

Optical System Achieves 1- μ m Operating Position Repeatability in this 4-way Switch

- No-contact structure for high reliability.
- Ceramic materials in measuring part for superior resistance to abrasion.
- Two different output types (PNP and NPN) available.
- Less abrasion and damage of mechanical contacts compared to switches with contacts, reducing fluctuation in the output.
- More compact than previous OMRON models: 40% less mass, 15% lighter across the operating width.



Be sure to read *Safety Precautions* on page 4 and *Safety Precautions for All Limit Switches*.

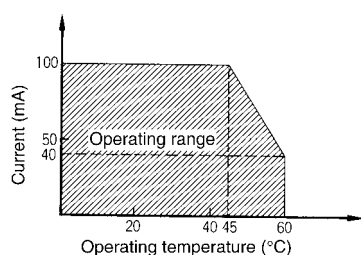
Ordering Information

Output configuration	Contact form	Operation indicator	Cable length	Model
PNP open collector (+ common)	SPST-NC	ON when not operated	1 m	D5F-2B10
			3 m	D5F-2B30
NPN open collector (– common)	SPST-NO	ON when operated	1 m	D5F-3C10
			3 m	D5F-3C30

Specifications

Ratings

Power supply voltage	12 to 24 VDC \pm 10%, ripple (p-p): 10% max.
Output current	100 mA max.
Power consumption	30 mA max.
Leakage current	0.15 mA max.
Residual voltage	2 V max.



Characteristics

Degree of protection		IP67
Durability *1	Mechanical	5,000,000 operations min.
	Electrical	
Operating speed		1 μm/s to 0.5 m/s
Max. operating frequency		60 operations/minute max.
Insulation resistance		100 MΩ min. (at 500 VDC) between each terminal and non-current-carrying metal part
Dielectric strength (50/60Hz 1min)		1,100 VAC between each terminal and non-current-carrying metal part
Vibration resistance	Malfun	10 to 500 Hz, 1.3-mm double amplitude
Shock resistance	Malfun	300 m/s ² min.
Repeat accuracy		1 μm max. *2
Ambient temperature *3		Operating: −10°C to +60°C (with no icing)
Ambient humidity		Operating: 35% to 95%RH
Weight		Switch body: Approx. 50 g; Cord: Approx. 23 g/m

Note: The above figures are initial values.

*1. Durability values are calculated at an operating temperature of +5°C to +35°C, and an operating humidity of 30% to 70%RH. Contact your OMRON sales representative for more detailed information on other operating environments.

*2. Measurements were conducted repeatedly at the same point. The value is 1 μ m max. for 200 measurements. For other conditions in detail, contact your OMRON sales representative.

*3. The ambient operating temperature varies depending on the current. Refer to the following Engineering Data.

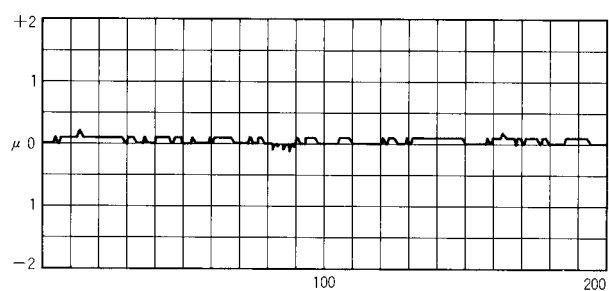
Deviation in electrical durability after 1,000,000 operations	10 μ m max.
Temperature coefficient *	$\pm 50 \times 10^{-6}/^{\circ}\text{C}$ max.

* Operating position fluctuation rate for a change of 1°C in the ambient temperature.

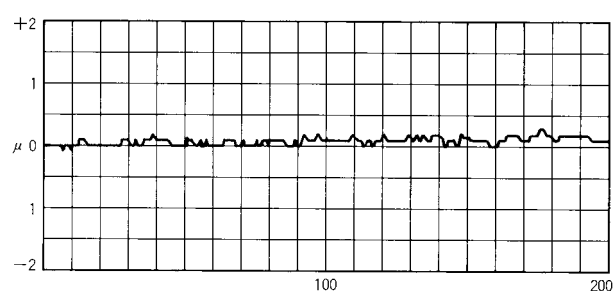
Repeat Accuracy (Reference Data)

