


## Optical System Achieves 1- $\mu\text{m}$ 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*.

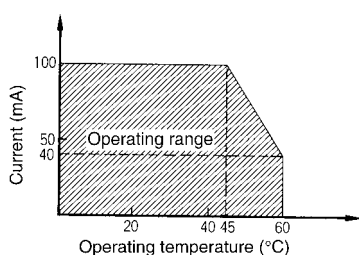
## Ordering Information

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

## Specifications

### Ratings

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



### Characteristics

<b>Degree of protection</b>	IP67	
<b>Durability *1</b>	<b>Mechanical</b>	5,000,000 operations min.
	<b>Electrical</b>	
<b>Operating speed</b>	1 $\mu\text{m/s}$ to 0.5 m/s	
<b>Max. operating frequency</b>	60 operations/minute max.	
<b>Insulation resistance</b>	100 M $\Omega$ min. (at 500 VDC) between each terminal and non-current-carrying metal part	
<b>Dielectric strength (50/60Hz 1 min)</b>	1,100 VAC between each terminal and non-current-carrying metal part	
<b>Vibration resistance</b>	<b>Malfunction</b>	10 to 500 Hz, 1.3-mm double amplitude
<b>Shock resistance</b>	<b>Malfunction</b>	300 m/s <sup>2</sup> min.
<b>Repeat accuracy</b>	1 $\mu\text{m}$ max. *2	
<b>Ambient temperature *3</b>	Operating: -10°C to +60°C (with no icing)	
<b>Ambient humidity</b>	Operating: 35% to 95%RH	
<b>Weight</b>	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  $\mu\text{m}$  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.

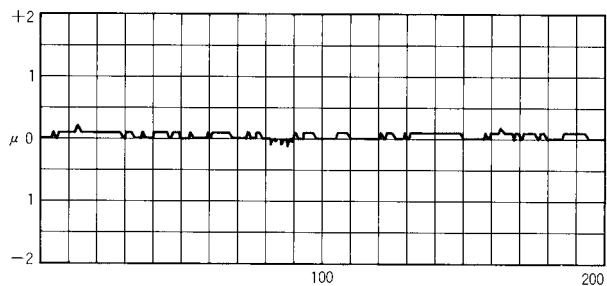
<b>Deviation in electrical durability after 1,000,000 operations</b>	10 $\mu\text{m}$ max.
<b>Temperature coefficient *</b>	$\pm 50 \times 10^{-6}/^\circ\text{C}$ max.

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

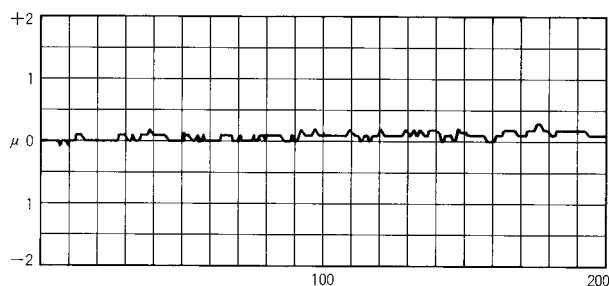
Repeat Accuracy (Reference Data)

