

# Slim I/O Relay G2RV-SR/G3RV-SR

**Global standard size,  
low profile slim I/O relay with width 6.2 mm,  
slim I/O solid state relay**



For the recent information on models that have been certified for safety standards, refer to your OMRON website.

- Realized about 25% lower profile than conventional products, contributing to further miniaturization of the control panel.
- Push-In Plus technology are used to save wiring work in comparison with conventional screw terminals. (Wiring time is reduced by 60%\* in comparison with traditional screw terminals.)
- No screw loosening means maintenance-free application, realizing high reliability
- ‘Hand-free’ structure that holds an inserted flat-blade screwdriver to achieve easier wiring work for stranded wires.
- Screw terminal is also stocked to meet the screw type needs.
- Mounted relay or solid-state relay has a plug-in terminal that is difficult to bend at the time of exchange.

\* According to OMRON actual measurement data from November 2015.

Refer to *Safety Precautions* on page 20.

## Slim I/O Relay Types

- G2RV-SR series mounted relay: electromagnetic relay ..... from page 2
- G3RV-SR series mounted relay: solid state relay ..... from page 10

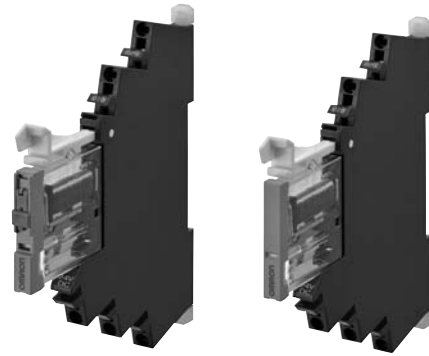
## Common matter

- Common precautions ..... from page 20
- Common accessories (order separately)..... from page 25

# Slim I/O Relay G2RV-SR

G2RV-SR

## Global standard size, low profile slim I/O relay with width 6.2 mm



For the recent information on models that have been certified for safety standards, refer to your OMRON website.

G3RV-SR

- Realized about 25% lower profile than conventional products, contributing to further miniaturization of the control panel.
- Realized opening and closing ability with one pole 6 A slim shape.
- Micro load products for one pole 50 mA using Au-plated contacts for small load switching also available.
- Since G2RV is a transparent case, confirming the state of the contact with the naked eye is possible, and easy to confirm abnormality on-site (installed location).
- Screw terminal is also stocked to meet the screw type needs.
- Mounted relay uses plug-in terminals that are difficult to bend when exchanging.
- G3RV-SR featuring a solid state relay similar in shape to G2RV-SR also available.

Refer to *Safety Precautions* on page 20.

Common Precautions

## Features

### Standard model/Micro load

- Terminal x 5
- Push-in
- Screw
- Release lever
- Operation display LED (Socket section)
- Mechanical indicator
- Operation verification which is linked to the contact



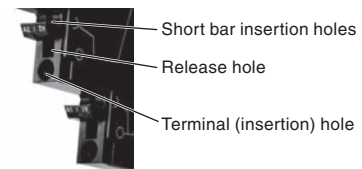
### With latching lever (Test switch)

- Protective cover (Locked condition)
- Latching lever (Test switch)
- Protective cover (Released state)
- Latching lever (Test switch)
- Circuit check operation Confirmation, reducing the inspection effort

**PAT**

"Foreign matter intrusion prevention structure"  
"Malfunction prevention stopper"

### Push-In Plus technology

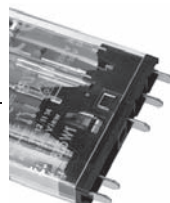
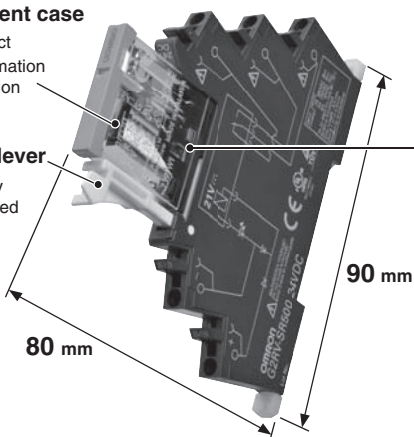