D5F-2B10

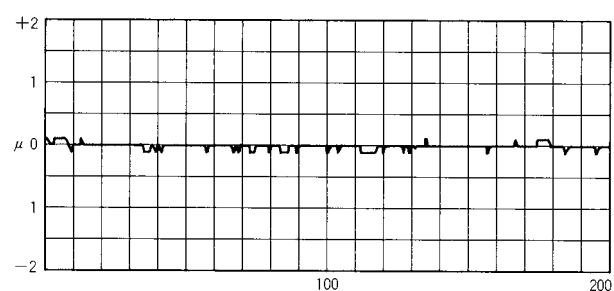
No.1 ON



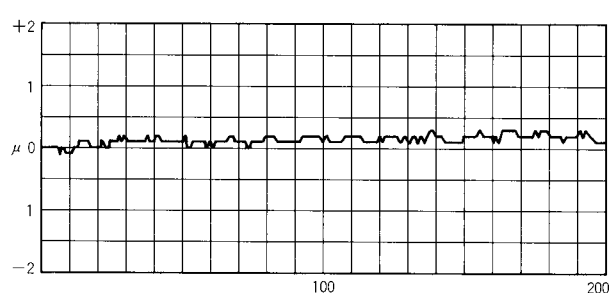
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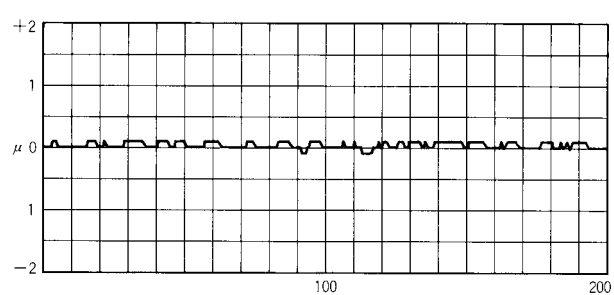
No.1 OFF



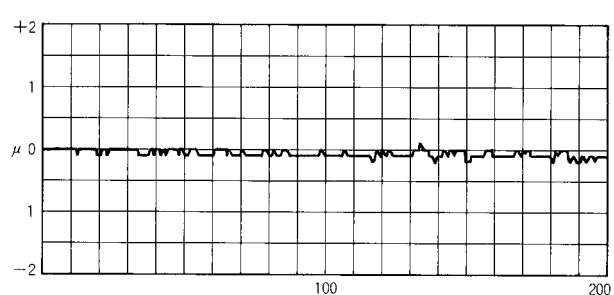
No.2 OFF



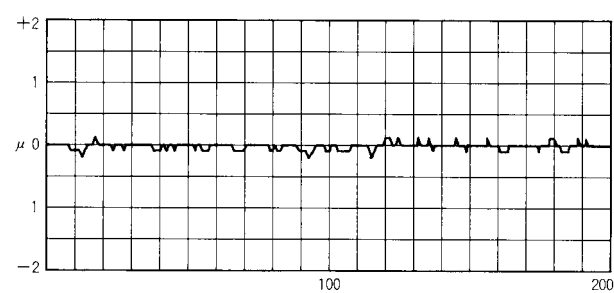
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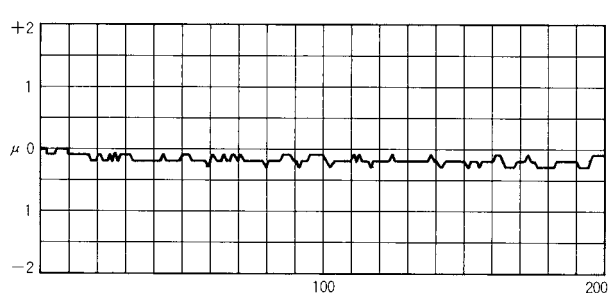
No.4 ON



