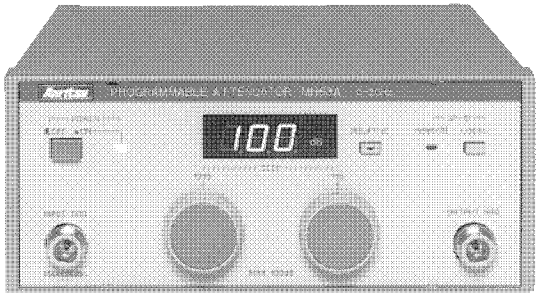
PROGRAMMABLE ATTENUATOR

MN63A, MN65A, MN72A

DC to 2 GHz DC to 6 GHz DC to 18 GHz

GPIB

For Con guring Automated Measurement Systems



MN63A

The MN63A/65A/72A provide GPIB as a standard feature and are suitable for automatic measuring system components used in R&D, inspection, or production. The 50 models are available in three different frequency ranges, which can be selected to match the application for maximum economy. The attenuation calibration value is stored in the internal memory and can be uploaded to the system controller for checking against measured values, permitting a significant increase in system accuracy. A relative setting function is also provided, which allows measurement to be referenced to any arbitrary level. Rotary encoders are standard, allowing simple, smooth setting under manual control.

Features

- Wide frequency range
- High accuracy
- Long operating life
- High-speed switching
- Readout of attenuation calibration via GPIB
- Relative attenuation display function
- Rotary encoders for smooth manual setting

Specifications

• MN63A, MN65A

Model	MN63A	MN65A
Frequency range	DC to 2 GHz	DC to 6 GHz
Impedance	50 unbalanced VSWR (return loss): 1.19 (21 dB, DC to 500 MHz) 1.22 (20 dB, 500 MHz to 1.2 GHz) 1.28 (18 dB, 1.2 to 1.5 GHz) 1.37 (16 dB, 1.5 to 2 GHz)	50 unbalanced VSWR (return loss): 1.4 (15.6 dB, DC to 2 GHz) 2.0 (9.6 dB, 2 to 6 GHz)
Input/Output connector	N-type	
Maximum attenuation	100 dB	85 dB
Step size	10 dB step, 1 dB step	
Attenuation accuracy	±0.2 dB (DC to 500 MHz, 1 to 10 dB) ±0.3 dB (DC to 500 MHz, 11 to 80 dB) ±0.5 dB (DC to 500 MHz, 81 to 100 dB) ±0.3 dB (500 MHz to 1 GHz, 1 to 10 dB) ±0.5 dB (500 MHz to 1 GHz, 11 to 80 dB) ±0.8 dB (500 MHz to 1 GHz, 81 to 100 dB) ±0.5 dB (1 to 1.5 GHz, 1 to 10 dB) ±0.7 dB (1 to 1.5 GHz, 11 to 80 dB) ±1.0 dB (1 to 1.5 GHz, 81 to 100 dB) ±0.7 dB (1.5 to 2 GHz, 1 to 10 dB) ±1.0 dB (1.5 to 2 GHz, 11 to 80 dB) ±1.5 dB (1.5 to 2 GHz, 81 to 100 dB)	±0.3 dB (DC to 4 GHz, 1 to 6 dB) ±0.3 dB (DC to 2 GHz, 7 to 10 dB) ±0.5 dB (DC to 2 GHz, 11 to 30 dB) ±0.7 dB (DC to 2 GHz, 31 to 70 dB) ±1.2 dB (DC to 2 GHz, 71 to 85 dB) ±0.5 dB (2 to 4 GHz, 7 to 10 dB) ±0.7 dB (2 to 4 GHz, 11 to 30 dB) ±1.2 dB (2 to 4 GHz, 31 to 70 dB) ±1.5 dB (2 to 4 GHz, 71 to 85 dB) ±0.5 dB (4 to 6 GHz, 1 to 6 dB) ±0.7 dB (4 to 6 GHz, 7 to 10 dB) ±0.9 dB (4 to 6 GHz, 11 to 30 dB) ±1.6 dB (4 to 6 GHz, 31 to 70 dB) ±1.8 dB (4 to 6 GHz, 71 to 85 dB)
Insertion loss	3.9 dB (DC to 500 MHz), 5.2 dB (500 MHz to 1 GHz), 6.2 dB (1 to 1.5 GHz), 7.0 dB (1.5 to 2 GHz) *At attenuation: 0 dB	1.7 dB (DC to 2 GHz), 2.4 dB (2 to 4 GHz), 3.0 dB (4 to 6 GHz) *At attenuation: 0 dB
Maximum input	0.25 W (+24 dBm)	1 W (+30 dBm)
Nominal lifetime	5 million times (typical)	
Switching time	4 ms	20 ms
Setting methods	Manually (by rotary encoder) or by remote control (GPIB)	
GPIB	Can set all front panel controls except power switch Can output the attenuation calibration value to the controller SH1, AH1, T6, L4, SR1, RL1, PP0, DC1, DT0, C0	
Power supply	AC 100 V $^{+10}_{-15}$ %, 50/60 Hz, 22 VA	AC 100 V $^{+10}_{-15}$ %, 50/60 Hz, 40 VA
Operating temperature range	0° to +50°C	
Dimensions and mass	213 (W) x 88 (H) x 251 (D) mm, 4 kg	213 (W) x 88 (H) x 251 (D) mm, 5 kg

