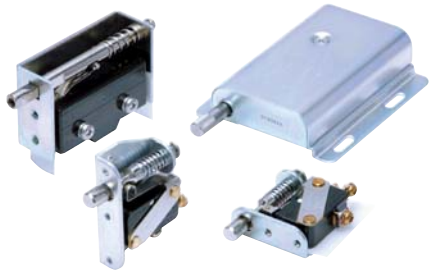
1ZAP2/1VAP2

Door Switches with Built-in Basic Switches for Long Life

- Installation in electrical facilities, equipment doors, and other openings helps ensure safety by reliably preventing accidents.
- A Basic Switch if built in to provide a large switching capacity and long service life.



⚠ Be sure to read *Safety Precautions* on page 3 and *Safety Precautions for All Basic Switches.*

Ordering Information

Operation		Built-in Switch	Model
Push operation	Pull operation		
Self-reset	Hold	Z-15GL42-B	**1ZAP2**
		V-15-1B6	**1VAP2-1**
			1VAP2-2
		V-15-3B6	**1VAP2-6**

Contact Form

Model	Name	Contact form
1ZAP2	Double-throw (SPDT)	COM, NC, NO
1VAP2-1		
1VAP2-2		
1VAP2-6	Single-throw (SPST-NO)	COM, NO

Specifications

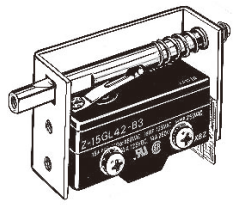
Item	Model	1ZAP2	1VAP2-□
Built-in Switch		Z-15GL42-B	V-15-1B6/V-15-3B6
Rating		15 A, 125 VAC (resistive load) 15 A, 250 V (resistive load)	15 A, 125 VAC (resistive load) 15 A, 250 V (resistive load)
Ambient operating temperature		−25 to 80°C (with no icing or condensation)	
Ambient operating humidity		35% to 85%RH	
Durability	**Mechanical**	100,000 operations min.	100,000 operations min.
	Electrical	100,000 operations min.	25,000 operations min.
Degree of protection		IP00	
Electric shock protection class		Class II	
PTI (proof tracking index)		175	
Pollution degree		3 (IEC 947-5-1)	

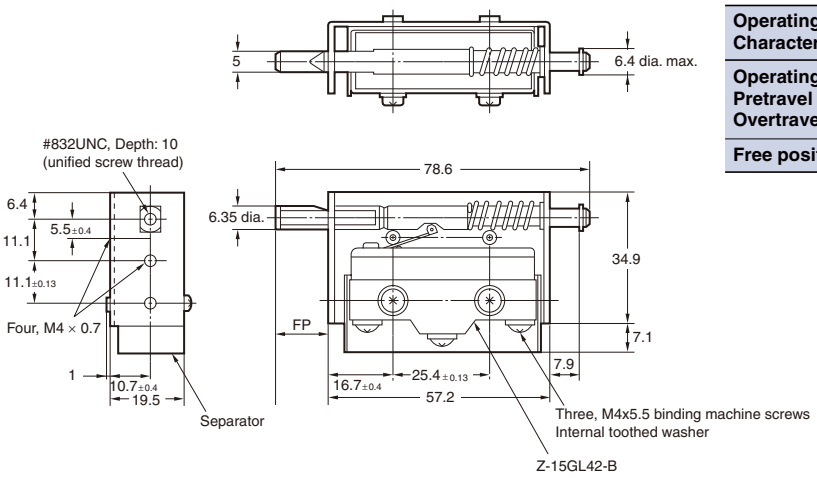
Note: The 1VAP2-6 is also available with SPDT contacts. The model number is 1VAP2-6 (V-15-1B6).

