

VCL-5000 Series

Large Water-proof Vertical Type Limit Switches

FEATURES

2 Sets of SPDT Type Built-in Switches Enable Use As a 2-point Detection Type Switch or Multi-circuit Control Type Switch.

- On the 2-point detection (center-neutral) type switch, two different switches operate according to the direction (CW or CCW) of actuator rotation.
- A single switch can detect two points (valve upper/lower limit, fully open/close, etc.).
- On the multi-circuit control type, the two switches operate simultaneously according to actuator rotation.
- High sensitivity characteristics (P.T. = 10°, M.D. = 3°)



ORDER GUIDE

Model selection guide: Example: **VCL-5001-K**

Basic catalog listing	Operation method	Actuator shape	Custom specifications	Description	O.F. (N)	P.T. (°)	M.D. (°)
VCL-	50			Large water-proof vertical type limit switches	Max. 15.7	Max. 10	Max. 3
	51			2-point detection (center-neutral) type			
		01		Multi-circuit simultaneous control type			
		03		Roller lever (lever length = 30mm)			
			Blank	Adjustable roller lever			
			-K	Standard load type, silver contact			
			-H	Low current load type, gold alloy cross point contact			
			-L	Heat-resistant type (120°C)			
				Cold-resistant type (-55°C)			

• Contact operation

	Center-neutral			Simultaneous		
	Contact configuration and terminal No.					
	CCW operation	Free position	CW operation	CCW operation	Free position	CW operation
Switch 1						
Switch 2						

Head mounting direction: • Only two directions (front and rear) can be set on a center-neutral type. When the direction is set to the rear, operation of switches 1 and 2 is reversed.

- The head can be set in all four directions on a simultaneous operation type.

PERFORMANCE

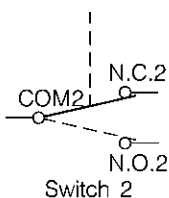
Item		Details	
External standards	Conformed standards	JIS C4508	
Structure	Contact type	Single-Pole Double-Throw (SPDT)	
	Contact shape	Standard load type: Pure silver rivet, Low current load type: Gold alloy cross point	
	Terminal shape	Screw (M4 binding head machine screw with toothed washer)	
	Protective structure	Oil-resistant/immersion-proof type (JIS), IP67 (IEC 529)	
Electrical performance	Electrical rating	Standard load type	250Vac-5A, 125Vdc-0.4A, 250Vdc-0.2A
		Low current load type	125Vac-0.1A, 30Vdc-0.1A
	Dielectric strength		Between non-continuous terminals: 600V, 50/60Hz for 1 minute Between each terminal and non-conducting metal part: 2,000V, 50/60Hz for 1 minute Between each terminal and ground: 2,000V, 50/60Hz for 1 minute
	Insulation resistance		Max. 100MΩ (by 500Vdc megger)
	Initial contact resistance		Max. 100mΩ (6 to 8Vdc, energizing current 1A, measured by voltage drop method)
	Recommended min. contact operating voltage/current		15Vac/dc-50mA
	Temperature rise		Max. 30°C Terminal temperature measured by thermoelectric thermometer after energizing by rated current
Mechanical performance	Actuator strength		Withstand load 5 times O.F. (operating direction for 1 minute)
	Terminal strength		Withstand tightening torque strength of 1.2N-m for 1 minute
	Impact resistance*		200m/s ² , Contact release of 1ms max. at free position and operating limit positions
	Vibration resistance*		Frequency 10 to 55Hz, 1.5mm peak-to-peak amplitude for 2 continuous hours Contact release of 1ms max. at free position and operating limit positions or operating limit position
	Allowable operating speed		0.32mm/s to 0.5m/s Min. speed: Unstable state of contacts 0.1s max. Max. speed: Actuator damage not allowed
	Mechanical operating frequency		Max. 120 operations/minute
Life	Mechanical life		Min. 2 million operations
	Electrical life		Min. 100,000 operations (250Vac-3A resistive load)
Environmental conditions	Operating temperature range		- 10 to +70°C
	Operating humidity range		Max. 100%RH
Recommended tightening torque	Body		5 to 6N-m (M5 hexagon socket head bolt)
	Terminal		1.3 to 1.7N-m (M4 binding head machine screw with toothed washer)
	Operation head		0.8 to 1.2N-m (M3.5 screw)
	Actuator		4 to 5.2N-m (M5 screw)

Note: Items marked by * are values for catalog listing VCL-5001. Unmarked items are values common to all models in the VCL-5000 series.

