

Panel Potentiometer

Model P09x Series



OBSOLETE (P098N AND P098 ONLY)

Features:

- Multi-ganged—up to 8 gangs
- Excellent 100,000 cycles life
- Rotary and Momentary Switch options
- Push-lock options
- Concentric shaft option
- Centre tap option



Description:

9mm Rotary Potentiometer, with metal shaft and bushing. Options include audio and linear tapers; knurled, flatted and slotted shafts.

Applications:

- Audio / video equipment / Amplifiers / Mixers
- TV and multimedia sound systems / Portable electronics

Model Styles Available:

- Side Adjust, 1 to 8 gangs P09xN
- Side Adjust, 1 to 4 gangs, w/Rotary switch P09xS
- Side Adjust, 1 to 4 gangs, w/Momentary switch P09xM
- Top Adjust, 1 or 2 gangs P09x5N
- Side Adjust, with Push-Lock, 1 or 2 gangs P09xP
- With Concentric shaft, 2 to 4 gangs P09xC
- With Centre Tap, 2 gangs only P09xT

Electrical Characteristics

T_A = 25°C unless otherwise noted

Resistance Range	1KΩ to 1MΩ
Standard Resistance Tolerance	± 20%
Residual Resistance	20 ohms max
Resistance Taper	Audio (10A, 15A, 15C), Linear (1B) - see note 3
Maximum Operating Voltage	50Vac
Rated Power	Linear Taper B: 0.05W Other Tapers: 0.025W
Dielectric Strength	300 Vac , 1 minute
Rotational Noise	100mV max
Insulation Resistance	>100M ohms at 250 Vdc
Gang Error (Multi-ganged)	-40dB to 0dB, ±3dB

General Note

TT Electronics reserves the right to make changes in product specification without notice or liability. All information is subject to TT Electronics' own data and is considered accurate at time of going to print.

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Switch Characteristics

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Switch Circuit	SPST
Contact Resistance	<100mohms
Rated Power	3.0A at 16Vdc
Switch Life	15,000 cycles min.

Mechanical Characteristics

T_A = 25°C unless otherwise noted

Mechanical Travel (Rotational angle)	300° ± 10°
Rotational Torque	35 to 90 gf.cm
Rotational Stop Strength, Minimum	3.0kgf.cm
Shaft Pull Strength, Minimum	6.0 kgf
Detent Torque	50 to 200 gf.cm
Nut Tightening Strength, Minimum	8.0 kgf
Rotational Life	100,000 cycles

Environmental Characteristics

T_A = 25°C unless otherwise noted

Operating Temperature	-10°C to 70°C
IP Rating	IP50
Soldering Condition	Compatible with Industry standard soldering processes: Manual: SAC 270 °C max. for 3 seconds. Wave: SAC 260 °C max. for 5 seconds.
RoHS	Please refer to TT Electronics Website
REACH	Please refer to TT Electronics Website

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Ordering Information

P09	1	N	-	E	A	20	B	R	10K
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Part Family

9mm Rotary

Number of Gangs

x = x gangs

1 = single gang

to

8 = 8 gangs (maximum)

Model Style

Omit = Side Adjust

5 = Top Adjust (1-2 gang)

Switch type

N = No switch

S = Rotary switch

M = Momentary switch

P = Push-Lock (1-2 gang)

C = Concentric Shaft (2 or 4 gang only)

T = Center Tap (2 gang only)

Number of Detents

Omit = No detent

1 = Center only

2 = 11

3 = 21

4 = 41

Shaft Type

E = Slotted

F = Flatted

Q = Split knurled

(see Note 1)

Total Resistance

See Resistance table below

Resistance Taper

A = Audio (15A)

B = Linear (1B)

C = Rev. Audio (15C)

D = Audio (10A)

(see Note 3)

Shaft Length - L

10 = 10mm

15 = 15mm

17 = 17.5mm

20 = 20mm

25 = 25mm

30 = 30mm

35 = 35mm

(See Note 1)

