

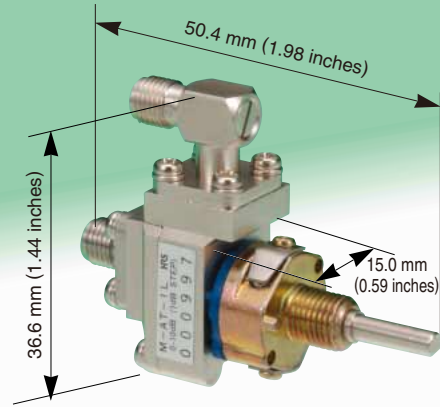
NEW

Rotary Attenuators (SMA Type)

M-AT Series



Space-saving Design (Miniature and Lightweight)



Overview

High reliability rotary attenuator for adjusting the signal level in variety of high frequency devices.

Features

1. Ease of mounting in high-density applications

Small size and light weight allows side-by-side panel mounting of several attenuators.

2. Supports a frequency range from DC to 3GHz

Used over a wide bandwidth with usable frequencies from DC to 3GHz.

3. Easy connection

The output / input connectors (SMA jacks) face back, allowing connection/disconnection after the attenuator has been mounted to the panel.

4. Two attenuation directions.

Standard M-AT-1L attenuators are offered as clockwise or counter-clockwise types.

5. Availability of custom requirements

Attenuators can be modified to fit specific requirements (Example: attenuation steps, connector type)
Contact nearest Hirose Electric sales representative for details.



Application

W-CDMA base stations and a wide variety of high frequency devices.

Product Specifications

Ratings	Frequency range Characteristic impedance Maximum input power	DC to 3GHz 50Ω 0.3W	Operating temperature range Operating humidity	-10°C to +65°C Relative humidity 90% max. (No condensation)
---------	--	---------------------------	---	--

Part number Item	M-AT-1L M-AT-1LR	M-AT-2L
Insertion loss	0.2 dB max. (DC-2.2 GHz) 0.28dB max. (2.2 GHz- 3.0 GHz)	
V. S. W. R.	1.2 max. (DC-2.2 GHz) 1.25 max. (2.2 GHz- 3.0 GHz)	
Attenuation	0 to 10dB (in 1 dB increments)	0 to 20dB (in 10 dB increments)
Attenuation frequency deviation	-0.5dB to +0.1dB(DC to 1.8GHz) -0.2dB to +0.2dB(1.8GHz to 3.0GHz) -0.1dB to +0.5dB(2.2GHz to 3.0GHz)	-1.0dB to +1.0dB(DC to 2.2GHz) -0.5dB to +1.5dB(2.2GHz to 3.0GHz)
Input/output connectors	SMA Jack	
Weight	28g (Excluding attachment)	

Item	Specification	Conditions
1. Insulation resistance	1000MΩ min.	100V DC
2. Withstanding voltage	No flashover or insulation breakdown.	100V AC / one minute
3. Vibration	No electrical discontinuity of 10 μs max. No damage, cracks, or parts dislocation.	Frequency: 10 to 55 Hz, overall amplitude of 1.5mm, acceleration of 98m/s ² , 3 axis, 2 hours
4. Shock	No electrical discontinuity of 10 μs max. No damage, cracks, or parts dislocation.	Acceleration of 490m/s ² , sine half-wave waveform, 3 cycles / each of 3 axis
5. Temperature cycle	No damage, cracks, or parts dislocation.	Temperature(°C) :-55 / +5 to +35 / +85 / +5 to +35 Time(minutes) : 30 / 5 max. / 30 / 5 max. 100 cycles
6. Durability	No damage, cracks, or parts dislocation.	10000 cycles
7. Humidity	No damage, cracks, or parts dislocation.	500 hours at temperature of 40°C and humidity of 90% to 95% RH

Materials and Finish

Component	Material	Finish
Body	Aluminum	Nickel plated
Connector body	Stainless steel	Passivated
Female contacts	Beryllium copper	Gold plated
Rotary switch body	Zinc	Chromate
Shaft	Brass	Nickel plated

