



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



## Contact us

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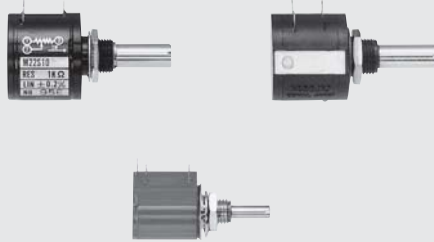
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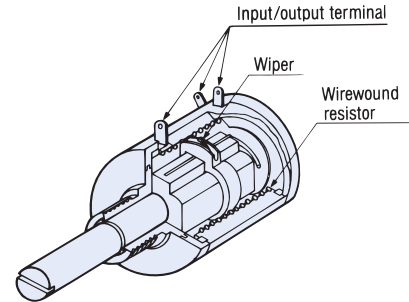


# WIREWOUND MULTITURN TYPE **M**series

RoHS compliant



Basic construction  
Wirewound multiturn type



## FEATURES

- Line-up includes products ranging from 3 to 10 turns
- Cost effective (M-22E10) in house comparison
- Dial can be attached (M-22 series only)
- RoHS compliant

## PART NUMBER DESIGNATION

M - 1 3 0 3    1 0 0

Series name

M-1303, M-1305, M-22S10  
M-22E10, M-22E10-050

Nominal resistance value (Ω)

100, 200, 500, 1 k, 2 k, 5 k, 10 k, 20 k, 50 k

## LIST OF PART NUMBERS

No. of turn	Item	Nominal resistance value (Ω)	Part number
3 turns		100, 200, 500, 1 k, 2 k, 5 k, 10 k, 20 k	M-1303    Resistance value ※1
			M-1305    Resistance value
5 turns			M-22S10    Resistance value
			M-22E10 M-22E10-050    Resistance value ※2
10 turns		100, 200, 500, 1 k, 2 k, 5 k, 10 k, 20 k, 50 k	M-22S10    Resistance value
			M-22E10 M-22E10-050    Resistance value ※2

※1: M-1303 200 Ω model is manufactured upon receipt of order basis.

※2: For M-22E10 series, please refer to the drawing for its mount size.

※ Verify the above part numbers when placing orders.

# M series POTENTIOMETERS

## STANDARD SPECIFICATIONS

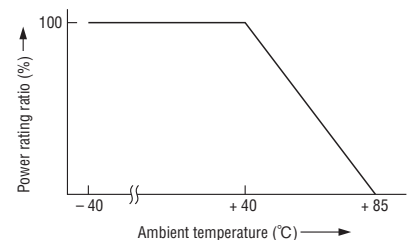
Item	Part number	M-13 series		M-22 series		
		M-1303	M-1305	M-22S10	M-22E10	
Resistance tolerance	%	± 5				
Independent linearity	%	± 0.5		± 0.2		
End resistance, maximum		2 % or 4 Ω, whichever is greater		0.5 % or 1 Ω, whichever is greater		
Effective electrical angle		1080°	1800°	3600°		
Mechanical angle		1080° ±10°	1800° ±10°	3600° $\begin{smallmatrix} +10^\circ \\ 0 \end{smallmatrix}$		
Power rating	W	0.75	1	2		
Dielectric strength	Vrms	1000 1 min				
Insulation resistance	MΩ minimum	1000 (at DC 500 V)				
Rotational torque	mN·m (gf·cm) maximum	14.7 {150}		9.81 {100}		
Strength of tighten screw	N·m (kgf·cm) maximum	0.98 {10}			M-22E10-000 0.784 {8}	M-22E10-050 0.588 {6}
Stop strength	N·m (kgf·cm) maximum	0.147 {1.5}		0.196 {2}		
Peak noise	Ω maximum	20 (at 4 min <sup>-1</sup> )				
Temp. coefficient of resistance	ppm/°C	± 50				
Operating temp. range	°C	-40 ~ 85				
Rotational life		15000 cycles		25000 cycles		
Net weight	g	Approx. 7		Approx. 19	Approx. 17	
Protection grade		IP40				

