# General-purpose Basic Switch

## Best-selling Basic Switch Boasting High Precision and Wide Variety

- A large switching capacity of 15 A with high repeat accuracy.
- A wide range of variations in contact form for your selection: basic, split-contact, maintained-contact, and adjustable contact gap types.
- A series of standard models for micro loads is available.
- A series of molded terminal-type models incorporating safety terminal protective cover is available.

> Be sure to read Safety Precautions on page 22 and Safety Precautions for All Basic Switches.

## Model Number Structure

### Configuration

<table>
<thead>
<tr>
<th>Basic models</th>
<th>General-purpose</th>
<th>Drip-proof</th>
<th>Without terminal protective cover</th>
<th>With terminal protective cover</th>
<th>Molded terminal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Split-contact models</td>
<td>General-purpose</td>
<td>Drip-proof</td>
<td>Without terminal protective cover</td>
<td>With terminal protective cover</td>
<td>Molded terminal</td>
</tr>
<tr>
<td>Maintained-contact models</td>
<td>General-purpose</td>
<td>Drip-proof</td>
<td>Without terminal protective cover</td>
<td>With terminal protective cover</td>
<td>Molded terminal</td>
</tr>
</tbody>
</table>

### Basic Models

#### General-purpose
- A variety of actuators is available for a wide range of application.
- The contact mechanism of models for micro loads is a crossbar type with gold-alloy contacts, which ensures highly reliable operations for micro loads.
- Contact Gap:
  - H2: 0.20 mm (extra-high-sensitivity)
  - H: 0.25 mm (high-sensitivity, micro voltage current load)
  - G: 0.5 mm (standard)
  - E: 1.8 mm (high-capacity)
  - F: 1.0 mm (split-contact models)

#### Drip-proof
- These Switches use a rubber boot on the actuator and adhesive fill between the case and cover to increase resistance to drips.
- Models with drip-proof terminal protective covers and molded terminals with resin filling are also available.

### Split-contact Models
- This type is identical in construction to the general-purpose basic switch except that it has two pairs of simultaneous acting contacts by splitting moving contacts.
- Since the moving contacts are connected to a common terminal, either parallel or series connection is possible.
- Highly reliable micro load switching is ensured if the model is used as a twin-contact switch.

### Maintained-contact Models
- The maintained-contact type has a reset button at the bottom of the switch case, in addition to the pushbutton (plunger) located on the opposite side of the reset button. Use these buttons alternately.
- Since the Switch has greater pretravel than overtravel, it is suitable for use in reversible control circuits, manual reset circuits, safety limit circuits, and other circuits which are not preferable for automatic resetting. (For further details, refer to individual datasheets.)
# Model Number Legend

## Basic Models

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-</td>
<td>General-purpose</td>
</tr>
<tr>
<td>@</td>
<td>Drip-proof</td>
</tr>
<tr>
<td>@M</td>
<td>Drip-proof (including the terminals)</td>
</tr>
</tbody>
</table>

### (1) Ratings
- 01: 0.1 A (micro load)
- 15: 15 A

### (2) Contact Gap
- H2: 0.20 (extra-high-sensitivity)
- H: 0.25 mm (high-sensitivity, micro load)
- G: 0.5 mm (standard)
- E: 1.8 mm (high-capacity)

### (3) Actuator
- None: Pin plunger
- S: Slim spring plunger
- D: Short spring plunger
- K: Spring plunger (medium OP)
- K3: Spring plunger (high OP)
- Q3: Panel mount plunger (medium OP)
- Q: Panel mount plunger (medium OP)
- Q8: Panel mount plunger (high OP)
- Q22: Panel mount roller plunger
- Q21: Panel mount cross roller plunger
- L: Leaf spring (high OF)
- L2: Roller leaf spring
- W21: Short hinge lever
- W: Hinge lever (low OF)
- W3: Hinge lever (medium OF)
- W32: Hinge lever (high OF)
- W4: Low-force hinge lever
- W44: Long hinge lever
- W78: Low-force wire hinge lever (low OF)
- W52: Low-force wire hinge lever (high OF)
- W22: Short hinge roller lever
- W2: Hinge roller lever
- W25: Hinge roller lever (large roller)
- W49: Short hinge cross roller lever
- W54: Hinge cross roller lever
- W2277: Unidirectional short hinge roller lever (low OF)
- M: Reverse hinge lever
- M22: Reverse short hinge roller lever
- M2: Reverse hinge roller lever
- NJ: Flexible rod (high OF)
- NJS: Flexible rod (low OF)

### (4) Degree of Protection
- None: General-purpose
- 55: Drip-proof (not include the terminals)
- A55: Drip-proof (including the terminals)

### (5) Terminals
- None: Solder terminal
- B: Screw terminal (with toothed washer)
- BSV: Screw terminal with terminal cover (for Z-15G\@A55 only)

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## Standard Models (Drip-proof Type/Molded Terminals)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-</td>
<td>General-purpose</td>
</tr>
<tr>
<td>55-M</td>
<td>Drip-proof</td>
</tr>
<tr>
<td>M</td>
<td>Drip-proof (including the terminals)</td>
</tr>
</tbody>
</table>

### (1) Drip-proof Type

### (2) Lead Outlets
- None: VSF
- 19: VCT

### (3) Directions of Lead Outlets (See following diagrams.)
- L: Left
- R: Right
- D: Descending

### (4) Length of Lead Outlets
- 1: 1 m
- 3: 3 m

---

## Split-contact Models

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-</td>
<td>General-purpose</td>
</tr>
<tr>
<td>10F</td>
<td>Split-contact</td>
</tr>
<tr>
<td>@</td>
<td>General-purpose</td>
</tr>
<tr>
<td>Y-B</td>
<td>General-purpose</td>
</tr>
</tbody>
</table>

### (1) Ratings
- 10: 10 A (split-contact models)

### (2) Contact Gap
- F: 1 mm (high-capacity)

### (3) Actuator
- None: Pin plunger
- S: Slim spring plunger
- D: Short spring plunger
- Q: Panel mount plunger
- Q22: Panel mount roller plunger
- W: Hinge lever
- W22: Short hinge roller lever
- W2: Hinge roller lever
- M22: Reverse short hinge roller lever
- M2: Reverse hinge roller lever
- NJ: Flexible rod (high OF)
- NJS: Flexible rod (low OF)