Ordering information

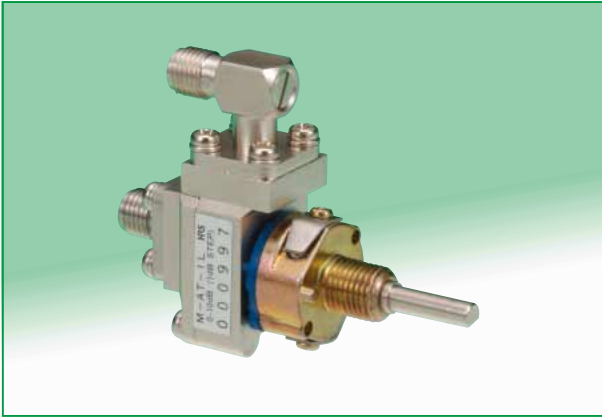
M-AT-1 L R

① ② ③ ④

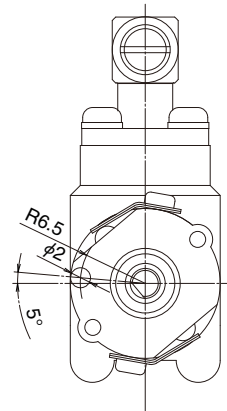
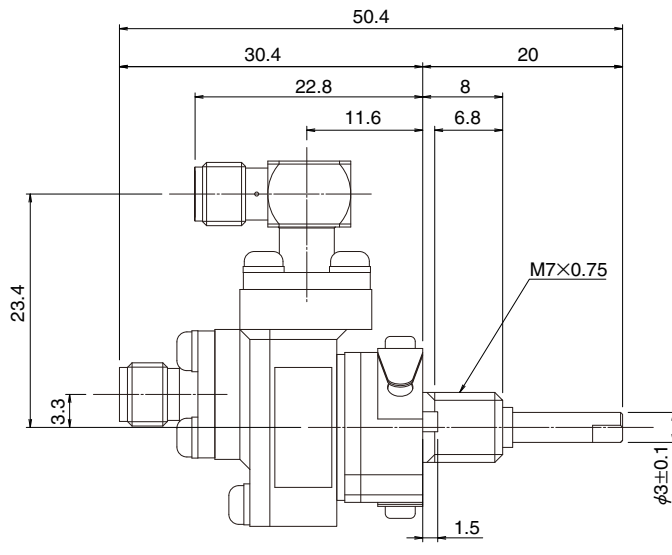
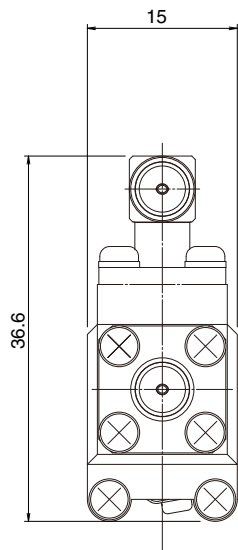
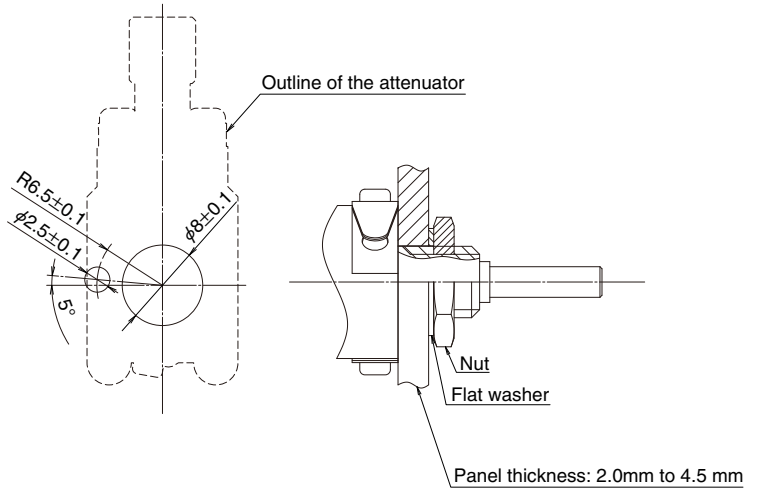
① Series Name	
② Suffix	
③ Connector direction	L : Face the back
④ Attenuation direction	Blank : Clockwise R : Counterclockwise

Part number	CL No.	Attenuation	Attenuation direction
M-AT-1L	361-0019-3	0 to 10 dB (in 1 dB increments)	Clockwise
M-AT-1LR	361-0024-3	0 to 10 dB (in 1 dB increments)	Counterclockwise
M-AT-2L	361-0025-6	0 to 20 dB (in 10 dB increments)	Clockwise

