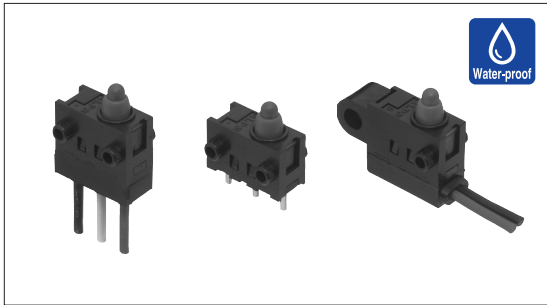


# Detector Switch Water-proof Type

SPVQ3 Series



Long travel type applicable to oblique pressing without an actuator.



## Typical Specifications

Items		Specifications	
Rating (max.) / (min.) (Resistive load)		0.1A 12V DC	0.3A 16V DC
		50μA 5V DC	1mA 5V DC
Contact resistance (Initial/After operating life)		500mΩ/1Ω max.	
Operating force	Push type	Actuator type	
		1±0.5N	3N max.
Operating life	Without load	Normal type	Long life type
		300,000cycles	1,200,000cycles
	With load	300,000cycles (0.1A 12V DC)	1,200,000cycles (0.1A 16V DC)

## Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line  
Package Type

TACT Switch™

Custom-  
Products

## Product Line

Operating life	Poles	Positions	Change over timing	Operating part shape	Terminal type	Main body form	Minimum order unit (pcs)	Packing specification type	Product No.	Drawing No.			
300,000 cycles	1	2	Non shorting	Push	For PC board	Normal	5,200	A	SPVQ380400	1			
						Boss - right side			SPVQ380300				
						Boss - left side			SPVQ380201				
						Boss - both sides			SPVQ380100				
					Solder terminal	Boss - right side			SPVQ380700	2			
						Boss - left side			SPVQ380600				
		Boss - both sides				SPVQ380500							
		Right angle			Boss - right side	SPVQ380900			3				
					Boss - left side	SPVQ380800							
		Left angle			Boss - right side	SPVQ361000※			5				
					Boss - left side	SPVQ361100※							
					Boss - both sides	SPVQ361200※							
	Boss - both sides		SPVQ361300※										
	1	1	Non shorting	Push	With wire (Downwards)	With a screw hole	1,600	B	SPVQ361400※	7			
						Boss - right side			SPVQ361500※				
						Boss - left side			SPVQ361600※				
						Boss - both sides			SPVQ361700※				
						Boss - right side			SPVQ361800※				
						Boss - left side			SPVQ361900※				
	With wire (Left side)	Boss - right side	SPVQ362000※	9									
		Boss - both sides	SPVQ362000※										
	1	1	Non shorting	Actuator A	For PC board	Normal	5,200	A	SPVQ370400	1			
						Boss - right side			SPVQ370300				
						Boss - left side			SPVQ370200				
Boss - both sides						SPVQ370100							
Solder terminal						Boss - right side			SPVQ370700		2		
						Boss - left side			SPVQ370600				
						Boss - both sides			SPVQ370500				
Right angle						Boss - right side			SPVQ370900		3		
						Boss - left side			SPVQ370800				
Left angle						Boss - right side			SPVQ350100※		5		
						Boss - left side			SPVQ350200※				
						Boss - both sides			SPVQ350300※				
					Boss - both sides	SPVQ350400※							
1					1	Non shorting	Actuator A	With wire (Downwards)	With a screw hole	480	C	SPVQ350500※	7
									Boss - right side			SPVQ350600※	
									Boss - left side			SPVQ350700※	
									Boss - both sides			SPVQ350800※	
									Boss - right side			SPVQ350900※	
	Boss - left side	SPVQ351000※											
With wire (Left side)	Boss - right side	SPVQ351100※	9										
	Boss - both sides	SPVQ351100※											