### (4) Construction
- Y: Split-contact models

### (5) Terminals
- B: Screw terminal (with toothed washer)

---

## Maintained-contact Models

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-</td>
<td>General-purpose</td>
</tr>
<tr>
<td>15</td>
<td>Maintained-contact</td>
</tr>
<tr>
<td>E</td>
<td>Maintained-contact</td>
</tr>
<tr>
<td>R</td>
<td>Maintained-contact</td>
</tr>
</tbody>
</table>

### (1) Ratings
- 15: 15 A

### (2) Contact Gap
- E: 1.8 mm (high capacity)

### (3) Actuator
- None: Pin plunger
- S: Slim spring plunger
- W: Hinge lever

### (4) Structure
- R: Maintained-contact models

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Note: For combinations of models, Ordering Information on page 3 to 6.
### Ordering Information

#### Main Unit

**Basic Models (General-purpose)**

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Classification</th>
<th>Standard</th>
<th>High-sensitivity</th>
<th>Extra-high sensitivity</th>
<th>High-capacity</th>
<th>Micro load</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin plunger</td>
<td>Contact gap Terminal</td>
<td>Model</td>
<td>Model</td>
<td>Model</td>
<td>Model</td>
<td>Model</td>
</tr>
<tr>
<td>Slim spring plunger</td>
<td></td>
<td>Z-15GS</td>
<td>Z-15SH</td>
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<td>Z-15GS-B</td>
<td>Z-15SH-B</td>
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<td>---</td>
<td>---</td>
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<tr>
<td>Short spring plunger</td>
<td></td>
<td>Z-15GD</td>
<td>Z-15HD</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Z-15GD-B</td>
<td>Z-15HD-B</td>
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<td>---</td>
<td>---</td>
</tr>
<tr>
<td></td>
<td>Low OP</td>
<td>Z-15GQ3</td>
<td>Z-15GQ3-B</td>
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<td>---</td>
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<tr>
<td></td>
<td>High OP</td>
<td>Z-15GQ8</td>
<td>Z-15GQ8-B</td>
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<td>---</td>
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<tr>
<td>Panel cross roller plunger</td>
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<td>Z-15GW21</td>
<td>Z-15GW21-B</td>
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<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Leaf spring</td>
<td></td>
<td>Z-15GL</td>
<td>Z-15GL-B</td>
<td>---</td>
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</tr>
<tr>
<td>Roller leaf spring</td>
<td></td>
<td>Z-15GL2</td>
<td>Z-15GL2-B</td>
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<td>---</td>
</tr>
<tr>
<td>Short hinge lever</td>
<td></td>
<td>Z-15GW21</td>
<td>Z-15GW21-B</td>
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<td>---</td>
</tr>
<tr>
<td></td>
<td>Low OP</td>
<td>Z-15GW4-B</td>
<td>Z-15GQ4-B</td>
<td>Z-15GQ4-B</td>
<td>Z-15GQ4-B</td>
<td>Z-15GQ4-B</td>
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<td>Short hinge roller lever</td>
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<td>Z-15GW22-B</td>
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<td>Z-15GW22-B</td>
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<tr>
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<td>Z-15GW2-B</td>
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<tr>
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<tr>
<td>Hinge cross roller lever</td>
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<td>Z-15GQ4-B</td>
<td>Z-15GW4-B</td>
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<tr>
<td></td>
<td>Parallel</td>
<td>Z-15GW2277</td>
<td>Z-15GW2277-B</td>
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<tr>
<td>Reverse hinge lever *2</td>
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<td>Z-15GM</td>
<td>Z-15GM-B</td>
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<td>---</td>
<td>---</td>
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<tr>
<td>Reverse short hinge roller lever *2</td>
<td></td>
<td>Z-15GM22</td>
<td>Z-15GM22-B</td>
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<tr>
<td>Reverse hinge roller lever *2</td>
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<td>Z-15GM2</td>
<td>Z-15GM2-B</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

*1. : Solder terminal  : Screw terminal  
*2. The pin plungers of reverse-type models are continuously pressed by the actuator levers with compression coil springs and the pin plungers are freed by operating the levers. Reverse-type models are highly vibration- and shock-resistant because the pin plungers are normally pressed.

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**Accessories (Terminal Covers, Actuators, and Separators):** Refer to Z/A/X/DZ Common Accessories and Z/X/DZ Common Accessories.
Minimum Order Lot
The following models are available at the minimum order lot specified below.
Orders must be placed per lot.

### Split-contact Models

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Classification</th>
<th>Standard</th>
<th>High-sensitivity</th>
<th>Minimum order lot (pcs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short spring plunger</td>
<td>Z-15GD-B</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Panel mount plunger</td>
<td>Z-15GQ-B</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Panel mount roller plunger</td>
<td>Z-15GQ22-B</td>
<td>—</td>
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<td>—</td>
</tr>
<tr>
<td>Panel mount cross roller plunger</td>
<td>Z-15GQ21-B</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Short hinge lever</td>
<td>Z-15GW21-B</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Hinge lever</td>
<td>Z-15GW-B</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Low-force hinge lever</td>
<td>Z-15GW4-B</td>
<td>—</td>
<td>Z-15HW24-B</td>
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<tr>
<td>Low-force hinge wire lever</td>
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<td>—</td>
<td>Z-15HW78-B</td>
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</tr>
<tr>
<td>Short hinge roller lever</td>
<td>Z-15GW22-B</td>
<td>—</td>
<td>—</td>
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<tr>
<td>Hinge roller lever</td>
<td>Z-15GW2-B</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Reverse short hinge roller lever</td>
<td>Z-15GM22-B</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Reverse hinge roller lever</td>
<td>Z-15GM2-B</td>
<td>—</td>
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</tbody>
</table>

### Maintained-contact Models

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin plunger</td>
<td>Z-15ER</td>
</tr>
<tr>
<td>Slim spring plunger</td>
<td>Z-15ESR</td>
</tr>
<tr>
<td>Hinge lever</td>
<td>Z-15EWR</td>
</tr>
</tbody>
</table>