Common Accessories

### Transparent case

- Relay contact
- Easy confirmation of the situation

- Release lever
- Relay easily fixed/removed



### Plug-in terminal

- Peace of mind as the terminal does not bend when replacing

# Model Number Structure

## Model Number Legend

G2RV-SR □□ □ - □ □  
 (1) (2) (3) (4) (5) (6)

**(1) Basic model name**  
 G2RV: Slim I/O Relay

**(2) Sub type**  
 SR: Slim relay + integrated low profile socket

**(3) Terminal (wire connection)**  
 50: Push-In Plus Terminal  
 70: Screw terminal

**(4) Latching lever (test switch)**  
 0: Without latching lever  
 1: With latching lever

**(5) Contact structure**  
 Blank: Standard  
 AP: Microloads

**(6) Rated input voltage**  
 12, 24 VDC  
 24, 48 VAC/VC  
 100, 110, 200, 230 VAC

## Ordering Information

| Terminal (Wire connection) | Classification      | Latching lever (Test switch) | Rated input voltage (V) |                     | Model                 |                       |                 |
|----------------------------|---------------------|------------------------------|-------------------------|---------------------|-----------------------|-----------------------|-----------------|
| Push-In Plus Terminal      | Standard            | No                           | DC                      | 12                  | G2RV-SR500 DC12       |                       |                 |
|                            |                     |                              |                         | 24                  | G2RV-SR500 DC24       |                       |                 |
|                            |                     |                              | AC/DC                   | 24                  | G2RV-SR500 AC/DC24    |                       |                 |
|                            |                     |                              |                         | 48                  | G2RV-SR500 AC/DC48    |                       |                 |
|                            |                     |                              |                         | AC                  | 100                   | G2RV-SR500 AC100      |                 |
|                            |                     |                              | AC                      | 110                 | G2RV-SR500 AC110      |                       |                 |
|                            |                     |                              |                         | 200                 | G2RV-SR500 AC200      |                       |                 |
|                            | 230                 | G2RV-SR500 AC230             |                         |                     |                       |                       |                 |
|                            | Yes                 | DC                           | 24                      | G2RV-SR501 DC24     |                       |                       |                 |
|                            |                     |                              | AC/DC                   | 24                  | G2RV-SR501 AC/DC24    |                       |                 |
|                            | Microloads          | No                           | DC                      | 12                  | G2RV-SR500-AP DC12    |                       |                 |
|                            |                     |                              |                         | 24                  | G2RV-SR500-AP DC24    |                       |                 |
|                            |                     |                              | AC/DC                   | 24                  | G2RV-SR500-AP AC/DC24 |                       |                 |
|                            |                     |                              |                         | 48                  | G2RV-SR500-AP AC/DC48 |                       |                 |
| AC                         |                     |                              |                         | 100                 | G2RV-SR500-AP AC100   |                       |                 |
| AC                         |                     |                              | 110                     | G2RV-SR500-AP AC110 |                       |                       |                 |
|                            |                     |                              | 200                     | G2RV-SR500-AP AC200 |                       |                       |                 |
| 230                        |                     |                              | G2RV-SR500-AP AC230     |                     |                       |                       |                 |
| Screw terminal             |                     |                              | Standard                | No                  | DC                    | 12                    | G2RV-SR700 DC12 |
|                            |                     |                              |                         |                     |                       | 24                    | G2RV-SR700 DC24 |
|                            | AC/DC               | 24                           |                         |                     | G2RV-SR700 AC/DC24    |                       |                 |
|                            |                     | 48                           |                         |                     | G2RV-SR700 AC/DC48    |                       |                 |
|                            |                     | AC                           |                         |                     | 100                   | G2RV-SR700 AC100      |                 |
|                            | AC                  | 110                          |                         |                     | G2RV-SR700 AC110      |                       |                 |
|                            |                     | 200                          |                         |                     | G2RV-SR700 AC200      |                       |                 |
|                            | 230                 | G2RV-SR700 AC230             |                         |                     |                       |                       |                 |
|                            | Yes                 | DC                           | 24                      | G2RV-SR701 DC24     |                       |                       |                 |
|                            |                     |                              | AC/DC                   | 24                  | G2RV-SR701 AC/DC24    |                       |                 |
|                            |                     | Microloads                   | No                      | DC                  | 12                    | G2RV-SR700-AP DC12    |                 |
|                            |                     |                              |                         |                     | 24                    | G2RV-SR700-AP DC24    |                 |
|                            |                     |                              |                         | AC/DC               | 24                    | G2RV-SR700-AP AC/DC24 |                 |
|                            |                     |                              |                         |                     | 48                    | G2RV-SR700-AP AC/DC48 |                 |
| AC                         |                     |                              |                         |                     | 100                   | G2RV-SR700-AP AC100   |                 |
| AC                         | 110                 | G2RV-SR700-AP AC110          |                         |                     |                       |                       |                 |
|                            | 200                 | G2RV-SR700-AP AC200          |                         |                     |                       |                       |                 |
| 230                        | G2RV-SR700-AP AC230 |                              |                         |                     |                       |                       |                 |