Automotive  
Use

Product Line

Operating life	Poles	Positions	Change over timing	Operating part shape	Terminal type	Main body form	Minimum order unit (pcs)	Packing specification type	Product No.	Drawing No.				
300,000 cycles	1	2	Non shorting	Actuator B	For PC board	Normal	5,200	A	SPVQ371300	1				
						Boss - right side			SPVQ371200					
						Boss - left side			SPVQ371100					
						Boss - both sides			SPVQ371000					
					Solder terminal	Boss - right side			SPVQ371600	2				
						Boss - left side			SPVQ371500					
						Boss - both sides			SPVQ371400					
						Right angle			SPVQ371800					
		Left angle		Boss - right side	480	C	SPVQ371800	3						
				Boss - left side			SPVQ371700							
		1		1	1	Push	With wire (Downwards)	With a screw hole	1,600	B	SPVQ351200※	5		
								Boss - right side			SPVQ351300※			
								Boss - left side			SPVQ351400※			
								Boss - both sides			SPVQ351500※			
							With wire (Right side)	With a screw hole			480	C	SPVQ351600※	7
								Boss - right side					SPVQ351700※	
Boss - left side	SPVQ351800※													
Boss - both sides	SPVQ351900※													
With wire (Left side)	Boss - right side	5,200	A	SPVQ352000※	6									
	Boss - left side			SPVQ352100※										
	Boss - both sides			SPVQ352200※										
	For PC board			Normal		5,200	A	SPVQ340400	1					
For PC board	Boss - right side			SPVQ340300										
	Boss - left side			SPVQ340200										
	Boss - both sides			SPVQ340100										
	Solder terminal			Boss - right side	SPVQ340700			2						
Boss - left side		SPVQ340600												
Boss - both sides		SPVQ340500												
Right angle		SPVQ340900												
Left angle	Boss - right side	1,600	B	SPVQ340800	3									
	Boss - left side			SPVQ320100※										
	With wire (Downwards)			SPVQ320200※										
	Boss - right side			SPVQ320300※										
With wire (Downwards)	Boss - left side			5,200	A	SPVQ320400※	6							
	Boss - both sides					SPVQ320500※								
	With a screw hole					SPVQ320600※								
	Boss - right side					SPVQ320700※								
With wire (Right side)	Boss - left side	480	C			SPVQ320800※	7							
	Boss - both sides					SPVQ320900※								
	Boss - right side					SPVQ321000※								
	Boss - left side					SPVQ321100※								
1,200,000 cycles	1			2	Actuator A	For PC board	Normal	5,200	A	SPVQ330400	1			
							Boss - right side			SPVQ330300				
							Boss - left side			SPVQ330200				
							Boss - both sides			SPVQ330100				
		Solder terminal	Boss - right side			480	C			SPVQ330700	2			
			Boss - left side							SPVQ330600				
			Boss - both sides							SPVQ330500				
			Right angle							SPVQ330900				
Left angle	Boss - right side	5,200	A	SPVQ330800	3									
	Boss - left side			SPVQ310100※										
	With wire (Downwards)			SPVQ310200※										
	Boss - right side			SPVQ310300※										
With wire (Downwards)	Boss - left side			480	C	SPVQ310400※	6							
	Boss - both sides					SPVQ310500※								
	With a screw hole					SPVQ310600※								
	Boss - right side					SPVQ310700※								
With wire (Right side)	Boss - left side	5,200	A			SPVQ310800※	7							
	Boss - both sides					SPVQ310900※								
	Boss - right side					SPVQ311000※								
	Boss - left side					SPVQ311100※								
With wire (Left side)	Boss - right side			480	C	SPVQ311000※	8							
	Boss - left side					SPVQ310900※								
	Boss - both sides					SPVQ311000※								
	Boss - right side					SPVQ311100※								
1	1	1	Push			With wire (Left side)	Boss - right side	5,200	A	SPVQ311000※	9			
							Boss - left side			SPVQ311100※				
							Boss - both sides			SPVQ311100※				
							Boss - right side			SPVQ311100※				

- Detector
- Push
- Slide
- Rotary
- Encoders
- Power
- Dual-in-line Package Type
- TACT Switch™
- Custom-Products



Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line  
Package Type

TACT Switch™

Custom-  
Products

**Product Line**

Operating life	Poles	Positions	Change over timing	Operating part shape	Terminal type	Main body form	Minimum order unit (pcs)	Packing specification type	Product No.	Drawing No.
1,200,000 cycles	1	2	Non shorting	Actuator B	For PC board	Normal	5,200	A	SPVQ331300	1
						Boss - right side			SPVQ331200	
						Boss - left side			SPVQ331100	
						Boss - both sides			SPVQ331000	
					Solder terminal	Boss - right side			SPVQ331600	2
						Boss - left side			SPVQ331500	
						Boss - both sides			SPVQ331400	
					Right angle	Boss - right side			SPVQ331800	3
					Left angle	Boss - left side			SPVQ331700	4
		1			With wire (Downwards)	With a screw hole	480	C	SPVQ311200※	5
						Boss - right side			SPVQ311300※	
						Boss - left side			SPVQ311400※	
					With wire (Right side)	Boss - both sides			SPVQ311500※	6
						With a screw hole			SPVQ311600※	
						Boss - right side			SPVQ311700※	
					With wire (Left side)	Boss - left side			SPVQ311800※	8
						Boss - both sides			SPVQ311900※	
						Boss - right side			SPVQ312000※	
Boss - left side	SPVQ312100※									
Boss - both sides	SPVQ312200※									

**Packing Specifications**

**Bulk**

Packing specification type	Number of packages (pcs.)		Export package measurements (mm)
	1 case /Japan	1 case /export packing	
A	1,300	5,200	540 × 360 × 290
B	400	1,600	555 × 375 × 223
C	120	480	555 × 375 × 223

**Notes**

- 1.This unit cannot be used in water.
- 2.※Unless specified, the length of the lead wire is 250mm. Color is either red, black or yellow. Please consult us for length modification.
- 3.※Unless circuit is specified, wired (downward) types will apply three wires.
- 4.※Please specify circuits (N.O. or N.C.) for wired (side) types. Unless specified, the circuit will apply N.O.
- 5.Product with wire will be build-to-order.
- 6.Please place purchase orders per minimum order unit N (integer).



Automotive Use

Dimensions

Unit:mm

Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line  
Package Type

TACT Switch™

Custom-  
Products



Automotive  
Use

No.	Style
1	<p>Terminal No.③-① ON starting point Terminal No.③-② OFF starting point Free position Operating force measurement position Total travel position PC board mounting face Terminal No.① Terminal No.② Terminal No.③ 0.9 2.3 5 5 13 4.35 4 3.3 6.1 (6.4) 8.4 8.7 9.1 5.8 0.5</p> <p>※ Refer to page 83 "Actuator Configurations" for operating part shape. ※ Refer to page 83 "Main Body Configurations" for boss positions.</p>
2	<p>Terminal No.③-① ON starting point Terminal No.③-② OFF starting point Free position Operating force measurement position Total travel position Terminal No.① Terminal No.② Terminal No.③ 7.45 4.35 4 1.5 1.2 2.2 2.3 4.35 13 6.1 (6.4) 8.4 8.7 9.1 5.8 0.5</p> <p>※ Refer to page 83 "Actuator Configurations" for operating part shape. ※ Refer to page 83 "Main Body Configurations" for boss positions.</p>
3	<p>Terminal No.③-① ON starting point Terminal No.③-② OFF starting point Free position Operating force measurement position Total travel position Terminal No.① Terminal No.② Terminal No.③ 0.9 2.3 5 5 13 4.15 4 6.1 (6.4) 8.4 8.7 9.1 5.8 6 0.5 (2.6) PC board mounting face</p> <p>※ Refer to page 83 "Actuator Configurations" for operating part shape.</p>
4	<p>Terminal No.③-① ON starting point Terminal No.③-② OFF starting point Free position Operating force measurement position Total travel position Terminal No.① Terminal No.② Terminal No.③ 0.9 2.3 5 5 13 4.15 4 6.1 (6.4) 8.4 8.7 9.1 5.8 6 0.5 (2.6) PC board mounting face</p> <p>※ Refer to page 83 "Actuator Configurations" for operating part shape.</p>