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1. : Solder terminal  : Screw terminal
2. The pin plungers of reverse-type models are continuously pressed by the actuator levers with compression coil springs and the pin plungers are freed by operating the levers. Reverse-type models are highly vibration- and shock-resistive because the pin plungers are normally pressed.
<table>
<thead>
<tr>
<th>Actuator</th>
<th>Classification</th>
<th>Contact gap</th>
<th>Drip-proof terminal protective cover</th>
<th>Terminal</th>
<th>Standard</th>
<th>Micro load</th>
<th>Minimum order lot (pcs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pin plunger</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Z-15G55</td>
<td>Z-15GA55-B</td>
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<tr>
<td>Short spring plunger</td>
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<td></td>
<td></td>
<td>Z-15G55-B</td>
<td>Z-01H55-B</td>
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<tr>
<td>Spring plunger</td>
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<td>Z-15GK55</td>
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<td>High OP</td>
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<td>Z-15GK355</td>
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<tr>
<td>Panel mount roller plunger</td>
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<td>Z-15GQ2255</td>
<td>Z-15GQ22A55-B</td>
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<tr>
<td>Leaf spring</td>
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<td>Z-15GL55</td>
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</tr>
<tr>
<td>Roller leaf spring</td>
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<td></td>
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<td>Z-15GL255</td>
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<tr>
<td>Short hinge lever</td>
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<td></td>
<td></td>
<td></td>
<td>Z-15GW2155</td>
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<tr>
<td>Long hinge lever</td>
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<tr>
<td>Hinge lever</td>
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<td>Z-15GW55</td>
<td>Z-15GWA55-B</td>
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<tr>
<td>Short hinge roller lever</td>
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<td></td>
<td></td>
<td></td>
<td>Z-15GW2255-B</td>
<td>Z-15GW22A55-B</td>
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</tr>
<tr>
<td>Hinge roller lever</td>
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<td></td>
<td>Z-15GW2255-B</td>
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<td></td>
</tr>
<tr>
<td>Unidirectional short hinge roller lever</td>
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<td></td>
<td></td>
<td></td>
<td>Z-15GW227755</td>
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<tr>
<td>Reverse hinge lever *2</td>
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<td></td>
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<td>Z-15GM55</td>
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<td></td>
</tr>
<tr>
<td>Reverse short hinge roller lever *2</td>
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<td>Z-15GM2255</td>
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<tr>
<td>Reverse hinge roller lever *2</td>
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<td></td>
<td></td>
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<td>Z-15GM255</td>
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<td>Flexible rod (coil spring) *3</td>
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<td></td>
<td>Z-15GNJ55</td>
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<td></td>
</tr>
</tbody>
</table>

**Notes:**
1. : Solder terminal : Screw terminal
2. The pin plungers of reverse-type models are continuously pressed by the actuator levers with compression coil springs and the pin plungers are freed by operating the levers.
3. The tip is made of resin.

**Minimum Order Lot**
The following models are available at the minimum order lot specified below.
Orders must be placed per lot.

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Classification</th>
<th>Contact gap</th>
<th>Standard</th>
<th>Minimum order lot (pcs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short spring plunger</td>
<td></td>
<td></td>
<td>Z-15GD55-B</td>
<td></td>
</tr>
<tr>
<td>Spring plunger</td>
<td></td>
<td></td>
<td>Z-15GK55-B</td>
<td></td>
</tr>
<tr>
<td>Hinge lever</td>
<td></td>
<td></td>
<td>Z-15GW55</td>
<td></td>
</tr>
<tr>
<td>Hinge lever</td>
<td></td>
<td></td>
<td>Z-15GW2255-B</td>
<td></td>
</tr>
<tr>
<td>Short hinge roller lever</td>
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<td>Z-15GW2255-B</td>
<td></td>
</tr>
<tr>
<td>Hinge roller lever</td>
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<td></td>
<td>Z-15GW255-B</td>
<td></td>
</tr>
<tr>
<td>Flexible rod (coil spring)</td>
<td></td>
<td></td>
<td>Z-15GNJ55</td>
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</tr>
</tbody>
</table>

**Accessories (Terminal Covers, Actuators, and Separators):** Refer to Z/A/X/DZ Common Accessories and Z/X/DZ Common Accessories.
Specifications

Ratings (Basic, Split-contact and Maintained contact Models)

Z-15 (Except Micro Load and Flexible Rod Models)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Contact gap</th>
<th>Rated voltage</th>
<th>Non-inductive load (A)</th>
<th>Inductive load (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>125 VAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>G, H, H2, E</td>
<td>15 (10)</td>
<td>3</td>
<td>1.5</td>
<td>15 (10)</td>
</tr>
<tr>
<td></td>
<td>125 VAC</td>
<td>2.5</td>
<td>1.25</td>
<td>15 (10)</td>
</tr>
<tr>
<td></td>
<td>250 VAC</td>
<td>0.75</td>
<td>1.5</td>
<td>15 (10)</td>
</tr>
<tr>
<td>G</td>
<td>15</td>
<td>3</td>
<td>1.5</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>125 VDC</td>
<td>0.4</td>
<td>0.03</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>250 VDC</td>
<td>0.2</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>H, H2</td>
<td>15</td>
<td>3</td>
<td>1.5</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>125 VDC</td>
<td>15</td>
<td>0.03</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>250 VDC</td>
<td>0.2</td>
<td>0.02</td>
<td>0.02</td>
</tr>
<tr>
<td>E</td>
<td>15</td>
<td>3</td>
<td>1.5</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>125 VDC</td>
<td>0.4</td>
<td>0.03</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td>250 VDC</td>
<td>0.2</td>
<td>0.02</td>
<td>0.02</td>
</tr>
</tbody>
</table>

Z-15 (Flexible Rod Models)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Contact gap</th>
<th>Rated voltage</th>
<th>Non-inductive load (A)</th>
<th>Inductive load (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>125 VAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
<td>0.5</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>0.75</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.6</td>
<td>1</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.6</td>
<td>0.6</td>
<td>0.05</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.2</td>
<td>0.2</td>
<td>0.02</td>
</tr>
<tr>
<td>Z-01H</td>
<td></td>
<td>15</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
<td>0.6</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
<td>0.6</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
<td>0.3</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Z-10F

<table>
<thead>
<tr>
<th>Classification</th>
<th>Contact gap</th>
<th>Rated voltage</th>
<th>Non-inductive load (A)</th>
<th>Inductive load (A)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>125 VAC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>10</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10</td>
<td>2.5</td>
<td>1.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>9</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.6</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0.3</td>
<td>0.3</td>
<td>0.3</td>
</tr>
<tr>
<td>Z-01H</td>
<td></td>
<td>15</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
<td>0.6</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15</td>
<td>0.6</td>
<td>0.1</td>
</tr>
<tr>
<td>Minimum applicable load</td>
<td>5 VDC 1 mA</td>
<td>5 VDC 160 mA</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Use the switch within the operating range.
Certified Standard Ratings

Ask your OMRON representative for information on certified models.

