HRL-10 (APC) connector	Both input and output, factory option
Z0513A*1	<b>Optional accessories</b> Optical fixed attenuator	FC (PC)
Z0513B*1	Optical fixed attenuator	SC (PC)
Z0513C*1	Optical fixed attenuator	ST (PC)
B0390E	Rack mount kit	Inch type, for 1 unit, left side
B0390F	Rack mount kit	Inch type, for 2 units, side-by-side
B0329M	Front cover	1/2MW3U
J0575	Optical fiber cord, 2 m	PC connector at both ends, for SM fiber
J0617B	Replaceable optical connector (FC)	For PC connector
J0618D	Replaceable optical connector (ST)	For PC connector
J0618E	Replaceable optical connector (DIN)	For PC connector
J0619B	Replaceable optical connector (SC)	For PC connector
J0618F	Replaceable optical connector (HMS-10/A)	For PC connector
J0739A	Replaceable optical connector (FC)	For APC connector
J0739C	Replaceable optical connector (SC)	For APC connector
J0739D	Replaceable optical connector (HRL-10)	For APC connector
Z0282	Ferrule cleaner	
Z0283	Replacement reel for ferrule cleaner	6 pcs/set
Z0284	Cleaner for optical adapter	Stick type, 200 pcs/set

\*1: Attenuation: 6 dB  $\pm$ 1 dB, Maximum input level: +23 dBm, Return loss:  $\geq$ 55 dB

## Optional Accessories

Optical fixed attenuators



**Z0513A:**  
FC (PC) Type

**Z0513B:**  
SC (PC) Type

**Z0513C:**  
ST (PC) Type

# Anritsu

Specifications are subject to change without notice.

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