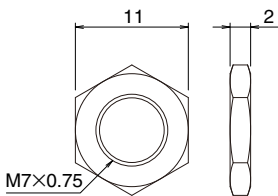
Rotary Attenuators



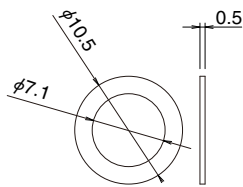
Recommended panel cutout



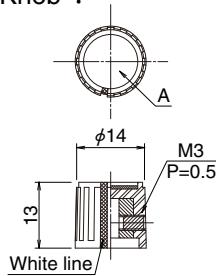
● Nut *



● Flat washer *



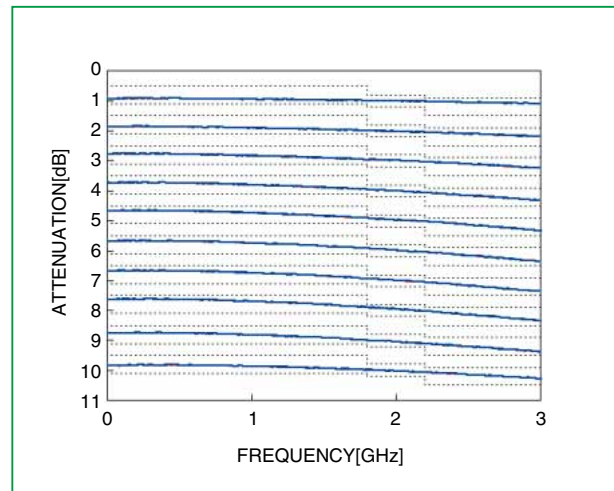
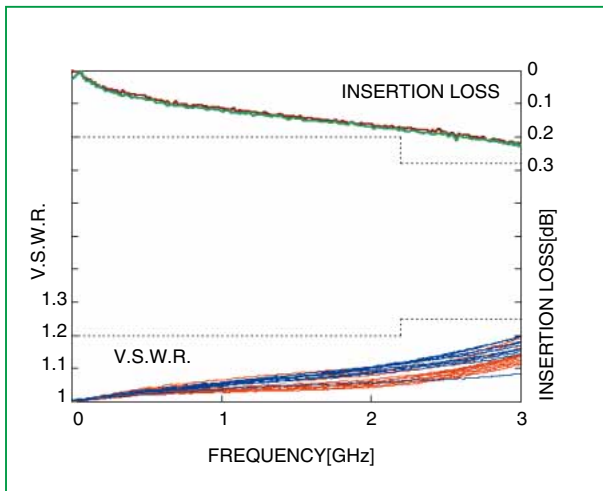
● Knob *



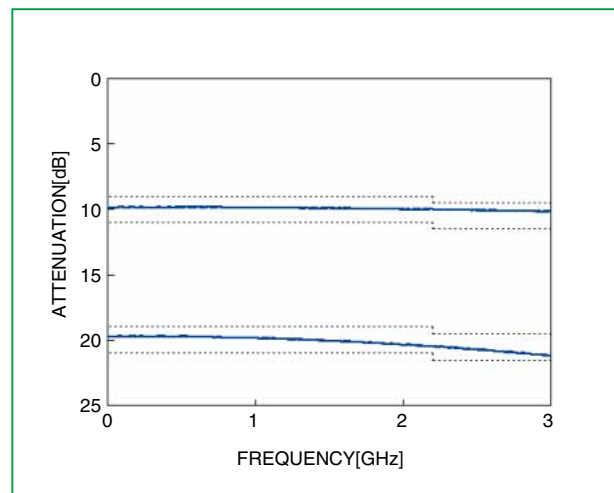
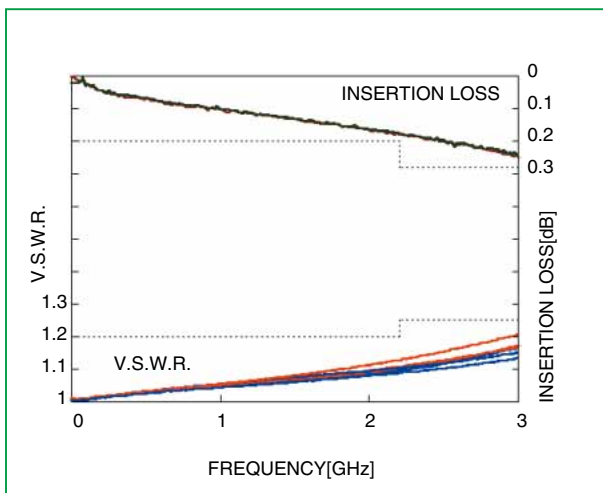
Supplied separately (1 bag contains 1 pcs.)

Typical data

M-AT-1L



M-AT-2L



HIROSE ELECTRIC CO.,LTD.

5-23,OSAKI 5-CHOME,SHINAGAWA-KU,TOKYO 141-8587,JAPAN
 PHONE: 81-3-3491-9741, FAX: 81-3-3493-2933
<http://www.hirose.com>
<http://www.hirose-connectors.com>