● Contact type

• Center-neutral type

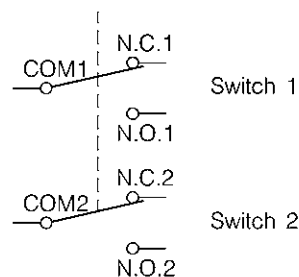
CCW operation



CCW operation



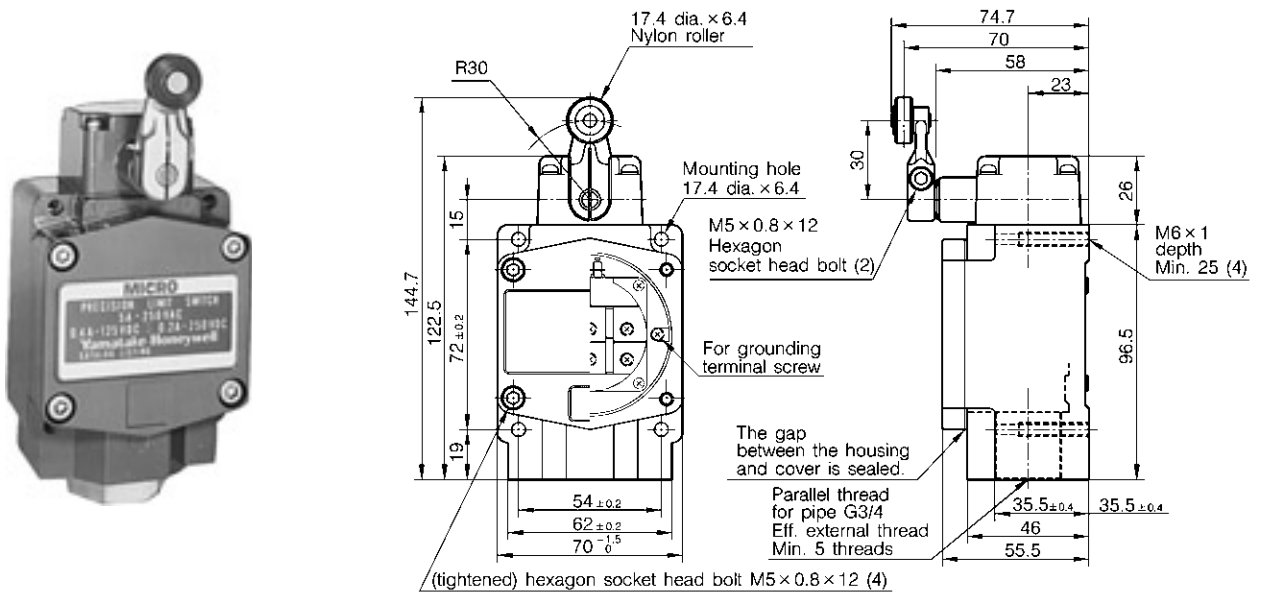
• 2-circuit simultaneous operation type



APPEARANCE, OPERATING CHARACTERISTICS AND EXTERNAL DIMENSIONS

● Roller lever type

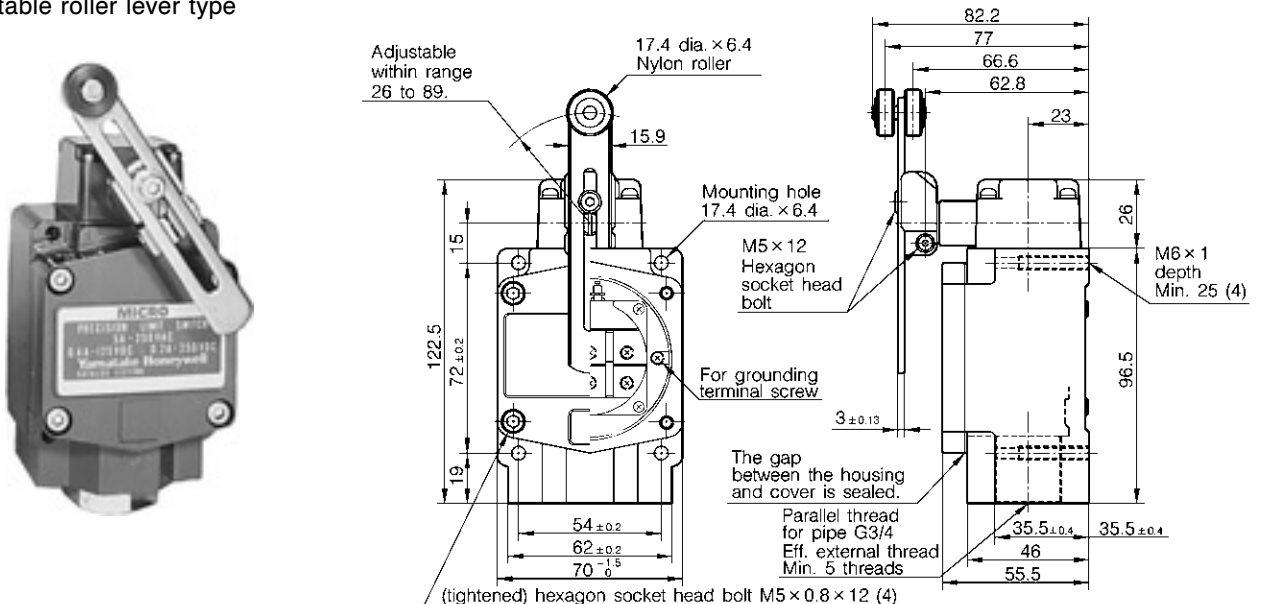
(unit: mm)



Model No.	Center-neutral	2-circuit simultaneous operation type
Catalog listing	VCL-5001	VCL-5101
O.F. (N max.)		15.7
R.F. (N min.)		2.2
P.T. (° max.)	10	12
M.D. (° max.)		3
O.T. (° min.)		35

Note: A G $\frac{3}{4}$ screw is threaded into the conduit section, and a blind stopper is assembled to ensure sealability up till wiring.

● Adjustable roller lever type



Model No.	Center-neutral	2-circuit simultaneous operation type
Catalog listing	VCL-5003	VCL-5103
O.F. (N max.)		15.7
R.F. (N min.)		2.2
P.T. (° max.)	10	12
M.D. (° max.)		3
O.T. (° min.)		35

Note: A G $\frac{3}{4}$ screw is threaded into the conduit section, and a blind stopper is assembled to ensure sealability up till wiring.