Dimensions

(Unit: mm)

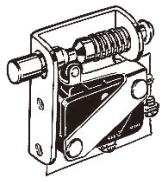
1ZAP2

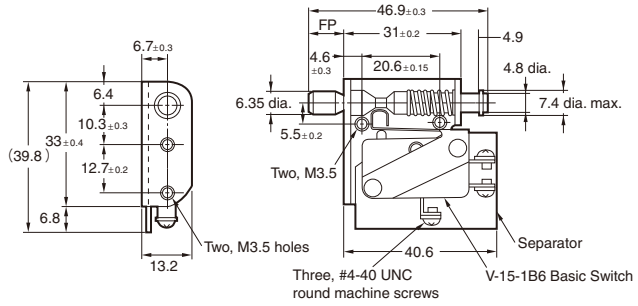




Operating Characteristics	Model	1ZAP2
Operating force	OF max.	21.6 N
Pretravel	PT max.	4.7 mm
Overtravel	OT min.	3.2 mm
Free position	FP max.	11.1 mm

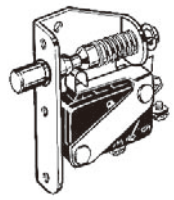
1VAP2-1

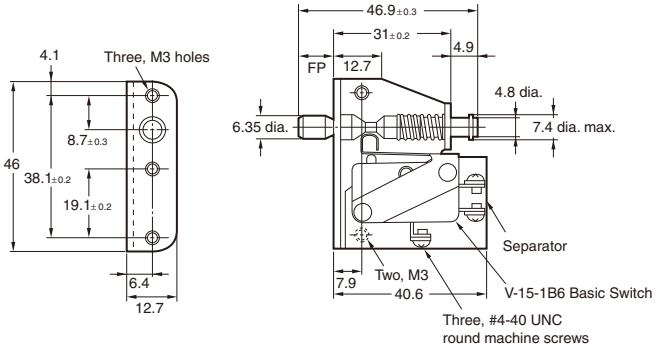




	1VAP2-1
OF max.	17.6 N
PT max.	4.4 mm
OT min.	2 mm
FP max.	9.5 mm

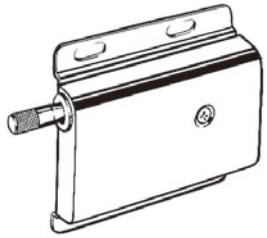
1VAP2-2

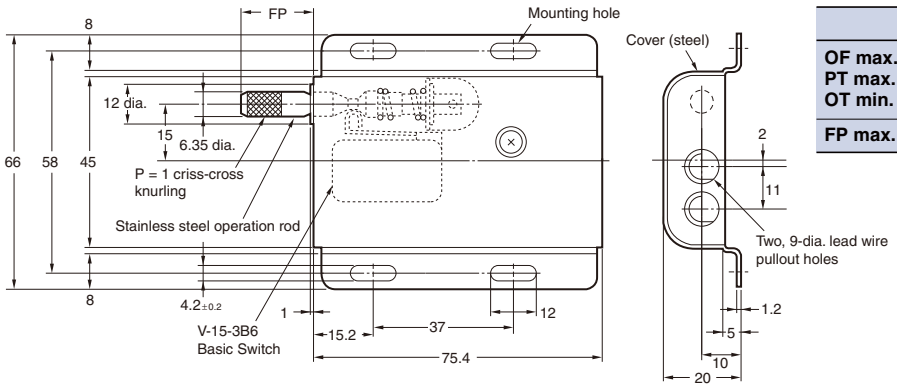




	1VAP2-2
OF max.	17.6 N
PT max.	4.4 mm
OT min.	2 mm
FP max.	9.5 mm

1VAP2-6





	1VAP2-6
OF max.	14.7 N
PT max.	6 mm
OT min.	3 mm
FP max.	21 mm

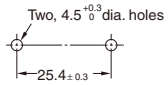
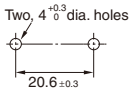
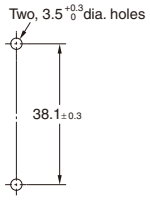
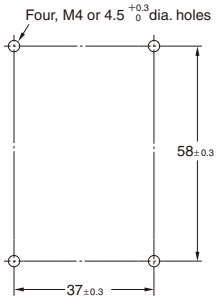
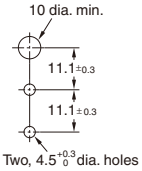
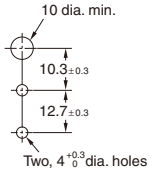
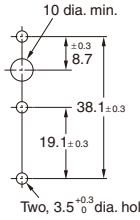
Note: 1. The standard 1VAP2-6 has SPST-NO contacts.
2. The 1VAP2-6 is also available with SPDT contacts. If SPDT contacts are required, order using the following model number. (The built-in switch is the V-15-1B6.)
1VAP2-6 (V-15-1B6)

Safety Precautions

For details, be sure to read *Safety Precautions for All Basic Switches*.

