

# 36R-KIT Series

1     2     3     4  
 10kohm     100kohm     Non



## Kit type

Solder it by yourself, and to assemble.

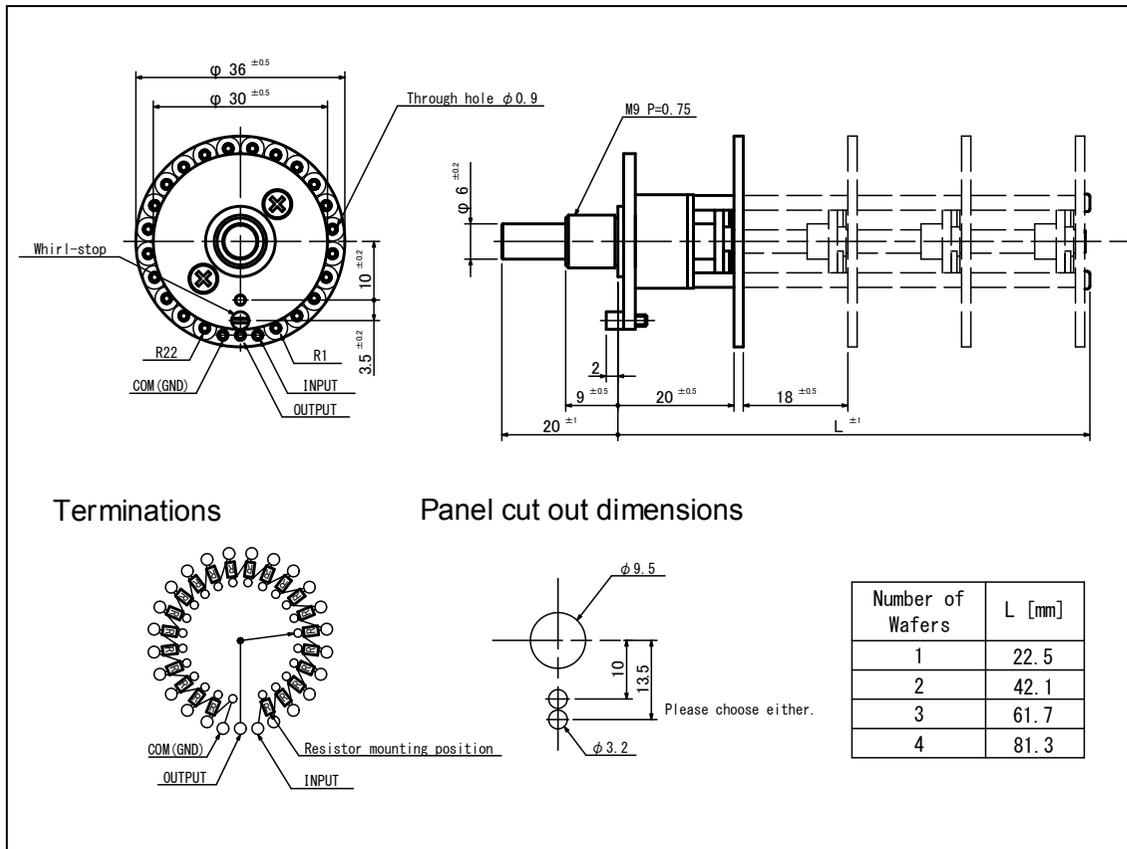
## Used the resistor of 0.5W

Can attach a resistor of the 0.5W size.

## Au-plated contacts

Low contact resistance

## Dimensions



## Terminations

## Panel cut out dimensions

# ATTENUATOR

## Model number

<b>36R-KIT</b>	<b>-</b>	<b>2</b>	<b>-</b>	<b>10K</b>
Product type		Number of circuits (Number of wafers)		Total resistance (Select resistor set)
		1: Single circuit		10K: With 10kohm resistor set
		2: 2 circuits		100K: With 100kohm resistor set
		3: 3 circuits		Blank: Non
		4: 4 circuits		

## Electrical specifications (\* Here is the general spec of the attenuator after assembling.)

36R-KIT Series	
Circuit method	Potentiometer
Attenuation	0, 2, 4, 6, ... (2dB step) ..., 30, 33, 36, 40, 50, 60, Cut off
Attenuation accuracy	±0.5dB
Max attenuation	60dB ± 0.5dB
Cut off	80dB Min.
Matching accuracy	0.5dB or less (0dB - 60dB)
Number of circuit	Max. 4
Total resistance	10kohm, 100kohm ±3%
Insertion loss	0.3dB or less
Input level	Max. 0.5W
Frequency range	DC ~ 20kHz
Voltage proof	1 Min. at AC250V
Insulation resistance	100Mohm or more at DC500V
Rotational life	30,000 Cycles Min. (18cycles/min, Attenuation accuracy: ±1dB or less)

## Mechanical specifications

36R-KIT Series	
Operating angle	330degrees ±2degrees
Step angle	15degrees ±1degrees
Strength of nut-attached	50Ncm
Attached parts	Hexagonal nut (M9)
Stopper strength	50Ncm
Push-pull strength	50N