**Dimensions**

Unit:mm

No.	Style
5	<p>Terminal No.③-① ON starting point  Terminal No.③-② OFF starting point  Hole (for M3)  Terminal No.③  Terminal No.②  Terminal No.①  Free position  Operating force measurement position  Total travel position</p> <p>※ Refer to page 83 "Actuator Configurations" for operating part shape.</p>
6	<p>Terminal No.③-① ON starting point  Terminal No.③-② OFF starting point  Free position  Operating force measurement position  Total travel position  Terminal No.③  Terminal No.②  Terminal No.①</p> <p>※ Refer to page 83 "Actuator Configurations" for operating part shape.  ※ Refer to page 83 "Main Body Configurations" for boss positions.</p>
7	<p>Terminal No.③  Terminal No.① or ②  Terminal No.③-① ON starting point  Free position  Operating force measurement position  Total travel position</p> <p>※ Refer to page 83 "Actuator Configurations" for operating part shape.</p>
8	<p>Terminal No.③  Terminal No.① or ②  Terminal No.③-① ON starting point  Free position  Operating force measurement position  Total travel position</p> <p>※ Refer to page 83 "Actuator Configurations" for operating part shape.  ※ Refer to page 83 "Main Body Configurations" for boss positions.</p>

Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line  
Package Type

TACT Switch™

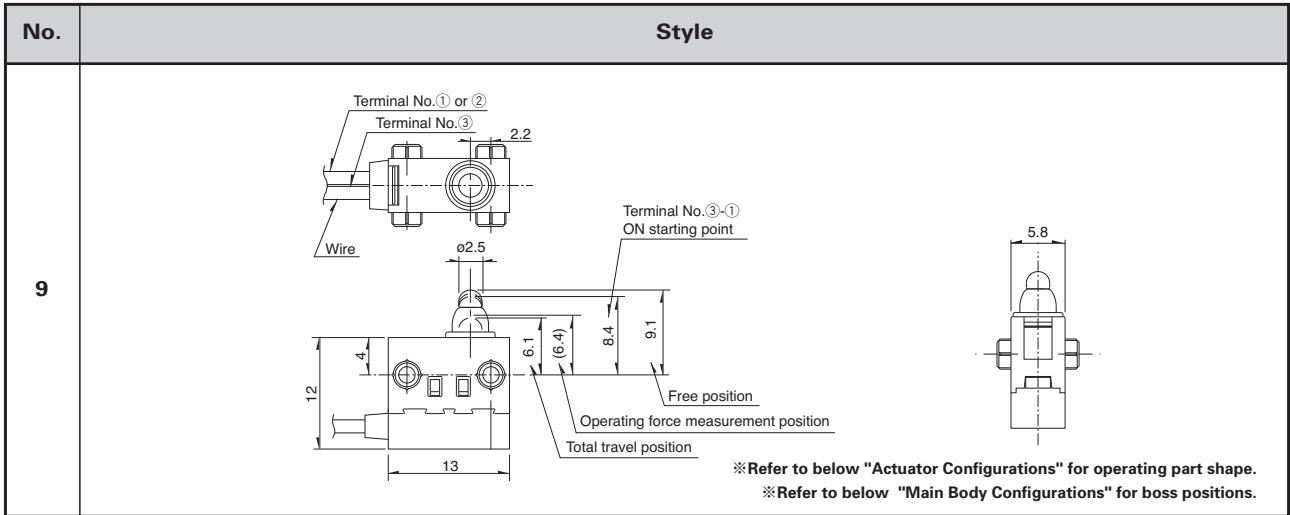