Precautions for Correct Use

Mounting Holes

Mounting direction	1ZAP2	1VAP2-1	1VAP2-2	1VAP2-6
Front mounting				
Side mounting				(Side mounting is not possible)

Wiring

Tighten the terminal screws to the torque given in the following table.

1ZAP2	1VAP2
0.78 to 1.78 N·m	0.39 to 0.49 N·m

Operating Environment

- The Switch does not have a water-resistant structure. Take measures to protect the Switch if it is to be used in locations subject to splashing or spraying water or other liquids.
- Do not use the Switch where it is continuously subjected to vibration or shock. Doing so will result in contact failure, malfunction, or a decrease in service life caused by abrasive powder that is generated from the internal parts. Subjecting the Switch to excessive vibration or shock may cause the contacts to malfunction, stick, or become damaged. Make sure to install the Switch in locations free of vibration or shock or in a direction where resonance will not occur.
- Do not use the Switch in locations subject to corrosive gas, such as sulfuric gas (H_2S or SO_2), ammonium gas (NH_3), nitric gas (HNO_3), or chlorine gas (Cl_2), or high temperature and humidity. Doing so will result in damage due to contact failure or corrosion.
- If the Switch is used in locations with silicone gas, arc energy may cause silicon dioxide (SiO_2) to build up on the contacts and contact failure may result. If there is silicone oil, silicone sealant, or wire covered with silicone close to the Switch, attach a contact protective circuit to suppress the arcing of the Switch or eliminate the source of silicone gas.
- Use the switch within the specified range for operating temperature and humidity. Using the Switch in high temperatures will cause the operating characteristics to deviate. Rapid changes in temperature will also cause the operating characteristics to deviate. It is recommended to install the Switch as far as possible from heat sources so that the temperature of the Switch is not affected.

Safety Precautions for All Basic Switches

For the individual precautions for a Switch, refer to the precautions in the section for that Switch.

Precautions for Safe Use

Always observe the following cautions to ensure safety.

Mounting

Before mounting, dismounting, wiring, or inspecting a switch, be sure to turn OFF the power supply to the switch, otherwise an electric shock may be received or the switch may burn.

Wiring

- Do not perform wiring when power is being supplied to a switch. Also, do not touch any of the charged terminals when power is being supplied. Otherwise, electric shock may be received.
- Follow the instructions provided in *Correct Use* for all wiring and soldering work. Using a switch with improper wiring or soldering may result in abnormal heating when power is supplied, possibly resulting in burning.

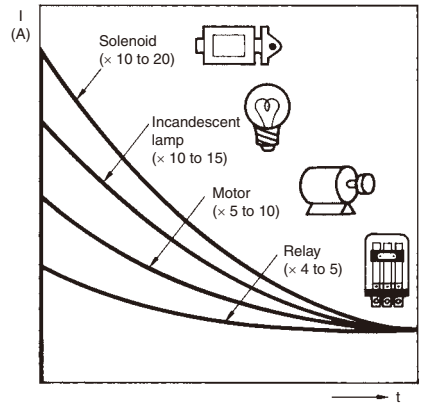
Contact Load

Select suitable switch ratings after confirming contact load. If the contact load is excessive for the contacts, the contacts may weld or shift, possibly resulting in short-circuits or burning when power is supplied.

Load Types

Some types of load have a large difference between steady-state current and inrush current, as shown in the following diagram. Select a switch with ratings suitable for the type of load. The higher the inrush current in the closed circuit is, the more the contact abrasion or shift there will be. Consequently, contact welding or shifting may occur, possibly resulting in short-circuits or burning.

Types of Load vs. Inrush Current



Operating Atmosphere

Do not use switches in atmospheres containing combustible or explosive gases. Arc or heat generated by switching may cause fires or explosions.

Shock on Individual Switches

Do not drop or disassemble switches. Not only will characteristics be jeopardized, but also damage, electric shock, or burning may result.

Durability

The durability of a switch greatly varies with switching conditions. Before using a switch, be sure to test the switch under actual conditions in the actual application and to use the switch within the switching operations causing no problem. If a deteriorated switch is used continuously, insulation failures, contact welding, contact failures, switch damage, or switch burnout may result.

Precautions for Correct Use

For details, refer to the *Precautions for Correct Use* in the *Basic Switches Technical Guide*.

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