

**Sensor
Potentiometers**

SP2500 Series



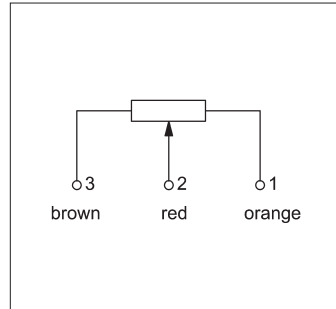
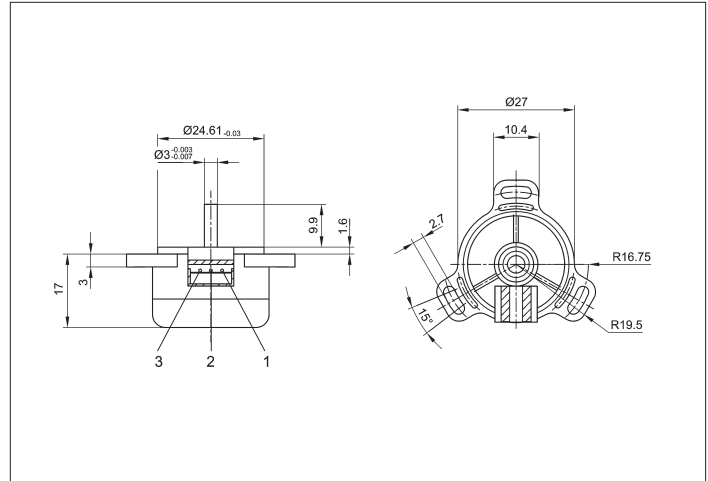
Precision potentiometer with a conductive plastic resistance track, manufactured with screen-printing technology to provide a low-cost solution for applications in measurement, control and instrumentation.

The distinguishing features of the SP2500 include a plastic housing, ball bearings, conductive plastic collector track and precious metal multi-finger wiper.

Reliability, long life, linearity, resolution and corrosion resistance further differentiate the SP2500.

Special features

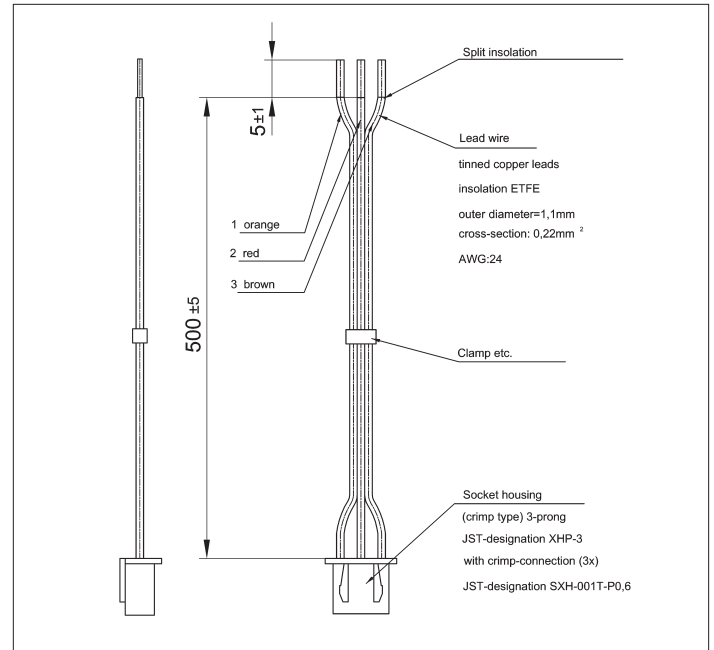
- servo size 11
- small size with high precision
- low price
- very long life 50×10^6 movements
- very good linearity – standard $\pm 0.2\%$
- very high resolution – better than 0.01°
- unrestricted continuous rotation
- easy assembly by a synchro-flange with 3 mounting plates
- optimal connection by an integrated snap-connector



Description

Size	servo size 11
Housing	two part, plastic housing and cover
Shaft	stainless steel
Bearings	stainless steel
Resistance element	conductive plastic
Wiper assembly	precious metal multi-finger wiper
Electrical connections	3-pin snap connection

Type Designations	SPK2501 A5033	SPK2501 A1812	
Mechanical Data			
Dimensions	see dimension drawing		
Mounting	with 3 cylinder screws M 2.5 and washers		
Mechanical travel	360 continuous		°
Permitted shaft loading (axial and radial) static or dynamic force	15		N
Torque	≤ 0.1		Ncm
Max. allowed rotational velocity	10 ⁴		rad/s ²
Weight	15		g
Electrical Data			
Actual electrical travel	335 ±2	120 ±2	°
Nominal resistance	5.0	1.8	kΩ
Resistance tolerance	-0 ... +40		%
Repeatability	0.003 (±0.01°)		%
Effective temperature coefficient of the output-to-applied voltage ratio	5 (typical)		ppm/K
Independent linearity	±0.2	±0.6	%
Max. permissible applied voltage	42		V
Recommended operating wiper current	≤ 1		μA
Max. wiper current in case of malfunction	10		mA
Insulation resistance (500 VDC, 1 bar, 2 s)	≥ 10		MΩ
Dielectric strength (50 Hz, 2 s, 1 bar, 500 VAC)	≤ 100		μA
Environmental Data			
Temperature range	-40...+85		°C
Vibration	5...2000 A _{max} = 0.75 a _{max} = 20		Hz mm g
Shock	50 11		g ms
Life (limitation on movements over dead zone)	50 x 10 ⁶		movements
Protection class	IP 40 (DIN 400 50 / IEC 529)		
Order Designations			
Type	Art. no.	R in kΩ	
SPK2501 A5033	038001	5	
SPK2501 A1812	038002	1.8	
Cable set ZK1-500	059013		



Recommended accessories

Fork coupling Z 103 G3 (backlash-free), MAP process-control indicators and display, MUP or MUK signal conditioner for standardized output signals.

Important

All values given for this series – including linearity, lifetime, micro-linearity, resistance to external disturbances and temperature coefficient in voltage dividing mode – are quoted for the device operating with the wiper voltage driving an operational amplifier working as a voltage follower where virtually no load is applied to the wiper ($I_e \leq 1 \mu A$).