D5F-2B10

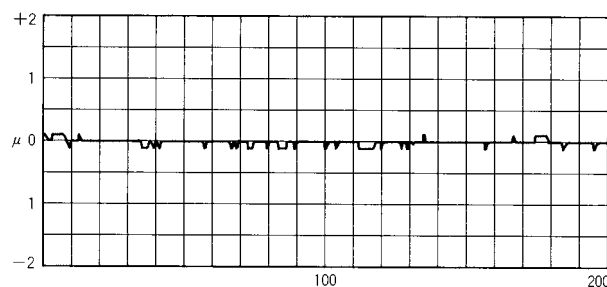
No.1 ON



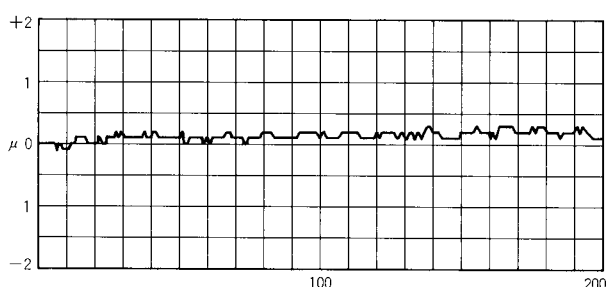
No.2 ON



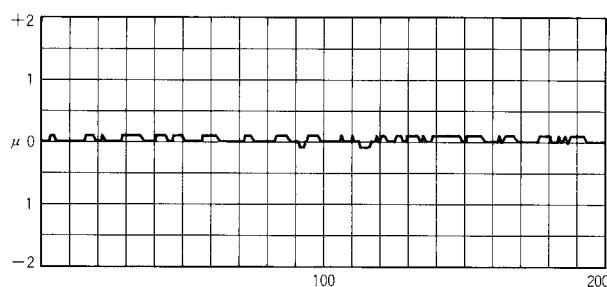
No.1 OFF



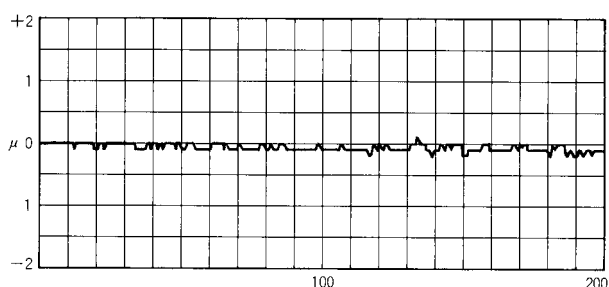
No.2 OFF



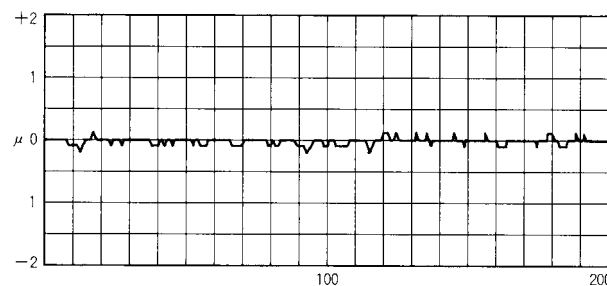
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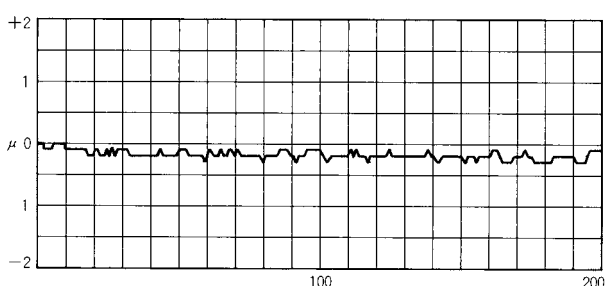
No.4 ON