## Other specifications

36R-KIT Series	
Temp. range	-10 to +70 degrees C (Operating), -15 to +75 degrees C (Storage)
Relative humidity	90%RH (No condensation)

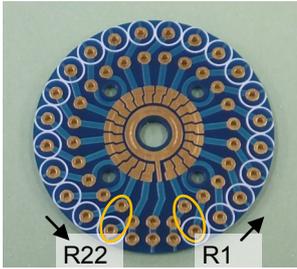
## Note

- \* This is an assembly kit.
- \* We can only guarantee the rotary switch and the CM1/2 resistors before assembling.
- \* Temperature spec: for 3 sec at 390degrees C (or for 5 sec at 350degrees C). You can apply heat up to twice. Do not subject it to heat long time, as the components may be damaged.
- \* Please take care during soldering that the smoke from the solder does not flow inside a switch.
- \* Do not give severe shocks.
- \* We can not accept the request for the customized spec.
- \* The size of a resistor you can use for the rotary switch is φ4 or less. (The lead wire is less than φ0.9.)
- \* To prevent troubles, please be sure to check and confirm the resistance value and the attenuation after assembling.
- \* When you would like to use for educational purposes, please contact us beforehand.
- \* Please make sure that children will assemble under the parental guidance.



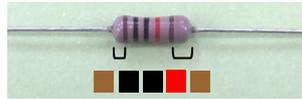
# Let's make an attenuator !

**This is the assembly kit for an attenuator.  
Please read the manual before assembling.**



## Preparation

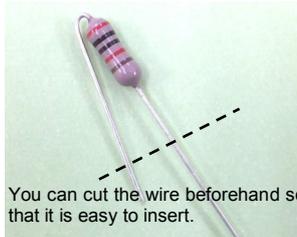
You can put the resistor onto through-hole, R1-R22.  
The resistance value is shown by the color-code.



The resistance value and the color code are as follows.  
Please read the code from the side where the gap is small.

■ Brown ■ Gold ■ Orange

10kohm-kit				100kohm-kit							
	Resistance value	Color code		Resistance value	Color code		Resistance value	Color code		Resistance value	Color code
R1	2kohm	■ ■ ■ ■ ■	R12	160ohm	■ ■ ■ ■ ■	R1	20kohm	■ ■ ■ ■ ■	R12	1.6kohm	■ ■ ■ ■ ■
R2	1.6kohm	■ ■ ■ ■ ■	R13	130ohm	■ ■ ■ ■ ■	R2	16kohm	■ ■ ■ ■ ■	R13	1.3kohm	■ ■ ■ ■ ■
R3	1.3kohm	■ ■ ■ ■ ■	R14	100ohm	■ ■ ■ ■ ■	R3	13kohm	■ ■ ■ ■ ■	R14	1kohm	■ ■ ■ ■ ■
R4	1kohm	■ ■ ■ ■ ■	R15	82ohm	■ ■ ■ ■ ■	R4	10kohm	■ ■ ■ ■ ■	R15	820ohm	■ ■ ■ ■ ■
R5	820ohm	■ ■ ■ ■ ■	R16	91ohm	■ ■ ■ ■ ■	R5	8.2kohm	■ ■ ■ ■ ■	R16	910ohm	■ ■ ■ ■ ■
R6	680ohm	■ ■ ■ ■ ■	R17	68ohm	■ ■ ■ ■ ■	R6	6.8kohm	■ ■ ■ ■ ■	R17	680ohm	■ ■ ■ ■ ■
R7	510ohm	■ ■ ■ ■ ■	R18	56ohm	■ ■ ■ ■ ■	R7	5.1kohm	■ ■ ■ ■ ■	R18	560ohm	■ ■ ■ ■ ■
R8	430ohm	■ ■ ■ ■ ■	R19	43ohm	■ ■ ■ ■ ■	R8	4.3kohm	■ ■ ■ ■ ■	R19	430ohm	■ ■ ■ ■ ■
R9	330ohm	■ ■ ■ ■ ■	R20	24ohm	■ ■ ■ ■ ■	R9	3.3kohm	■ ■ ■ ■ ■	R20	240ohm	■ ■ ■ ■ ■
R10	270ohm	■ ■ ■ ■ ■	R21	22ohm	■ ■ ■ ■ ■	R10	2.7kohm	■ ■ ■ ■ ■	R21	220ohm	■ ■ ■ ■ ■
R11	200ohm	■ ■ ■ ■ ■	R22	10ohm	■ ■ ■ ■ ■	R11	2kohm	■ ■ ■ ■ ■	R22	100ohm	■ ■ ■ ■ ■



## How to wire

Tool : Soldering iron, Solder, Nippers, Tweezers, Vise (Something to fix)

The way to wire : Wire and solder 22pcs resistors in order. See [1]-[4] below.

\*Please put one by one. It might be difficult work if you have done all at once.

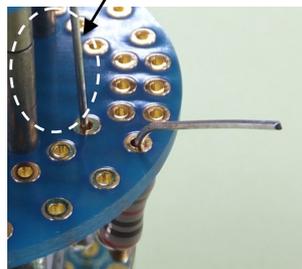
After measuring, continue with the second wafer.