Custom-  
Products



Automotive  
Use

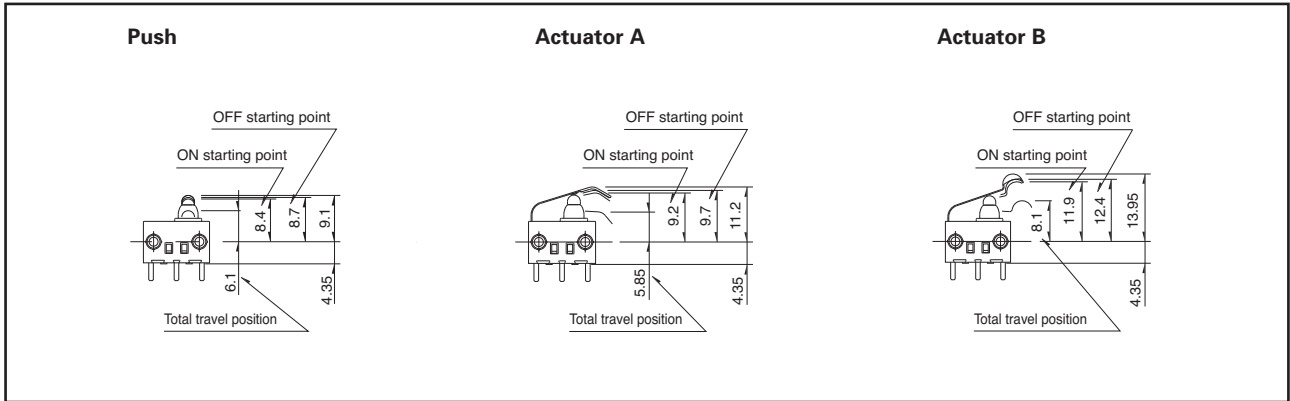
Dimensions

Unit:mm



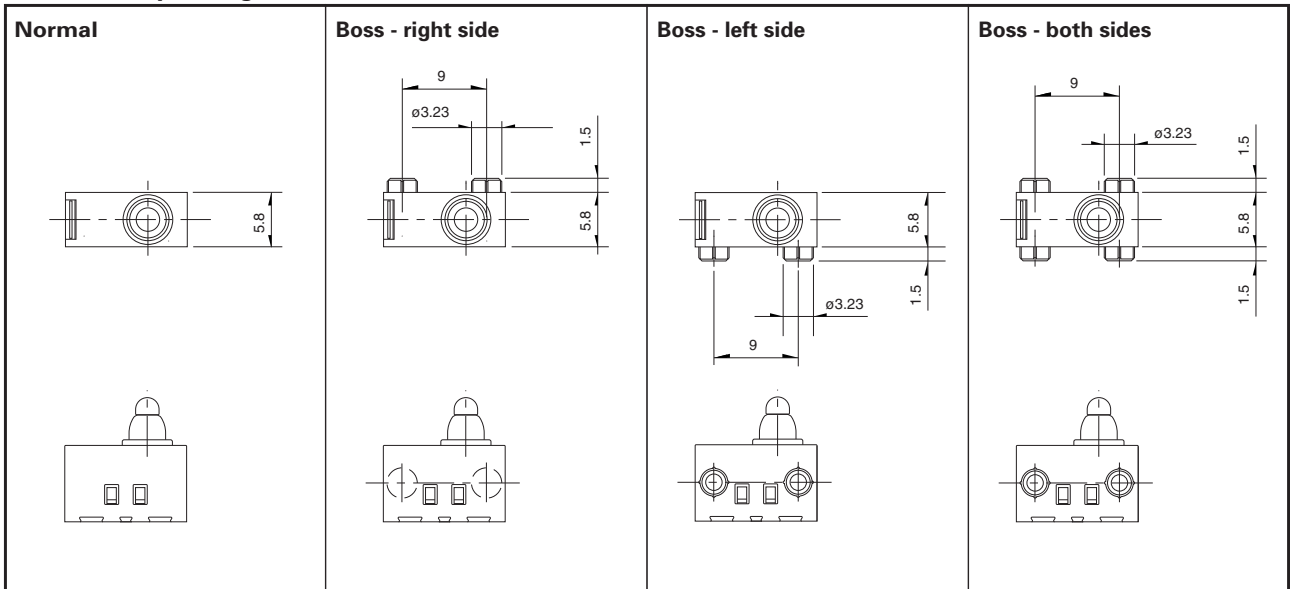
Actuator Configurations

Unit:mm

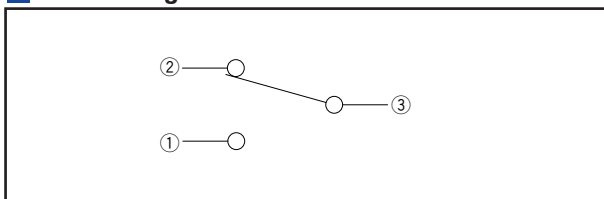


Main Body Configurations

Unit:mm



Circuit Diagram



Detector

Push

Slide

Rotary

Encoders

Power

Dual-in-line  
Package Type

TACT Switch™

Custom-  
Products



Automotive  
Use

## List of Varieties (General-purpose Type / Water-proof Type)

- Detector
- Push
- Slide
- Rotary
- Encoders
- Power
- Dual-in-line Package Type
- TACT Switch™
- Custom-Products

Series	General-purpose Type				Water-proof Type			
	SPVT	SPVL	SSCW	SPVQ5	SPVQ1	SPVQ3	SPVQ4H	
Photo								
Operation type					 			
Operating temperature range	-40°C to +85°C							
Automotive use	●	●	●	●	●	●	●	
Rating (max.) (Resistive load)	50mA 20V DC	1mA 5V DC	0.1A 12V DC					
Rating (min.) (Resistive load)	100μA 3V DC	50μA 3V DC	100μA 3V DC	50μA 3V DC		50μA 5V DC or 1mA 5V DC	1mA 5V DC	
Electrical performance	Initial contact resistance	500mΩ max.	2Ω max.	500mΩ max.				
	Insulation resistance	100MΩ min. 100V DC		100MΩ min. 250V DC	100MΩ min. 500V DC			
	Voltage proof	100V AC for 1 minute		250V AC for 1 minute	500V AC for 1 minute			