UL/CSA (General ratings only)

<table>
<thead>
<tr>
<th>Rated voltage</th>
<th>Model</th>
<th>Z-15</th>
<th>Z-10F</th>
<th>Z-01H</th>
</tr>
</thead>
<tbody>
<tr>
<td>125 VAC</td>
<td>15A</td>
<td>6A</td>
<td>0.1A</td>
<td></td>
</tr>
<tr>
<td>250 VAC</td>
<td>15A</td>
<td>6A</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>480 VAC</td>
<td>15A</td>
<td>6A</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>30 VDC</td>
<td>0.5A</td>
<td>0.6A</td>
<td>—</td>
<td></td>
</tr>
<tr>
<td>125 VDC</td>
<td>0.25A</td>
<td>0.3A</td>
<td>—</td>
<td></td>
</tr>
</tbody>
</table>

Characteristics

<table>
<thead>
<tr>
<th>Item</th>
<th>Classification</th>
<th>Z-15 (except micro load and flexible rod)</th>
<th>Z-01H</th>
<th>Z-15 (flexible rod)</th>
<th>Z-10F</th>
<th>Z-15H2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating speed</td>
<td></td>
<td>0.01 mm to 1 mm/s *1</td>
<td>1 mm to 1 mm/s</td>
<td>0.1 mm to 1 mm/s *1</td>
<td>0.01 mm to 1 mm/s</td>
<td></td>
</tr>
<tr>
<td>Operating frequency</td>
<td>Mechanical</td>
<td>240 operations/min</td>
<td>120 operations/min</td>
<td>240 operations/min</td>
<td>240 operations/min</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electrical</td>
<td>20 operations/min</td>
<td>25 operations/min</td>
<td>25 operations/min</td>
<td>15 ms max. (initial value)</td>
<td></td>
</tr>
<tr>
<td>Insulation resistance</td>
<td></td>
<td>100 MΩ min. (at 500 VDC)</td>
<td>15 MΩ max. (initial value)</td>
<td>15 MΩ max. (initial value)</td>
<td>15 MΩ max. (initial value)</td>
<td></td>
</tr>
<tr>
<td>Contact resistance</td>
<td></td>
<td>15 mΩ max. (initial value)</td>
<td>50 mΩ max. (initial value)</td>
<td>50 mΩ max. *2 *5</td>
<td>50 mΩ max. *5</td>
<td></td>
</tr>
<tr>
<td>Dielectric strength</td>
<td></td>
<td>Between contacts of same polarity</td>
<td>Between contacts of same polarity</td>
<td>Between contacts of same polarity</td>
<td>Between contacts of same polarity</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Contact gap F:</td>
<td>120,000,000 operations min.</td>
<td>1,000,000 operations min.</td>
<td>500,000 operations min. *1</td>
<td>20,000,000 operations min.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Contact gap G:</td>
<td>20,000,000 operations min.</td>
<td>500,000 operations min.</td>
<td>100,000 operations min.</td>
<td>500,000 operations min.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Contact gap H:</td>
<td>50,000,000 operations min.</td>
<td>1,000,000 operations min.</td>
<td>100,000 operations min.</td>
<td>500,000 operations min.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Contact gap E:</td>
<td>10,000,000 operations min.</td>
<td>100,000 operations min.</td>
<td>100,000 operations min.</td>
<td>500,000 operations min.</td>
<td></td>
</tr>
<tr>
<td>Vibration resistance</td>
<td>Malfunction</td>
<td>10 to 55 Hz, 1.5-mm double amplitude *5</td>
<td>10 to 55 Hz, 1.5-mm double amplitude *5</td>
<td>10 to 55 Hz, 1.5-mm double amplitude *5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shock resistance</td>
<td></td>
<td>1,000 m/s² max.</td>
<td>500 m/s² max. *5</td>
<td>300 m/s² max. *3 *5</td>
<td>100 m/s² max.</td>
<td></td>
</tr>
<tr>
<td>Durability</td>
<td>Mechanical</td>
<td>250 VAC 15 A 15 A ---</td>
<td>125 VAC -- -- 0.1 A</td>
<td>Z-15G 15 A 15 A --</td>
<td>Z-01H 15 A 15 A --</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Electrical</td>
<td>250 VAC 15 A 15 A ---</td>
<td>125 VAC -- -- 0.1 A</td>
<td>Z-15G 15 A 15 A --</td>
<td>Z-01H 15 A 15 A --</td>
<td></td>
</tr>
<tr>
<td>Degree of protection</td>
<td>General-purpose</td>
<td>1500</td>
<td>500</td>
<td>250</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Drip-proof</td>
<td>Equivalent to IP62 (except terminals)</td>
<td>Class I</td>
<td>Class I</td>
<td>Class I</td>
<td></td>
</tr>
<tr>
<td>Ambient operating temperature</td>
<td>General-purpose</td>
<td>-25°C to 80°C (with no icing)</td>
<td>-15°C to 80°C (with no icing)</td>
<td>35% to 85°F/RH</td>
<td>35% to 95°F/RH</td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td></td>
<td>22 to 56 g</td>
<td>42 to 48 g</td>
<td>34 to 61 g</td>
<td>22 g</td>
<td></td>
</tr>
</tbody>
</table>

Engineering Data

Mechanical Durability (Z-15G)

Electrical Durability (Z-15G)
Structure

Basic Models

Contact Form (SPDT)

Note: The Z-15GM is a reversible model and the NO and NC positions are reversed.

Molded Terminals

Note: The Z-15GM is a reversible model and the NO and NC positions are reversed.

Structure

Drip-proof Construction

- Without Terminal Protective Cover

- With Terminal Protective Cover

Note: The NO and NC terminal arrangement is reversed for Models with reverse operation (Z-10FM).

Connection Example

Series Connection

Parallel Connection

Maintained-contact Models

Contact Form

Terminal protective covers are sold separately for maintenance purposes, which can be, however, used with the Z-15GM-B5V models only. For details, refer to page 24.
Mounting
Use M4 screws with plane washers and spring washers to mount the Switch. Tighten each mounting screw securely to a torque of 1.18 to 1.47 N·m.

When mounting the Switch to a panel, use a tightening torque of 2.94 to 4.9 N·m for the hexagonal nuts on the actuator.

