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NON-LINEAR POTENTIOMETER

(Precision 1-turn, Wirewound & Conductive Plastic Element)

A precise detection of Sine-Cosine function voltage can be obtained through the shaft revolution of **SAKAE Non-Linear Potentiometer Series.** There are 2 kinds of resistive element in this series: traditional wirewound with high stability and latest conductive plastic featuring long life expectancy and high speed tracking ability.

THE NOMENCLATURE OF SAKAE NON-LINEAR POT. SERIES

S FSCB 30 A G - ○○○○○

● 4 or 5 digits branch number
to be used for specific requirements.

● Special Specifications
S means the potentiometer with special mechanical specifications.

● Number of Gangs
G means 2 ganged potentiometer on the same axle. The potentiometer consists of one single section unless G is given.
(e.g. G3...3 ganged, G4...4 ganged.)

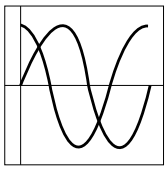
● Type
FSCB means a conductive plastic type potentiometer with continuous, sine-cosine function and the following types are available according to the kinds of resistive elements incorporated and functional characteristics.
SCB..... Sine-Cosine function, wirewound resistive element type.
FSCB-A..... Sine-Cosine function, conductive plastic resistive element type.

● Characteristics
A means a conductive plastic resistive element type.
(A is not given to wirewound type.)

● Diameter
30 means approximate outer diameter of the potentiometer in metric system. The 3 standard diameters are available, namely, 22mm, 30mm and 50mm.

■ Examples of Non-Linear Function Curves

Sine-Cosine 360°



SELECTION GUIDE

Function Characteristics	Kind of Element	Model No.	Features
Sine-Cosine	Wirewound	**SCB50**	Most popular precision pot. with sine-cosine output.
	Conductive Plastic	**FSCB22A, FSCB30A, FSCB50A**	Conductive plastic resistive element pot. with essentially infinite resolution and long life expectancy, using a patented multifinger contact.

General Performances

Kind of Element	Model No.	Function Characte-ristics	Standard Total Resistance Range (Ω)	Special Resistance Values (Ω)	Conformity Tolerance (Peak-Peak) (%)	Special Specifications					
						With Stopper	Front and Rear Shaft Extension	Extra Taps	Simple Sealing Type	With-Switch	Multi-ganged
Wirewound	**SCB50**	Sin-Cos	500～10k	20k	±1.0～±0.5	—	○	—	○	—	○
Conductive Plastic	**FSCB22A**	Sin-Cos	1k～10k	500, 20k, 50k	±2.0～±1.0	—	○	—	○	—	○
	FSCB30A	Sin-Cos	1k～10k	500, 20k, 50k	±1.0～±0.7	—	○	—	○	—	○
	FSCB50A	Sin-Cos	1k～10k	20k, 50k, 100k	±0.5～±0.2	—	○	—	○	—	○

Note: 1. For detailed performances, please refer to specifications of each model in this catalog.

Environmental Performances

Parameters \ Model Nos.	SCB50	FSCB22A, FSCB30A, FSCB50A
Operating Temperature Range	−55℃～+105℃	−55℃～+105℃
Temperature Cycle	5 cycles under −55℃～+105℃ Total resistance value variation: within ±5% No mechanical damage	5 cycles under −55℃～+105℃ Total resistance value variation: within ±10% No mechanical damage
Exposure at Low Temperature	24 hours at −55℃ Total resistance value variation: within ±5% No mechanical damage	24 hours at −55℃ Total resistance value variation: within ±5% No mechanical damage
Exposure at High Temperature	1,000 hours at 105℃ Total resistance value variation: within ±5% No mechanical damage	1,000 hours at 105℃ Total resistance value variation: within ±10% No mechanical damage
Vibration	10Hz to 2,000Hz 147m/s² 12 hours Total resistance value variation: within ±5% No mechanical and electrical damage	10Hz to 2,000Hz 147m/s² 12 hours Total resistance value variation: within ±2% No mechanical and electrical damage
Shock	490m/s² 11ms 18 times Total resistance value variation: within ±1% No mechanical and electrical damage	490m/s² 11ms 18 times Total resistance value variation: within ±1% No mechanical and electrical damage
Moisture Resistance	40℃ 95%RH 240 hours Total resistance value variation: within ±10% Insulation resistance: over 10MΩ	40℃ 95%RH 120 hours Total resistance value variation: within ±10% Insulation resistance: over 10MΩ
Rotational Life Expectancy (at 25℃)	No load at 40 r.p.m. 1,000,000 shaft revolutions Total resistance value variation: within ±5% against initial value Conformity tolerance: within 150% of specified value Noise: within 500Ω E.N.R.	No load at 400 r.p.m., inverting every 15 minutes 50,000,000 shaft revolutions Total resistance value variation: within ±10% against initial value Conformity tolerance: within 150% of specified value Output smoothness: within 150% of specified value

Note: 2. In case of the potentiometer with special resistance values and special specifications, the above performances may vary and therefore, please consult us in advance, separately.
3. As for operating temperature range, we can't always guarantee exactly the same performances and values in actual industrial applications even if the temperature out there is within standard range. (Please see page 23 in this catalog for further details.)
4. All values of each parameter were measured under standard temperature and standard testing conditions. For the values during the tests and other characteristics, please ask us separately.

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