

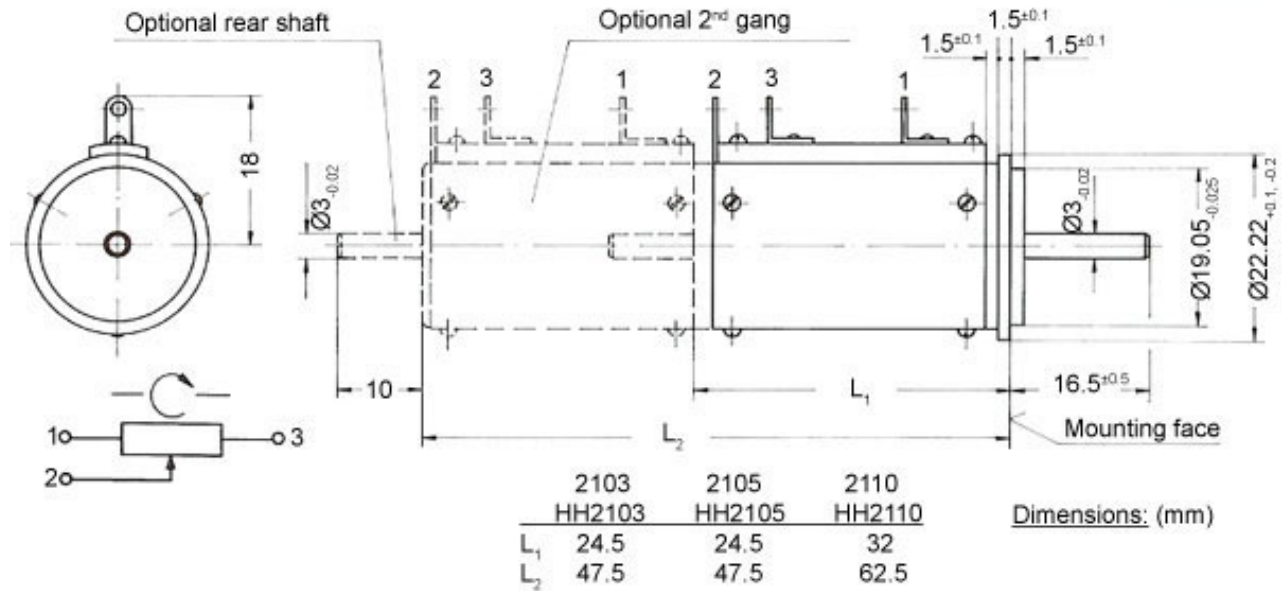
- $\pm 0.25\%$  Standard Linearity
- 5 Million Turns Life (10 turn Hybrid)
- 3, 5 and 10 Turn Models
- High Resolution



The 21xx series high precision multi-turn potentiometer is available with either a wire-wound or hybrid element. Dual precision ball bearings and precision machining make the 21xx series suitable for all industrial applications.

Electrical Specifications	Wire-Wound Element			Hybrid Element		
	2110	2105	2103	HH2110	HH2105	HH2103
Resistance Values (ohms)	100 to 150K	100 to 100K	100 to 50K	1K to 50K		
Resistance Tolerance	$\pm 3\%$ (standard)			$\pm 5\%$ (standard)		
Linearity Tolerance	$\pm 0.25\%$ standard (0.15% and 0.1% available)					
Electrical Angle $+10^\circ, -0^\circ$	$3600^\circ$	1800	$1080^\circ$	$3600^\circ$	1800	$1080^\circ$
Resolution	See chart below			Essentially infinite		
End Resistance	< 0.05%			< 0.1%		
Insulation Resistance	1000 Mohms at 500 VDC					
Dielectric Strength	1000 VAC, 1 minute					
Noise	<100 ohms E.N.R.			< 0.1% (Output Smoothness)		
Power @ $+40^\circ\text{C}$ (W)	3	2	1	2	1	0.75
Mechanical Specifications						
Number of Turns	10	5	3	10	5	3
Mechanical Angle $+10^\circ, -0^\circ$	$3600^\circ$	$1800^\circ$	$1080^\circ$	$3600^\circ$	$1800^\circ$	$1080^\circ$
Starting (max.) Torque (Ncm)	0.4	0.35	0.3			
Stopper Strength (Ncm)	50					
Max. Axial Play (mm)	0.13 (standard model)					
Max. Radial Play (mm)	0.05 (standard model)					
Typical Life (# of turns)	3 million			5 million		
Bearing	2 x ball bearings (sleeve, bushing mount optional)					
Environmental Specifications						
Operating Temperature	$-55^\circ\text{C}$ to $+105^\circ\text{C}$					
IP Protection Grade	IP40 (IP54 optional)					
Standards	MIL-R-12934					
Materials						
Housing	Duroplast					
Servo Flange	Aluminum					
Shaft	Stainless steel, anti-magnetic					
Mounting	Servo Flange (3 fixing clamps provided)					
Terminals	Gold plated Brass and Copper Beryllium					

## Standard Dimensions (mm)



Resistance value (ohms)	Resolution (%)			$V_{max}$ across element (V)			$I_{max}$ through element (mA)*			Temperature coefficient of wire ( $\pm$ ...ppm/K)
	2103	2105	2110	2103	2105	2110	2103	2105	2110	
100	0.111	0.100	0.055	10	14	17	100	143	176	80
200	0.100	0.084	0.045	14	20	24	72	100	125	80
500	0.095	0.067	0.031	22	31	39	45	64	77	80
1k	0.083	0.052	0.025	32	44	55	31	45	54	80
2k	0.067	0.042	0.024	45	63	77	22	31	39	20
5k	0.050	0.031	0.020	71	100	122	14	20	25	20
10k	0.040	0.025	0.016	100	140	172	10	14	17	20
20k	0.031	0.020	0.013	142	200	245	7	10	12	20
50k	0.027	0.014	0.010	223	315	385	4	6	8	20
100k	-	0.011	0.007	-	445	500	-	4	6	20
150k	-	-	0.006	-	-	500	-	-	6	20

\* Maximum current through the wiper must not exceed 30mA

## Options

- Rear shaft extension (3mm x 10mm)
- Multiple gangs (up to 2)
- Tighter tolerances
- Special shaft diameters and lengths
- Special resistance values
- Extra tap ( 1 tap max.)
- Slipping clutch
- Limit switch adaptor
- Bushing mount

# P3 America

3089C Clairemont Dr. # 363 - San Diego, Ca. 92117

Phone: (858) 277-1420 Fax: (858) 225-0439

[www.p3america.com](http://www.p3america.com)

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