**\*Please be careful not to burn your hand.**

Please take care not to touch the lead wire to the prop.



[1] Insert the resistor.



[2] Turn the rotary switch over and bend the outer lead wire to fix.



[3] Do soldering.



[4] Cut the extra lead wire.



Please refer to the reverse side for the position of INPUT/OUTPUT/COM.

## How to measure **\*Please measure the resistance value and the attenuation before use.**

Tool: Transmitter, Level meter, Circuit tester (Ohmmeter)

The way to measure :

<1> Measure the resistance value between INPUT-COM.

<2> Give a signal to INPUT through-hole from a transmitter and do output through-hole to a level meter.

Measure the attenuation of each step by turning the shaft.

\*The input impedance of level meter must be 20 times (or more) as much as the impedance of the attenuator.

The way to measure without a transmitter and level meter.

{1} Measure the resistance value between OUTPUT and COM at each step by turning the shaft.

{2} Calculate [The resistance value measured at (1)] divided by [The resistance value measured at <1>] at each step.

{3} Calculate the attenuation of each step in  $20\log_{10}$ (Calculated value of {2})

<3> If the figures are within the range of our spec, your attenuator is now complete!

Otherwise the resistance might be lined out of order. Please double check soldering.

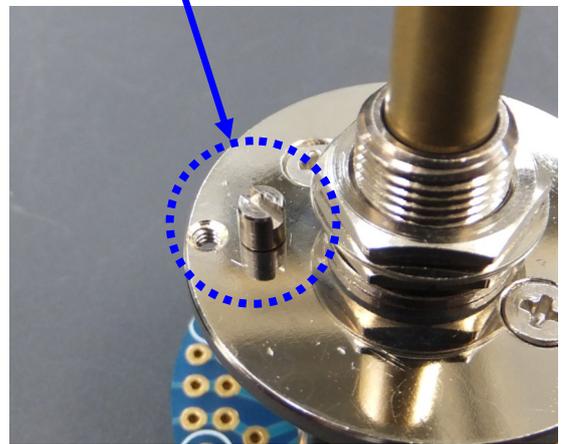
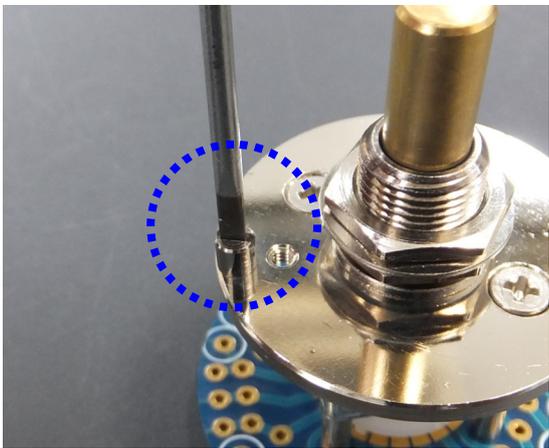
## 36R Attenuator, 36R Attenuator Kit

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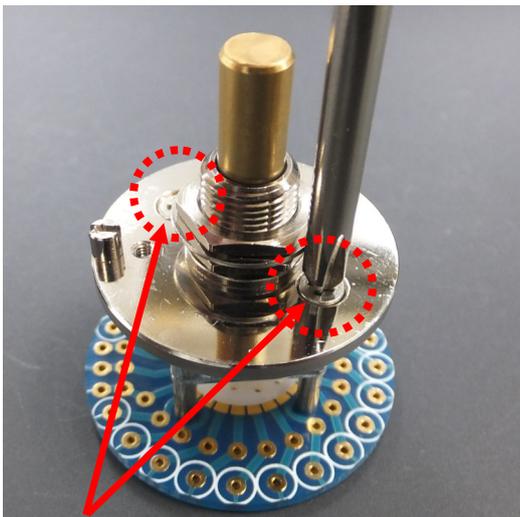
The position of the whirl-stop can be changed easily by removing with the flat-head screwdriver.

Insert to next screw hole 10mm away from the prop.

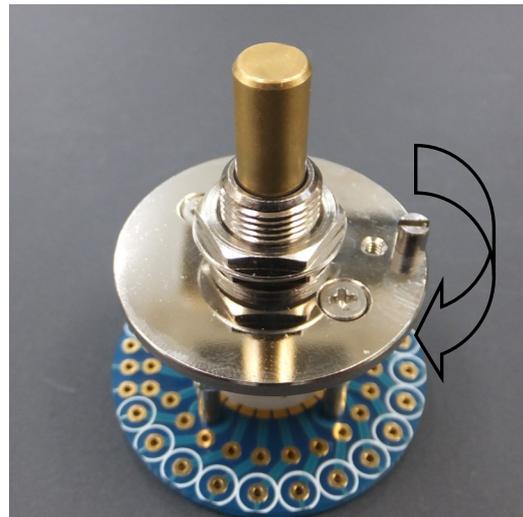


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The position can also be changed by turning the mounting plate 180 degrees.



Remove the screws with the phillips head screwdriver.



Turn the mounting plate 180 degrees and fix it with the screws.