Full CCW Position

A = 300°

B = 120°

C = 30°

D = 210°

(see Note 2)

Resistance table

Resistance (Ohms)	1,000	2,000	5,000	10,000	20,000	50,000	100,000	200,000	500,000	1,000,000
Code	1K	2K	5K	10K	20K	50K	100K	200K	500K	1MEG

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Note 1: Shaft type and Length

Shaft Types: P09xN, P09xS, P09x5N, P09xT

E-TYPE		F-TYPE		Q-TYPE	
L ±0.5		L ±0.5		L ±0.5	
5	1.5	5	T	5	T
1.0		4.5		1.0	
1.0		1.0		1.0	
Ø6.0 ^{+0.1}		Ø6.0 ^{+0.1}		Ø6.0 ^{+0.1}	
L 10 15 20 25 30		L 10 15 20 25 30		L 10 15 20 25 30	
T 4	7	12	12	12	12

Shaft Types: P09xP (Push-Lock)

E-TYPE		F-TYPE		Q-TYPE	
L ±0.5		L ±0.5		L ±0.5	
10	1.5	10	T	10	T
1.0		4.5		1.0	
1.0		1.0		1.0	
Ø6.0 ^{+0.1}		Ø6.0 ^{+0.1}		Ø6.0 ^{+0.1}	
L 25 30 35		L 25 30 35		L 25 30 35	
T 4.5	7	12		T 3	6
M 5.7	10.7	15.7		M 5.7	10.7
		M 5.7	10.7	15.7	

Shaft Types: P09xM (Momentary Switch)

F-TYPE		Q-TYPE	
L ±0.5		L ±0.5	
5	T	5	T
4.5		4.5	
Ø6.0 ^{+0.1}		Ø6.0 ^{+0.1}	
0.5 ^{+0.1}	SW STROKE	0.5 ^{+0.1}	SW STROKE
L 10 15 20 25 30		L 10 15 20 25 30	
T 4	7	12	12

Shaft Types: P09xC (Concentric Shafts)

E-TYPE		F-TYPE		Q-TYPE	
L		L		L	
10		15 17 20 25		10	
5	4	5	T	5	4
4		5		4	
7		6		7	
1.2		2.5		1.2	
Ø6.0 ^{+0.1}		Ø6.0 ^{+0.1}		Ø6.0 ^{+0.1}	
L 20		L1 10 10 10 15		L 20	
		T 5 5 6 7			
		P 4 4 4 5			
		Notes: L = 17 is 17.5mm			

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Panel Potentiometer

Model P09x Series

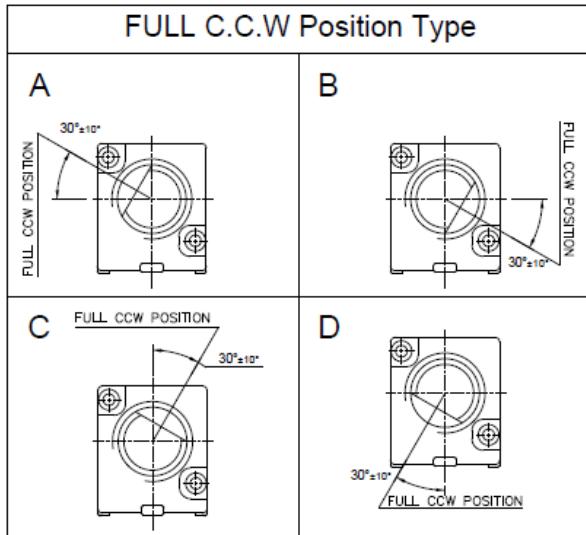
OBSOLETE (P098N AND P098 ONLY)