## NOMINAL RESISTANCE · RESOLUTION · RATED VOLTAGE · RATED CURRENT

Nominal resistance value (Ω)	Resolution (%)		Rated voltage (V)		Rated current (mA)	
	M-22S10	M-22E10	M-22S10	M-22E10	M-22S10	M-22E10
100	0.041		14.1		141.8	
200	0.036		20.0		100.0	
500	0.029		31.6		63.2	
1 k	0.025		44.7		44.7	
2 k	0.020		63.2		31.6	
5 k	0.014		100.0		20.0	
10k	0.018		141.1		14.1	
20 k	0.014		200.1		10.1	
50 k	0.011		316.2	200.0	6.3	
100 k	↻ 0.009		↻ 450.0	↻ 200.0	↻ 4.47	

Nominal resistance value (Ω)	Resolution (%)		Rated voltage (V)		Rated current (mA)	
	M-1303	M-1305	M-1303	M-1305	M-1303	M-1305
100	0.190	0.137	8.7	10.0	86.2	100.0
200	↻ 0.154	0.095	↻ 12.2	14.1	↻ 61.5	70.9
500	0.115	0.078	19.4	22.4	38.7	44.6
1 k	0.072	0.057	27.4	31.6	28.5	31.6
2 k	0.056	0.047	38.7	44.7	19.4	22.4
5 k	0.069	0.051	61.2	70.7	12.3	14.1
10 k	0.053	0.039	86.6	100.0	8.7	10.0
20 k	0.038	0.032	122.5	141.4	6.1	7.1

## RATED POWER DERATING CURVE



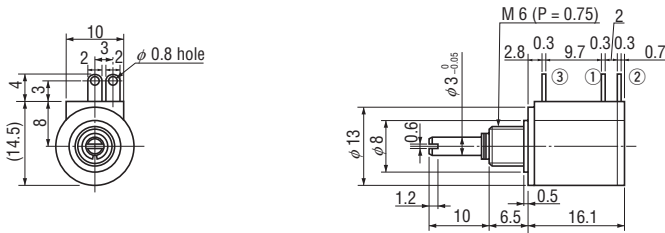
The products indicated by ↻ mark are manufactured upon receipt of order basis.

# M series POTENTIOMETERS

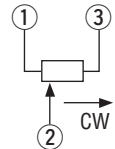
## OUTLINE DIMENSIONS

(Unit: mm)

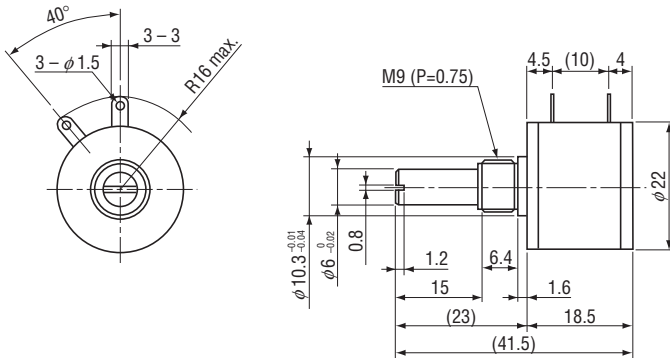
- M-1303 (3 turns)
- M-1305 (5 turns)



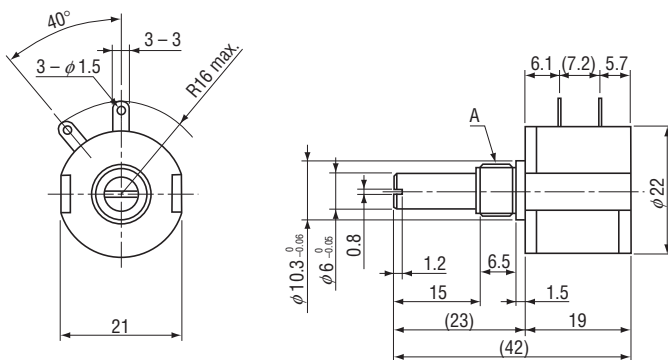
Wiring diagram



- M-22S10 (10 turns)



- M-22E10 (10 turns)



Part number	Mark	A
M-22E10		3/8" 32 UNEF
M-22E10-050		M 9 (P = 0.75)

- MC1003, JC10, M-1303, M-1305
- For mm size (M-22E10-050, M-22S10 in common)

- For inch size (M-22E10)