Terminals
Dimensions and Operating Characteristics
The models, illustrations, and graphics are for screw-terminal models (-B). The "-A" at the end of the model number for solder terminal models has been omitted. For details of the terminals, see above.

Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

### Short Spring Plunger

**Z-15GD-B**  
**Z-01HD-B**  
**Z-15HD-B**  
**Z-10FDY-B**  
**Z-15ED-B**

### Panel Mount Plunger

**Z-15GQ-B**  
**Z-01HQ-B**  
**Z-15HQ-B**  
**Z-10FQY-B**  
**Z-15EQ-B**  
**Z-15GQ3-B**  
**Z-15GQ8-B**

### Panel Mount Roller Plunger

**Z-15GQ22-B**  
**Z-15EQ22-B**  
**Z-15HQ22-B**  
**Z-10FQ22Y-B**

---

**Note:**

1. Do not use the M12 mounting screw and the case mounting hole at the same time, or excessive pulling force will be imposed on the switch and the case and cover may be damaged.
2. On the model Z-15GQ3-B, PT can be set to a value larger than that for the Z-15GQ.
3. On the model Z-15GQ8-B, operating position can be adjusted by providing a screw in the plunger section.
4. On the model Z-15GQ8-B, the M3 hole with a depth of 10 mm is a through hole. Take precautions so that no water or screw lock agent penetrates into the hole.

---

**Z-15GQ-B** | **Z-15HQ-B** | **Z-15EQ-B** | **Z-10FQY-B** | **Z-15GQ3-B** | **Z-15GQ8-B**
---|---|---|---|---|---
**OF** | 2.45 to 3.43 N | 1.96 to 2.79 N | 6.13 to 7.85 N | 2.45 N max. | 2.45 to 3.43 N | 2.45 to 3.43 N
**RF min.** | 1.12 N | 1.12 N | 1.12 N | 0.78 N | 1.12 N | 1.12 N
**PT max.** | 0.4 mm | 0.3 mm | 0.8 mm | 0.8 mm | 0.5 mm | 0.8 mm
**OT min.** | 1.6 mm | 1.6 mm | 1.6 mm | 1.6 mm | 1.6 mm | 1.6 mm
**MD max.** | 0.05 mm | 0.025 mm | 0.13 mm | 0.05 mm | 0.05 mm | 0.1 mm
**OP** | 21.8±0.8 mm | 18.8±0.8 mm | 32.5±1 mm |

---

**Z-15GQ22-B** | **Z-15EQ22-B** | **Z-15HQ22-B** | **Z-10FQ22Y-B**
---|---|---|---
**OF** | 2.45 to 3.43 N | 1.96 to 2.79 N | 6.13 to 7.85 N | 4.46 to 7.26 N
**RF min.** | 1.12 N | 1.12 N | 1.12 N | 1.12 N
**PT max.** | 0.4 mm | 0.3 mm | 0.8 mm | 1 mm
**OT min.** | 3.58 mm | 3.08 mm | 3.58 mm | 3.05 mm
**MD max.** | 0.05 mm | 0.025 mm | 0.13 mm | 0.1 mm
**OP** | 33.4±1.2 mm |
Panel Mount Cross Roller Plunger
Z-15GQ21-B  Z-15EQ21-B
Z-15HQ21-B

Note: Do not use the M12 mounting screw and the case mounting hole at the same time, or the case may be damaged.

Leaf Spring
Z-15GL-B

Roller Leaf Spring
Z-15GL2-B

Short Hinge Lever
Z-15GW21-B

Hinge Lever
Z-15GW-B  Z-15GW32-B
Z-15HW-B  Z-10FWY-B
Z-15GW3-B (Lever Length: 56R)*

* The external dimensions of the actuator vary.

Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
Z-15GW4-B

Low-force Hinge Lever

Z-15HW24-B

Low-force Wire Hinge Lever

Z-15HW52-B
Z-15HW78-B (Lever Length: 110R) *

<table>
<thead>
<tr>
<th>OF max.</th>
<th>RF min.</th>
<th>PT max.</th>
<th>OT min.</th>
<th>MD max.</th>
<th>OP</th>
</tr>
</thead>
<tbody>
<tr>
<td>274 mN</td>
<td>34.3 mN</td>
<td>10 mm</td>
<td>5.8 mm</td>
<td>1.27 mm</td>
<td>19±0.8 mm</td>
</tr>
</tbody>
</table>

Z-15HW52-B

<table>
<thead>
<tr>
<th>OF max.</th>
<th>RF min.</th>
<th>PT max.</th>
<th>OT min.</th>
<th>MD max.</th>
<th>OP</th>
</tr>
</thead>
<tbody>
<tr>
<td>58.8 mN</td>
<td>4.90 mN</td>
<td>8.3 mm</td>
<td>5.6 mm</td>
<td>0.65 mm</td>
<td>19±1 mm</td>
</tr>
</tbody>
</table>

Z-15HW78-B

<table>
<thead>
<tr>
<th>OF max.</th>
<th>RF min.</th>
<th>PT max.</th>
<th>OT min.</th>
<th>MD max.</th>
<th>OP</th>
</tr>
</thead>
<tbody>
<tr>
<td>39.2 mN</td>
<td>2.94 mN</td>
<td>10 mm</td>
<td>6 mm</td>
<td>3 mm</td>
<td>20±1 mm</td>
</tr>
</tbody>
</table>

Short Hinge Roller Lever

Z-15GW2-B Z-01HW22-B
Z-15HW22-B Z-10FW22Y-B
Z-15EW22-B
Z-15GW2-B * Z-15HW2-B *
Z-10FW2Y-B *

* The external dimensions of the actuator vary.

Note: AC electrical ratings: 10 A, 125/250 V.

Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
The pin plungers of reverse-type models are continuously pressed by the actuator levers with compression coil springs and the pin plungers are freed by operating the levers. Reverse-type models are highly vibration- and shock-resistant because the pin plungers are normally pressed.

Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

** The external dimensions of the actuator vary.

---

**Reverse Hinge Cross Roller Lever**

Z-15GW49-B

Z-15GW54-B (Lever Length: 48.7R) *

**Hinge Roller Lever**

Z-15GW25-B

**Unidirectional Short Hinge Roller Lever**

Z-15GW2277-B

**Reverse Hinge Lever** **

Z-15GM-B

**Reverse Short Hinge Roller Lever** **

Z-15GM22-B

Z-10FM22Y-B

**Reverse Hinge Roller Lever** **

Z-15GM2-B

** The pin plungers of reverse-type models are continuously pressed by the actuator levers with compression coil springs and the pin plungers are freed by operating the levers. Reverse-type models are highly vibration- and shock-resistant because the pin plungers are normally pressed.

Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
Basic Models (Drip-proof) without Terminal Protective Cover

Terminals (Molded Terminals: Refer to page 21.)

Without Terminal Protective Cover

Note: With reverse action models (Z-15GM), the positions of NO and NC terminals are reversed.

Dimensions and Operating Characteristics

The above illustration is for model without terminal protective cover.

### Pin Plunger
- **Z-15G55-B**
- **Z-01H55-B**

### Short Spring Plunger
- **Z-15GD55-B**
- **Z-01HD55-B**

### Spring Plunger
- **Z-15GK55-B**
- **Z-15GK355-B**

Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
Panel Mount Plunger
Z-15GQ55-B

Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

* Stainless-steel plunger
*1 Stainless-steel roller
*2 Two hexagonal nuts (2 t × 14 width across flats)
*3 Two lock nuts (2 t × 15.6 width across flats)
*4 Incomplete screw part with a maximum length of 1.5 mm.

Panel Mount Roller Plunger
Z-15GQ2255-B

* Stainless-steel spring lever
*1 Stainless-steel roller
*2 Two hexagonal nuts (3 t × 17 width across flats)
*3 Incomplete screw part with a maximum length of 1.5 mm.

Panel Mount Cross Roller Plunger
Z-15GQ2155-B

* Stainless-steel spring lever
*1 Stainless-steel roller
*2 Two hexagonal nuts (3 t × 17 width across flats)
*3 Incomplete screw part with a maximum length of 1.5 mm.

Leaf Spring
Z-15GL55-B

* Stainless-steel spring lever
*1 0.3°

Note: Do not use the M12 mounting screw and the case mounting hole at the same time, or the case may be damaged.

Note: Do not use the M12 mounting screw and the case mounting hole at the same time, or the case may be damaged.

Note: Do not use the M12 mounting screw and the case mounting hole at the same time, or the case may be damaged.

Note: When operating, be sure not to exceed 1.6 mm.

Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
Hinge Roller Lever
Z-15GW255-B

* The pin plungers of reverse-type models are continuously pressed by the actuator levers with compression coil springs and the pin plungers are freed by operating the levers.

Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
Flexible Rod (Coil Spring)
Z-15GNJ55-B

Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

Flexible Rod (Steel Wire)
Z-15HNJS55-B

Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
Basic Models (Drip-proof) with Terminal Protective Cover

Dimensions and Operating Characteristics

Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.

### Pin Plunger
**Z-15GA55-B5V**

- **Dimensions**
  - Length: 23.5 mm
  - Width: 12.4 mm
  - Height: 19.2 mm
  - Weight: 13.7 g

- **Operating Characteristics**
  - O.F. max.: 2.45 to 4.22 N
  - R.F. min.: 1.12 N
  - P.T. max.: 2.2 mm
  - O.T. min.: 0.13 mm
  - M.D. max.: 0.06 mm
  - O.P.: 15.9 ±0.4 mm

### Panel Mount Plunger
**Z-15GQA55-B5V**

- **Dimensions**
  - Length: 23.3 mm
  - Width: 12.7 mm
  - Height: 14.7 mm
  - Weight: 14.9 g

- **Operating Characteristics**
  - O.F. max.: 5.30 N
  - R.F. min.: 1.12 N
  - P.T. max.: 1.8 mm
  - O.T. min.: 3.5 mm
  - M.D. max.: 0.06 mm
  - O.P.: 37.8 ±1.2 mm

### Panel Mount Roller Plunger
**Z-15GQ22A55-B5V**

- **Dimensions**
  - Length: 23.3 mm
  - Width: 12.7 mm
  - Height: 17.45 mm
  - Weight: 33.4 g

- **Operating Characteristics**
  - O.F. max.: 5.30 N
  - R.F. min.: 1.12 N
  - P.T. max.: 1.8 mm
  - O.T. min.: 3.58 mm
  - M.D. max.: 0.06 mm
  - O.P.: 33.4 ±1.2 mm

### Panel Mount Cross-roller Plunger
**Z-15GQ21A55-B5V**

- **Dimensions**
  - Length: 23.3 mm
  - Width: 12.7 mm
  - Height: 17.45 mm
  - Weight: 33.4 g

- **Operating Characteristics**
  - O.F. max.: 5.30 N
  - R.F. min.: 1.12 N
  - P.T. max.: 1.8 mm
  - O.T. min.: 3.58 mm
  - M.D. max.: 0.06 mm
  - O.P.: 33.4 ±1.2 mm

Note: Do not use the M12 mounting screw and the case mounting hole at the same time, or the case may be damaged.

---

*1. Stainless-steel roller
2. Two hexagonal nuts (2 t × 14 width across flats)
3. Two lock nuts (2 t × 15.6 width across flats)
Long Hinge Lever
Z-15GW44A55-B5V

Hinge Lever
Z-15GWA55-B5V

Short Hinge Roller Lever
Z-15GW22A55-B5V

Hinge Roller Lever
Z-15GW2A55-B5V

Unidirectional Short Hinge Roller Lever
Z-15GW2277A55-B5V

Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
Molded Terminals

L/R Type (The following illustration is the R type.)

D Type

<table>
<thead>
<tr>
<th>Size (mm)</th>
<th>a</th>
<th>b</th>
<th>c</th>
</tr>
</thead>
<tbody>
<tr>
<td>VSF</td>
<td>12</td>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>VCT</td>
<td>19</td>
<td>11</td>
<td>20</td>
</tr>
</tbody>
</table>

Lead Wire Specifications

<table>
<thead>
<tr>
<th>Lead wire</th>
<th>Specifications</th>
<th>Nominal cross sectional area (mm²)</th>
<th>Finished outer diameter (mm)</th>
<th>Connection to terminal</th>
<th>Length (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VSF (single-core, vinyl cord)</td>
<td></td>
<td>1.25</td>
<td>Approx. 3.1 dia.</td>
<td>Black: COM</td>
<td>1, 3</td>
</tr>
<tr>
<td>VCT (vinyl-insulated cable)</td>
<td></td>
<td>2.26</td>
<td>Approx. 10.5 dia.</td>
<td>White: NO, Red: NC</td>
<td></td>
</tr>
</tbody>
</table>

Note: 1. No models with molded terminals are approved by UL, CSA, or EN.
2. Molded terminals are not available on all models. Contact your OMRON representative for applicable products.

