

# Water-proof Type Detector Switch

SPVQ4 Series

The long-stroke design of 2.7 mm ensures a highly reliable contact even in the minute electric current range.

Power

Push

Slide

Rotary

Encoders

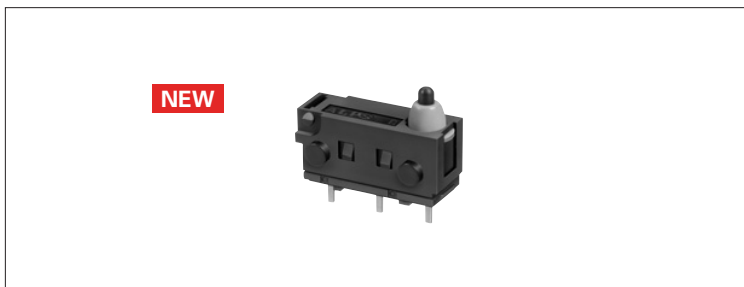
**Detector**

Dual-in-line  
Package Type

Multi Control  
Devices

TACT

Custom-  
Products



Car Use

## Features

- Double surface sliding contacts for higher contact reliabilities.
- The long 2.7mm stroke ensures superb usability.
- The water resistance conforms to IP67.
- Application can be developed to variants including those with lead wires and with an actuator.
- Free from mechanical operating noises, thus ensuring superb silent operation.

## Applications

- Detection of in-car mechanical drives (door operations, trunk/back door operations, and closer positions)
- Detection of mechanical drives in home electric appliances to be used in surrounding wet areas

## Typical Specifications

Items		Specifications
Rating (max.) (Resistive load)		0.1A 12V DC
Voltage drop (Initial performance/After lifetime)		0.2V max./0.3V max.
Operating force		Push type
		$1 \pm 0.3N$
Operating life	Without load	300,000 cycles
	With load	300,000 cycles (0.1A 12V DC)

## Products Line

Poles	Positions	Changeover timing	Operating mode	Terminal style	Main body form	Minimum packing unit (pcs.)	Products No.	Drawing No.
1	2	Non shorting	push	For PC board terminal	Boss in the right	150	SPVQ440200	1
					Boss in the left		SPVQ440100	2

### Note

This unit cannot be used in the water.

For other detailed specifications, see P.304

**Dimensions**

Unit:mm

No.	Style
1	
2	

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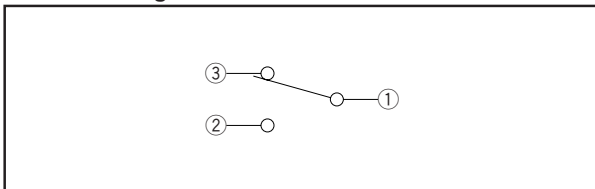
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**Circuit Diagram**



## Products Specifications

Items		Series										
		SPVC1	SPVF	SSCU	SSCT	SSCF	SSCN	SPVQ1	SPVQ3	SPVQ4	SSCW	SREF
Power	Operating temperature range	-10°C to +60°C					-40°C to +85°C					-10°C to +60°C
	Rating (max.) (Resistive load)	10mA 16V DC	1mA 5V DC	0.1A 12V DC								1mA 5V DC
Push	Electrical performance	Initial contact resistance	1 Ω max.	500mΩ max.	70mΩ max.	20mΩ max.	100mΩ max.	500mΩ max.				1 Ω max.
Slide		Insulation resistance	100MΩ min. 100V DC		100MΩ min. 250V DC		100MΩ min. 100V DC	100MΩ min. 500V DC			100MΩ min. 250V DC	100MΩ min. 100V DC
Rotary		Voltage proof	100V AC for 1 min.		250V AC for 1 min.		100V AC for 1 min.	500V AC for 1 min.			250V AC for 1 min.	100V AC for 1 min.
Encoders	Mechanical performance	Robustness of terminal	3N for 1 min.	3N for 30 s	3N for 1 min.		5N for 1 min.	3N for 1 min.			—	
Detector		Robustness of actuator	10N	1N	5N	10N			20N		5N	
Dual-in-line Package Type		Vibration	10 to 55 to 10Hz/min., the amplitude is 1.5mm for all the frequencies, in the 3 direction of X, Y and Z for 2 hours respectively									
Multi Control Devices		Resistance to soldering heat	Manual soldering	350±10°C, 3 <sup>+1</sup> <sub>-0</sub> s	300±10°C, 3 <sup>+1</sup> <sub>-0</sub> s	350±5°C, 3s max.		350±10°C, 3 <sup>+1</sup> <sub>-0</sub> s	300±10°C, 3 <sup>+1</sup> <sub>-0</sub> s			—
TACT	Dip soldering		260±5°C, 3s max.	260±5°C, 5±1s	—	260±5°C, 5±1s		—	260±5°C, 5±1s		—	
Custom-Products	Reflow soldering		—									
Durability	Operating life without load	25,000 cycles 2Ω max.	100,000 cycles 1Ω max.	10,000 cycles 100mΩ max.	10,000 cycles 40mΩ max.	50,000 cycles 200mΩ max.	100,000 cycles 1Ω max.	300,000 cycles 1Ω max.	300,000 cycles or 1,000,000 cycles 1Ω max.	300,000 cycles 1Ω max.	100,000 cycles 1Ω max.	150,000 cycles 2Ω max.
	Operating life with load	(10mA 16V DC) 25,000 cycles 2Ω max.	(1mA 5V DC) 100,000 cycles 1Ω max.	(0.1A 12V DC) 10,000 cycles 150mΩ max.	(0.1A 12V DC) 10,000 cycles 60mΩ max.	(0.1A 12V DC) 50,000 cycles 300mΩ max.	(0.1A 12V DC) 100,000 cycles 1Ω max.	(0.1A 12V DC) 300,000 cycles 1Ω max.	(0.1A 12V DC) 300,000 cycles or 1,000,000 cycles 1Ω max.	(0.1A 12V DC) 300,000 cycles 1Ω max.	(0.1A 12V DC) 100,000 cycles 1Ω max.	(1mA 5V DC) 150,000 cycles 2Ω max.
Environmental performance	Cold	-20±2°C for 96h	-40±2°C for 96h	-20±2°C for 96h			-40±2°C for 500h					-20±2°C for 96h
	Dry heat	85±2°C for 96h					85±2°C for 500h					85±2°C for 96h
	Damp heat	40±2°C, 90 to 95%RH for 96h					60±2°C, 90 to 95%RH for 500h					40±2°C, 90 to 95%RH for 96h