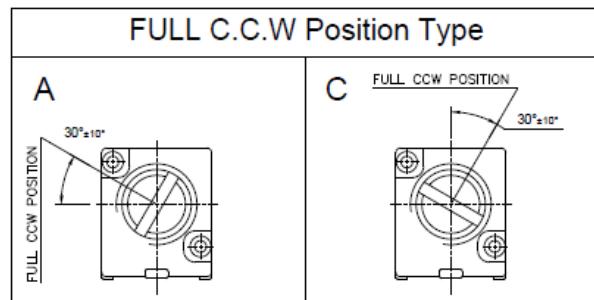
Note 2: Shaft Position

Models: P09xN, P09xS, P09xM, P09x5N, P09xP, P09xT

F Shaft Type

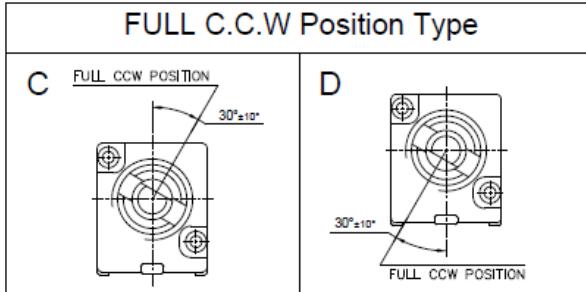


E / Q Shaft Type

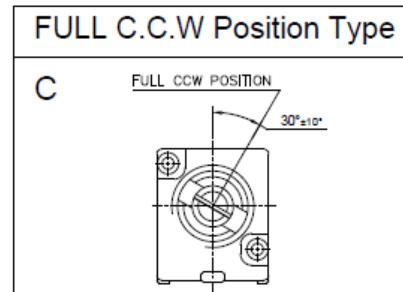


Models: P09xC

F Shaft Type



E / Q Shaft Type



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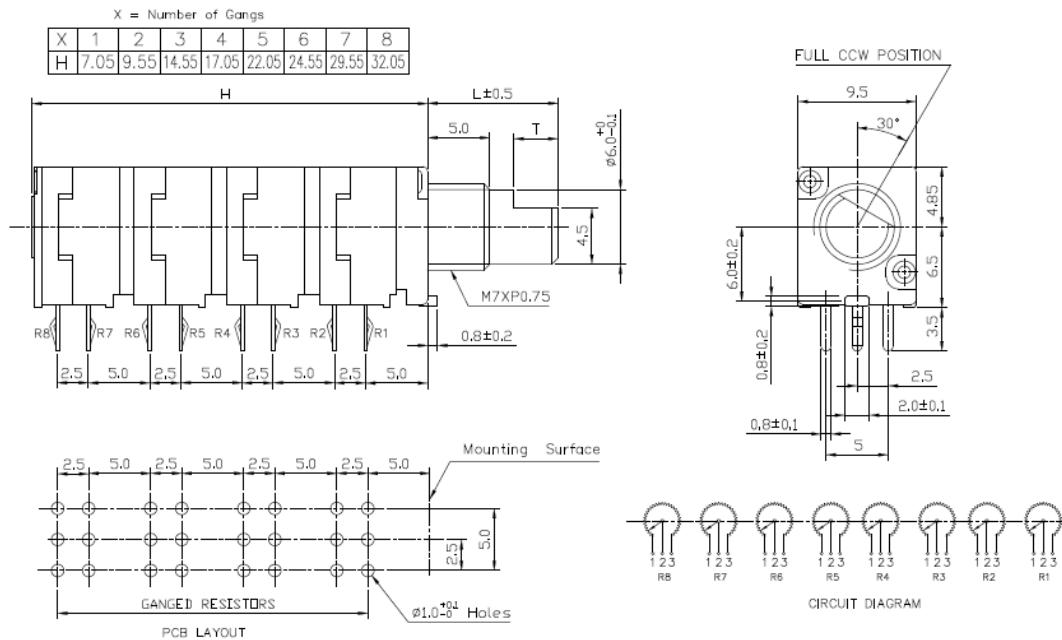
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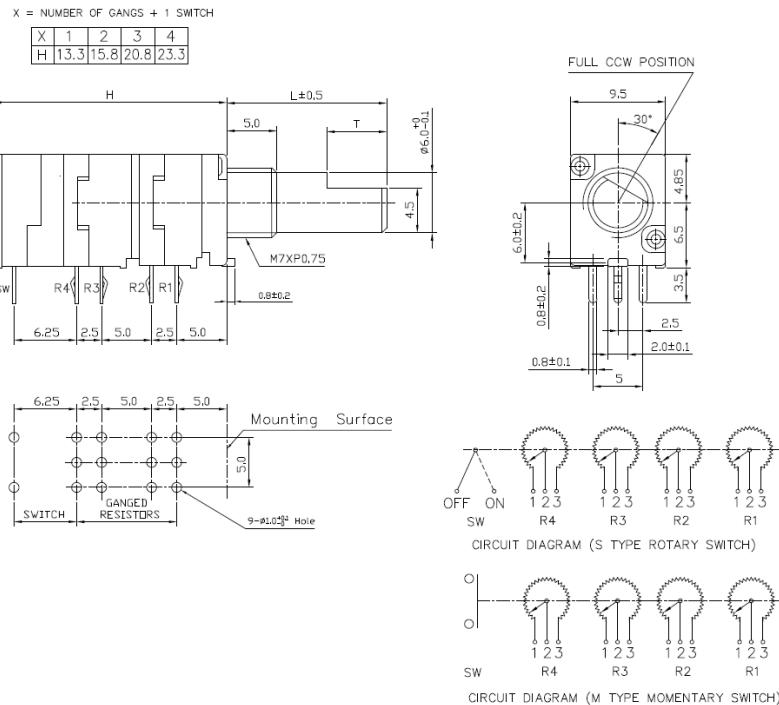
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Outline Drawings