Maintained-contact Models

Dimensions and Operating Characteristics

Pin Plunger

Z-15ER

<table>
<thead>
<tr>
<th>Plunger</th>
<th>OF max.</th>
<th>PT max.</th>
<th>OT min.</th>
<th>OP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-15ER</td>
<td>1.96 to 2.50 N</td>
<td>0.4 mm</td>
<td>0.13 mm</td>
<td>28.2±0.5 mm</td>
</tr>
</tbody>
</table>

Reset Button

<table>
<thead>
<tr>
<th>OF max.</th>
<th>OP</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.55 to 2.79 N</td>
<td>0.4 mm</td>
</tr>
</tbody>
</table>

Slim Spring Plunger

Z-15ESR

<table>
<thead>
<tr>
<th>Plunger</th>
<th>OF max.</th>
<th>PT max.</th>
<th>OT min.</th>
<th>OP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-15ESR</td>
<td>2.65 N</td>
<td>0.4 mm</td>
<td>1.6 mm</td>
<td>28.2±0.5 mm</td>
</tr>
</tbody>
</table>

Reset Button

<table>
<thead>
<tr>
<th>OF max.</th>
<th>OP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.79 N</td>
<td>0.4 mm</td>
</tr>
</tbody>
</table>

Hinge Lever

Z-15EWR

<table>
<thead>
<tr>
<th>Lever Tip</th>
<th>OF max.</th>
<th>OT min.</th>
<th>FP max.</th>
<th>OP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-15EWR</td>
<td>0.54 N</td>
<td>0.4 mm</td>
<td>15±0.8 mm</td>
<td>28.2 mm</td>
</tr>
</tbody>
</table>

Reset Button

<table>
<thead>
<tr>
<th>OF max.</th>
<th>OP</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.94 N</td>
<td>0.4 mm</td>
</tr>
</tbody>
</table>

Note: Unless otherwise specified, a tolerance of ±0.4 mm applies to all dimensions.
Safety Precautions

Refer to Safety Precautions for All Basic Switches.

Precautions for Safe Use

Terminal Connection
When soldering lead wires to the Switch, make sure that the capacity of the soldering iron is 60 W maximum. Do not take more than 5 s to solder any part of the Switch. The characteristics of the Switch will deteriorate if a soldering iron with a capacity of more than 60 W is applied to any part of the Switch for 5 s or more.

Operation
- Make sure that the switching frequency or speed is within the specified range.
  1. If the switching speed is extremely slow, the contact may not be switched smoothly, which may result in a contact failure or contact welding.
  2. If the switching speed is extremely fast, switching shock may damage the Switch soon. If the switching frequency is too high, the contact may not catch up with the speed.
- The rated permissible switching speed and frequency indicate the switching reliability of the Switch.
- The life of a Switch is determined at the specified switching speed.
- The life varies with the switching speed and frequency even when they are within the permissible ranges. In order to determine the life of a Switch model to be applied to a particular use, it is best to conduct an appropriate durability test on some samples of the model under actual conditions.
- Make sure that the actuator travel does not exceed the permissible OT position. The operating stroke must be set to 70% to 100% of the rated OT.

Precautions for Correct Use

Mounting Location
- Do not use the switch alone in atmospheres such as flammable or explosive gases. Arcing and heat generation associated with switching may cause fires or explosions.
- Switches are generally not constructed with resistance against water. Use a protective cover to prevent direct spraying or spurting oil or water, dust adhering.
- Install the switch in a location that is not directly subject to debris and dust from cutting. The actuator and the switch body must be protected from accumulated cutting debris and dirt.
- Do not use the switch in locations subject to hot water (greater than 60°C) or in water vapor.

- Do not use the switch outside the specified temperature and atmospheric conditions. The permissible ambient temperature depends on the model. (Refer to the specifications in this catalog.) Sudden thermal changes may cause thermal shock to distort the switch and result in faults.
- Mount a cover if the switch is to be installed in a location where worker inattention could result in incorrect operation or accidents.
- Subjecting the switch to continuous vibration or shock may result in contact failure or faulty operation due to abrasion powder and in reduced durability. Excessive vibration or shock will cause the contacts to operate malfunction or become damaged. Mount the switch in a location that is not subject to vibration or shock and in a direction that does not subject the switch to resonance.
- If silver contacts are used with relatively low frequency for a long time or are used with microloads, the sulfide coating produced on the contact surface will not be broken down and contact faults will result. Use a microload switch that uses gold contacts.
- Do not use the switch in atmospheres with high humidity or heat or in harmful gases, such as sulfide gas (H2S, SO2), ammonia gas (NH3), nitric acid gas (HNO3), or chlorine gas (Cl2). Doing so may impair functionality, such as with damage due to contacting faults or corrosion.
- The switch includes contacts. If the switch is used in an atmosphere with silicon gas, arc energy may cause silicon oxide (SiO2) to accumulate on the contacts and result in contact failure. If there is silicon oil, silicon filling, silicon wiring, or other silicon products in the vicinity of the switch, use a contact protection circuit to limit arcing and remove the source of the silicon gas.

Mounting
Always make sure that the power is turned OFF before mounting, removing, or wiring the Switch, or performing maintenance. Electric shock or burning may occur.

Selecting Models
We recommend using Drip-proof Models (protection equivalent to IP62) in locations subject to floating dirt and dust. Other models do not have a protective structure.

Wiring
For wiring, use a wire size that is appropriate for the applied voltage and the supplied current. When soldering the Switch, make sure that the capacity of the soldering iron is 60 W maximum. Do not take more than 5 s to solder any part of the Switch. Using the Switch with incomplete soldering may result in errors and heat, which may cause burning. The characteristics of the Switch will deteriorate if a soldering iron with a capacity of more than 60 W is used or if any part of the Switch is soldered for 6 s or longer.
Tightening

The suitable tightening torque for screw terminals is given below.

Screw terminals except for those on Split-contact Models (Z-10FY-B): 0.78 to 1.18 N·m
Screw terminals on Split-contact Models (Z-10FY-B): 0.49 to 1.18 N·m

Operation

- Make sure that the switching speed and frequency are within the specified ranges.
  1. If the switching speed is extremely slow, the contacts may not be switched smoothly, which may result in a contact failure or contact welding.
  2. If the switching speed is extremely fast, switching shock may damage the Switch prematurely. If the switching frequency is too high, the contacts may not be able to keep up with the speed.
- The rated permissible switching speed and frequency indicate the switching reliability of the Switch.
- Make sure that the actuator travel does not exceed the permissible OT position. The operating stroke must be set to 70% to 100% of the rated OT.