No.3 OFF

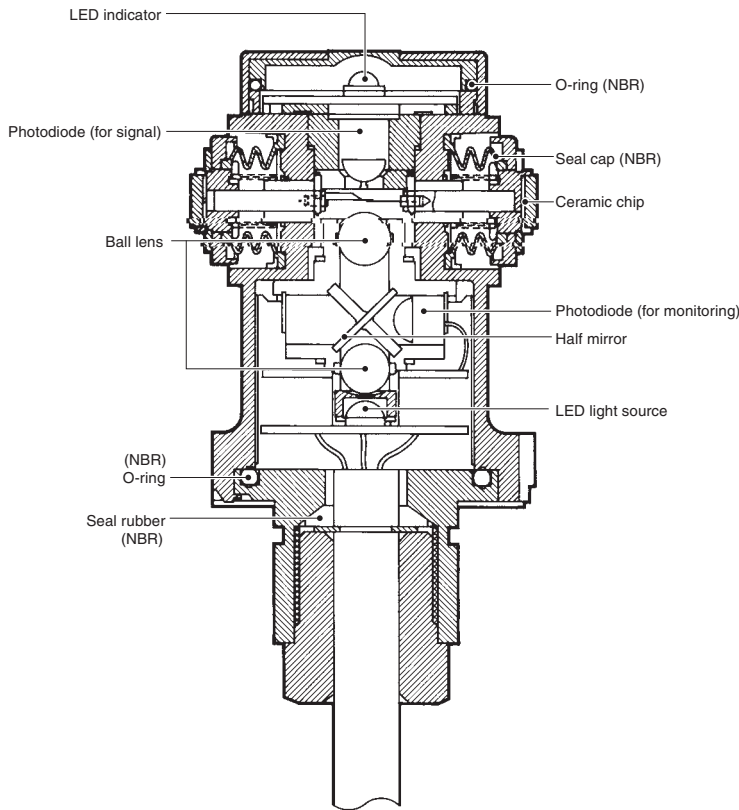


No.4 OFF



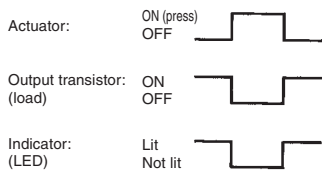
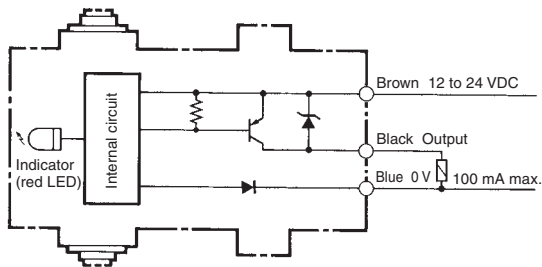
# Structure and Nomenclature

## Structure

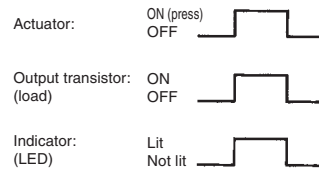
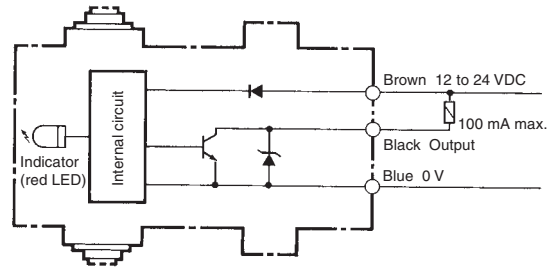


## Output Circuit Diagram

D5F-2B□0



D5F-3C□0

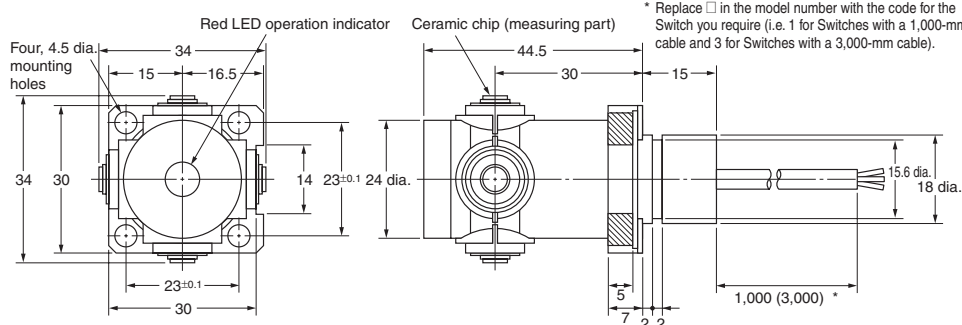
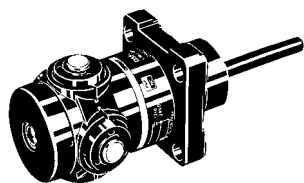


## Dimensions and Operating Characteristics

(Unit: mm)

D5F-2B□0

D5F-3C□0



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