Model P09xN (Side Adjust, PCB pins, up to 8 gangs)



Model P09xS and P09xM (Side Adjust, PCB pins, up to 4 gangs with Switch)



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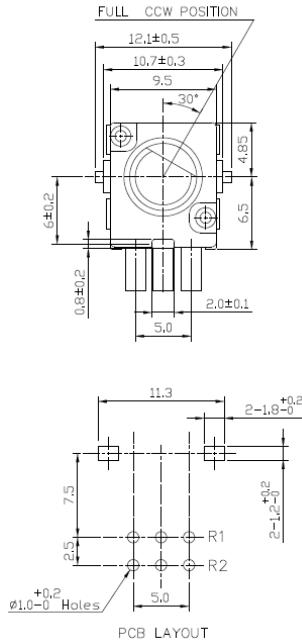
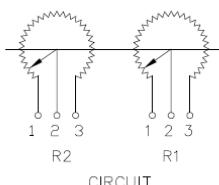
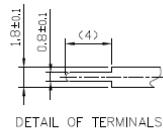
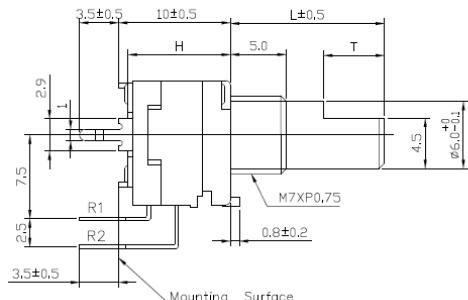


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Outline Drawings

Model P09x5N (Top Adjust, PCB pins, up to 2 gangs)