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• **MN72A**

Frequency range	DC to 18 GHz
Impedance	50 unbalanced VSWR (return loss): 1.2 (20.8 dB, DC to 2 GHz), 1.6 (12.8 dB, 2 to 12.4 GHz), 1.9 (10.2 dB, 12.4 to 18 GHz)
Input/Output connector	SMA-type
Maximum attenuation	70 dB
Step size	10 dB step, 1 dB step
Attenuation accuracy	±0.4 dB (DC to 12.4 GHz, 1 to 4 dB) ±0.7 dB (DC to 12.4 GHz, 5 to 10 dB) ±0.9 dB (DC to 12.4 GHz, 11 to 30 dB) ±1.0 dB (DC to 2 GHz, 31 to 60 dB) ±1.2 dB (DC to 2 GHz, 61 to 70 dB) ±1.8 dB (2 to 12.4 GHz, 31 to 60 dB) ±2.0 dB (2 to 12.4 GHz, 61 to 70 dB) ±0.7 dB (12.4 to 18 GHz, 1 to 4 dB) ±0.9 dB (12.4 to 18 GHz, 5 to 10 dB) ±1.8 dB (12.4 to 18 GHz, 11 to 30 dB) ±3.2 dB (12.4 to 18 GHz, 31 to 60 dB) ±3.6 dB (12.4 to 18 GHz, 61 to 70 dB)
Insertion loss	1.5 dB (DC to 2 GHz), 3.5 dB (2 to 12.4 GHz), 5.0 dB (12.4 to 18 GHz) *At attenuation: 0 dB
Maximum input	1 W (+30 dBm)
Nominal lifetime	5 million times (typical)
Switching time	20 ms
Setting methods	Manually (by rotary encoder) or by remote control (GPIB)
GPIB	Can set all front panel controls except power switch Can output the attenuation calibration value to the controller SH1, AH1, T6, L4, SR1, RL1, PP0, DC1, DT0, C0
Power supply	AC 100 V $^{+10}_{-15}$%, 50/60 Hz, 30 VA
Operating temperature range	0° to +50°C
Dimensions and mass	213 (W) x 88 (H) x 251 (D) mm, 5 kg

Ordering Information

Please specify the model/order number, name and quantity when ordering.
The following names are used for orders; the actual product names may be different.

Model/Order No.	Name	
	Main frame	
MN63A	Programmable Attenuator	
MN65A	Programmable Attenuator	
MN72A	Programmable Attenuator	
	Standard accessories	
	Power Cord, 2.5 m:	1 pc
F0018	Fuse, 0.5 A (supplied with MN63A):	2 pcs
F0020	Fuse, 1 A (supplied with MN65A):	2 pcs
F0023	Fuse, 3.15 A (supplied with MN72A):	2 pcs
W0220AE	MN63A Operation Manual:	1 copy
W0223AE	MN65A Operation Manual:	1 copy
W0222AE	MN72A Operation Manual:	1 copy