Mechanical performance	Terminal strength	0.5N for 1 minute	1N for 1 minute	—————		3N for 1 minute Wire strength 30N for 1 minute Applicable to product with wire	Wire strength 30N for 1 minute	
	Actuator strength	10N	5N	20N				
Durability	Operating life without Load	100,000cycles 1Ω max.	50,000cycles 5Ω max.	100,000cycles 1Ω max.	300,000cycles 1Ω max.		300,000cycles 1Ω max.	
	Operating life with Load	(50mA 20V DC) 100,000cycles 1Ω max.	(1mA 5V DC) 50,000cycles 5Ω max.	(0.1A 12V DC) 100,000cycles 1Ω max.	(0.1A 12V DC) 300,000cycles 1Ω max.		(0.1A 12V DC) 300,000cycles 1Ω max.	
Environmental performance	Cold	-40±2°C for 500h						
	Dry heat	85±2°C for 500h						
	Damp heat	40±2°C, 90 to 95%RH for 500h	60±2°C, 90 to 95%RH for 500h					
Dimensions (mm)	W	5.6	5.55	13.1	13.8	13.3	13	19
	D	6.5	6.6	11.35		5.8		6
	H	1.9	1	5.3	5.8	8	8.35	11.9
Soldering	Manual soldering	350±5°C, 3s max.			—————		300±10°C, 3 <sup>+</sup> 1s	
	Dip soldering	—————			—————		260±5°C, 5±1s	
	Reflow soldering	Please see P.97			—————			
Number of poles	1							
Operation force	0.4N max.	0.35N max.	1N max.	2N max.	2N max. 5.9N max.	3N max.		
Page	68	71	72	73	74	78	84	

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- Detector Switches Cautions .....98

### Note

●marks in "Available for automotive use" indicate that all of the series products can work at the operating temperature range from -40°C to +85°C.