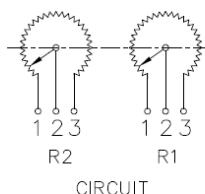
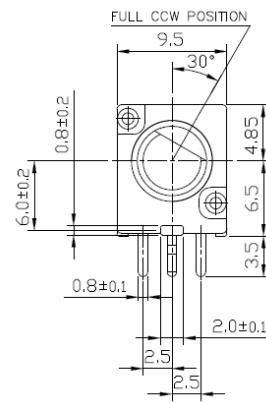
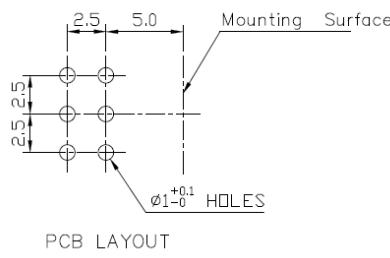
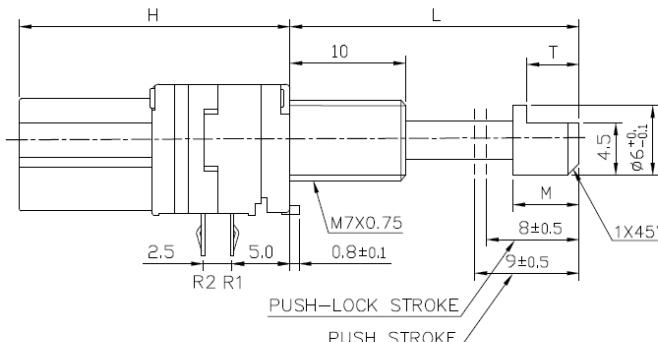
X = Number of Gangs



Model P09xP (Side Adjust, PCB pins, with Push-Lock, up to 2 gangs)

X = Number of Gangs

X	1	2
H	20.75	23.25



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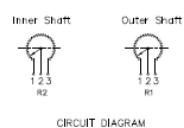
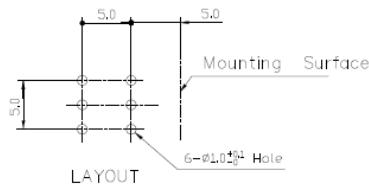
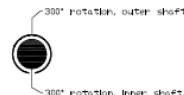
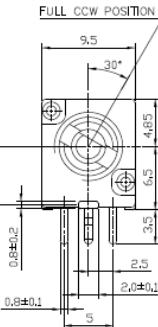
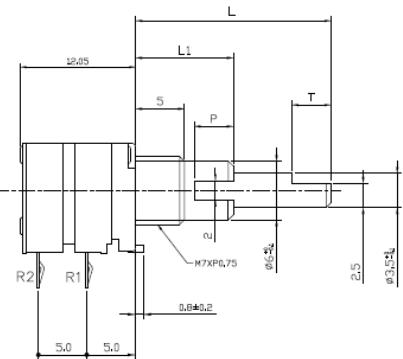


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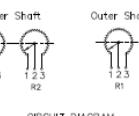
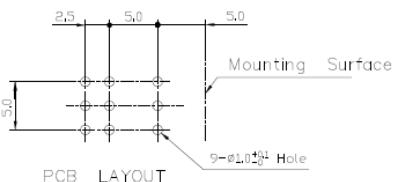
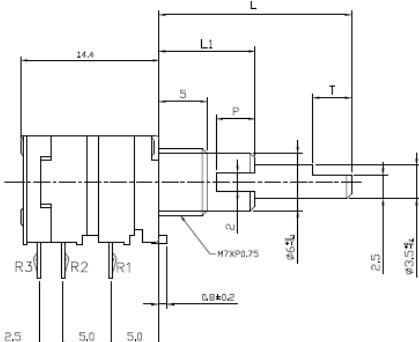
Outline Drawings

Model P09xC (Side Adjust, PCB pins with Concentric Shaft, 2 to 4 gangs)

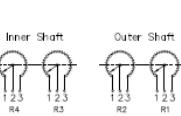
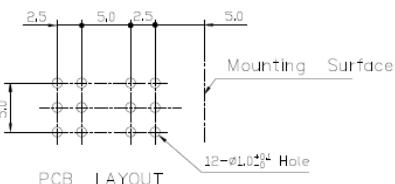
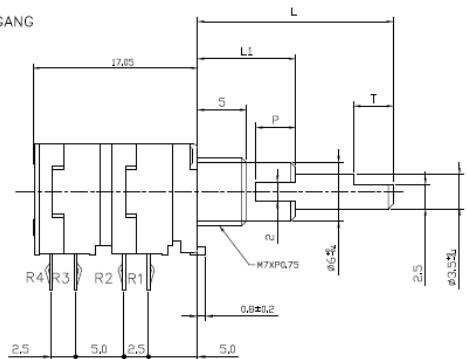
2 GANG