Panel Mount Switch (Z-15Q, Z-01Q)

- When mounting the panel mount plunger model with screws on a side surface, be careful of the dog angle and operation speed. Excessive dog angle or operation speed may damage the Switch.
- When using the panel mount plunger model mounted with screws on a side surface, be careful not to apply a large shock. Applying a shock exceeding 1,000 m/s² may damage the Switch.
- When using the panel mount plunger model mounted with screws on a side surface, remove the hexagonal nuts from the actuator.

High-sensitivity Switch (Z-15H)/
Extra-high-sensitivity Switch (Z-15H2)

- When using the Switch in a DC circuit, be sure to provide an arc suppressor as well because the small contact gap of the Switch may result in contact troubles.
- In an application where a high repeat accuracy is required, limit the current that flows through the Switch to within 0.1 A. Also, use a relay to control a high-capacity load if the Switch is connected to such a load. (In this case, the exciting current of the relay coil is the load of the Switch.)
- Do not apply a force of 19.6 N or higher to the pin plunger.
- Exercise care that the environment conditions such as temperature and humidity do not change abruptly.

Micro Load Applicable Range

Using a model for ordinary loads to open or close the contact of a micro load circuit may result in faulty contact. Use models that operate in the following range. However, even when using micro load models within the operating range shown here, if inrush current occurs when the contact is opened or closed, it may increase contact wear and so decrease durability. Therefore, insert a contact protection circuit where necessary.

The minimum applicable load is the N-level reference value. This value indicates the malfunction reference level for the reliability level of 60% (λ, 60). The equation, λ, 60 = 0.5×10⁻⁶/operations indicates that the estimated malfunction rate is less than 1/2,000,000 operations with a reliability level of 60%.

### Minimum applicable load

<table>
<thead>
<tr>
<th>Model</th>
<th>1 mA at 5 VDC</th>
<th>160 mA at 5 VDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z-01H</td>
<td>1 mA</td>
<td>160 mA</td>
</tr>
<tr>
<td>Z-15H, Z-10FY</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Models with Drip-proof Terminal Cover (Z-A55-B5V)

- To attach the Protective Cover to the case, hold the cover in almost parallel to the case and then push it to the case. If the cover is pushed diagonally, the rubber packing may slip off, degrading the sealability of the Switch.

- Use round solderless terminals having the following dimensions to connect leads to the terminals. Tighten the screws of terminals to a torque of 0.78 to 1.18 N·m. Use the terminal shown below.
- A cable 8.5 to 10.5 mm in diameter can be applicable to the sealing rubber of the lead outlet of the Switch. A two-core or three-core VCT cable having a cross-sectional area of 1.25 mm² is especially suitable for this.
- Use M4 small screws with spring toothed washer are used as the terminal screws.
Drip-proof Switch (Z-□55)
- The Switch is not perfectly oil-tight; so do not dip it in oil or water.
- The rubber boots are made from weather-resistive chloroprene rubber.
- Do not use Basic Switches in places with radical changes in temperature.
- Rubber boots and rubber caps will tend to harden at lower ambient temperatures. If an Actuator is used in a pressed state for an extended period of time at low temperatures, it may return slowly or it may not return at all. OMRON can provide special Actuators for use at low temperature with rubber boots or rubber caps made of silicon rubber, which has superior resistance to cold. Ask your OMRON representative for details.

Split-contact Switch (Z-10F□Y)
The applicable current varies depending on how the contacts are used. If the Switch is connected in series, the Switch can endure a current 1.5 to 2 times higher than the current that can be applied in parallel connection.

Flexible Rod Switch (Z-15□NJ□55, Drip-proof)
- When the rod is fully swung, the Switch may operate when the lever returns, causing chattering. Use a circuit that compensates for chattering wherever possible.
- Do not switch the rod to the fullest extent when the Switch is to break a power circuit because such a practice may cause metal deposition to occur between the mating contacts of the Switch.

Other Precautions
- Do not apply excessive force with a screwdriver or other tool when attaching or removing the Protective Cover. Doing so may deform the Switch.
- The Drip-proof Terminal Protective Cover can be sued only with Switches with model numbers ending in “-BSV.”
- Only the Terminal Protective Cover is available for maintenance.

Accessories (Order Separately)
Refer to Z/A/X/DZ Common Accessories for details about Terminal Covers, Separators, and Actuators.

<table>
<thead>
<tr>
<th>Name</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drip-proof Terminal Protect</td>
<td>AP-DV</td>
</tr>
</tbody>
</table>

Dimensions (Unit: mm)
Warranty and Limitations of Liability

WARRANTY
OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

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LIMITATIONS OF LIABILITY
OMRON SHALL NOT BE RESPONSIBLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

In no event shall the responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted.

IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS REGARDING THE PRODUCTS UNLESS OMRON'S ANALYSIS CONFIRMS THAT THE PRODUCTS WERE PROPERLY HANDLED, STORED, INSTALLED, AND MAINTAINED AND NOT SUBJECT TO CONTAMINATION, ABUSE, MISUSE, OR INAPPROPRIATE MODIFICATION OR REPAIR.

Application Considerations

SUITABILITY FOR USE
OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the products.

At the customer's request, OMRON will provide applicable third party certification documents identifying ratings and limitations of use that apply to the products. This information by itself is not sufficient for a complete determination of the suitability of the products in combination with the end product, machine, system, or other application or use.

The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

- Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this catalog.
- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
- Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

PROGRAMMABLE PRODUCTS
OMRON shall not be responsible for the user's programming of a programmable product, or any consequence thereof.

Disclaimers

CHANGE IN SPECIFICATIONS
Product specifications and accessories may be changed at any time based on improvements and other reasons.

It is our practice to change model numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the products may be changed without any notice. When in doubt, special model numbers may be assigned to fix or establish key specifications for your application on your request. Please consult with your OMRON representative at any time to confirm actual specifications of purchased products.

DIMENSIONS AND WEIGHTS
Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

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Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of OMRON's test conditions, and the users must correlate it to actual application requirements. Actual performance is subject to the OMRON Warranty and Limitations of Liability.

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