No.3 OFF

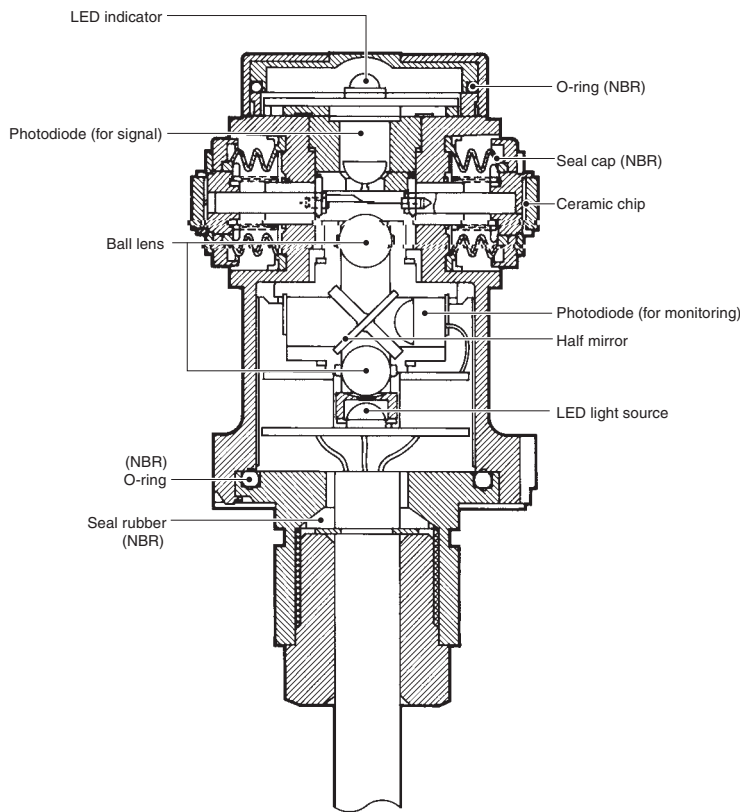


No.4 OFF



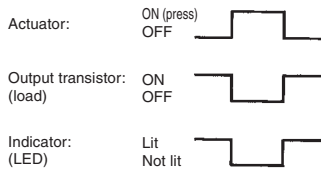
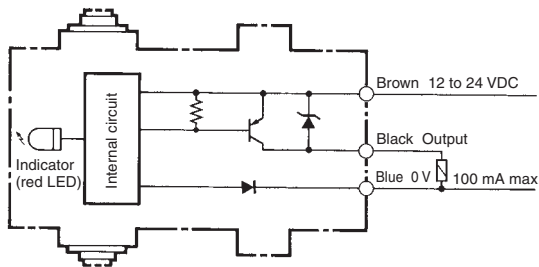
Structure and Nomenclature

Structure

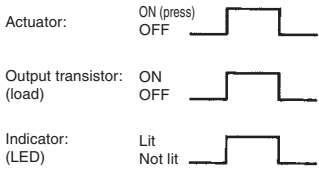
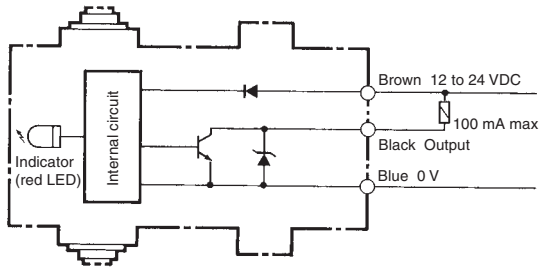


Output Circuit Diagram

D5F-2B□0



D5F-3C□0

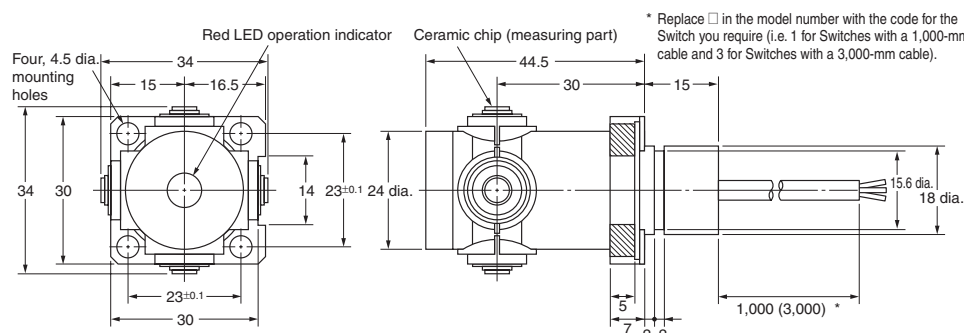
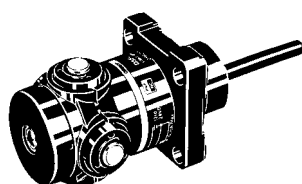


Dimensions and Operating Characteristics

(Unit: mm)

D5F-2B□0

D5F-3C□0



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