3 GANG



4 GANG



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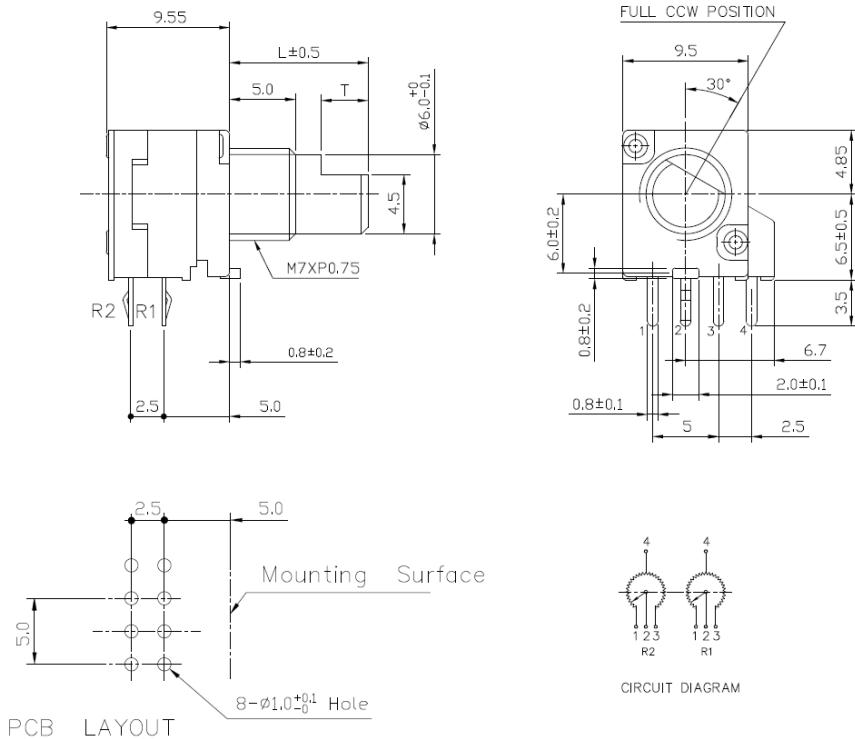
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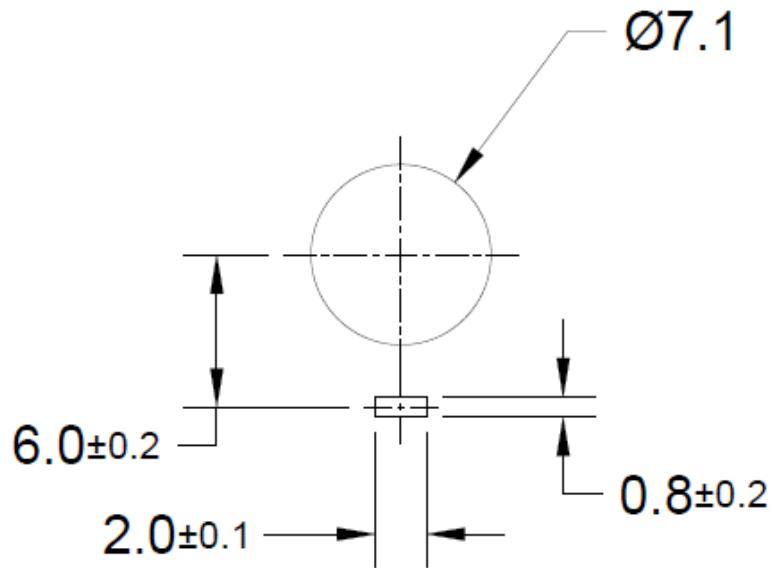


Outline Drawings

Model P09xT (Side Adjust, PCB pins, with Center Tap, 2 gangs only)



Panel Layout



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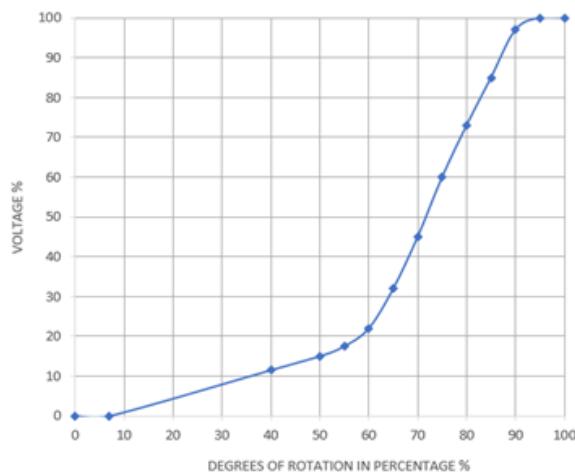
Model P09x Series

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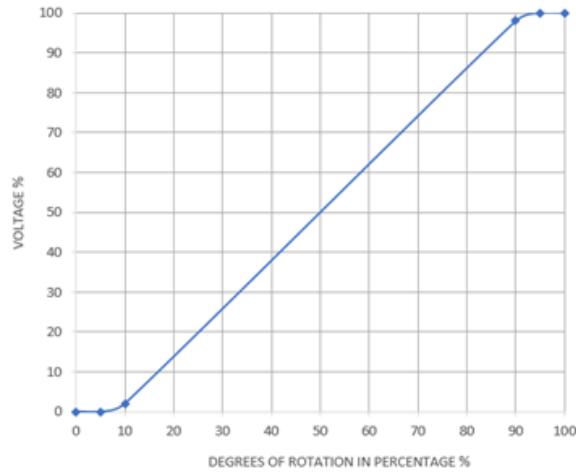


Note 3: Standard Tapers

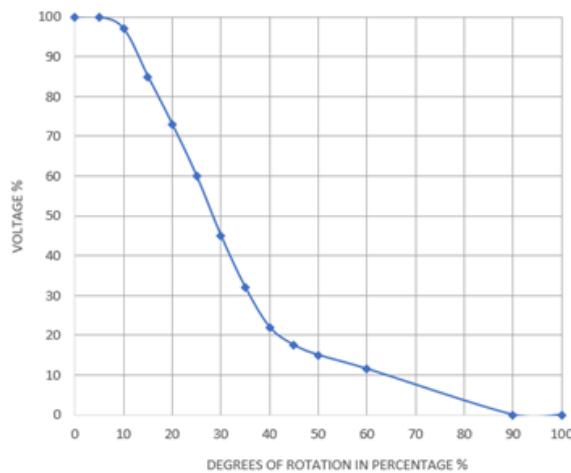
"A" AUDIO (15A)



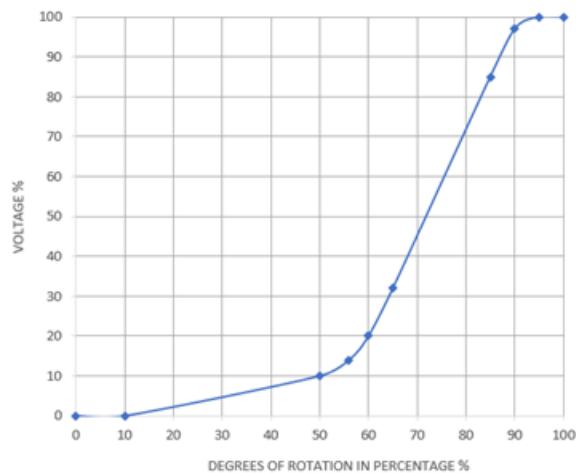
"B" LINEAR (1B)



"C" REVERSE AUDIO (15C)



"D" AUDIO (10A)



Packaging

Standard Packaging	Plastic Trays
Hardware	Two flat washers and mounting nut

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