**Note:** Sockets are not sold individually.

# G2RV-SR

## Relay for Maintenance

### Model Number Legend

**G2RV-1 - S**  -  - **G**

(1) (2) (3) (4) (5) (6)

**(1) No. of poles**

1: 1 pole

**(2) Terminal**

S: plug-in

**(3) Latching lever (Test switch)**

Blank: Without latching lever

I: With latching lever

**(4) Contact material**

Blank: Ag alloy

AP: Ag alloy + Au plating

**(5) Types of relay for exchange**

G: G2RV-SR series equipped

Relay

**(6) Rated coil voltage**

Number: 11, 21, 48 VDC

G2RV-1-SI-G



G2RV-1-S(-AP)-G



### List of Models

| Type      | Latching Lever (Test switch) | Rated coil voltage (V) | Model | Applicable model            |                            |
|-----------|------------------------------|------------------------|-------|-----------------------------|----------------------------|
| Standard  | No                           | DC                     | 11    | <b>G2RV-1-S-G DC11</b>      | G2RV-SR700/500 DC12V       |
|           |                              |                        | 21    | <b>G2RV-1-S-G DC21</b>      | G2RV-SR700/500 DC24V       |
|           |                              |                        | 48    | <b>G2RV-1-S-G DC48</b>      | G2RV-SR700/500 AC/DC24V    |
|           |                              |                        |       |                             | G2RV-SR700/500 AC/DC48V    |
|           |                              |                        |       |                             | G2RV-SR700/500 AC100V      |
|           |                              |                        |       |                             | G2RV-SR700/500 AC110V      |
|           | Yes                          | DC                     | 21    | <b>G2RV-1-SI-G DC21</b>     | G2RV-SR700/500 AC200V      |
|           |                              |                        | 48    | <b>G2RV-1-S(-AP)-G DC48</b> | G2RV-SR700/500 AC230V      |
|           |                              |                        |       |                             | G2RV-SR701/501 DC24V       |
|           |                              |                        |       |                             | G2RV-SR701/501 AC/DC24V    |
| Microload | No                           | DC                     | 11    | <b>G2RV-1-S-AP-G DC11</b>   | G2RV-SR700/500-AP DC12V    |
|           |                              |                        | 21    | <b>G2RV-1-S-AP-G DC21</b>   | G2RV-SR700/500-AP DC24V    |
|           |                              |                        | 48    | <b>G2RV-1-S-AP-G DC48</b>   | G2RV-SR700/500-AP AC/DC24V |
|           |                              |                        |       |                             | G2RV-SR700/500-AP AC/DC48V |
|           |                              |                        |       |                             | G2RV-SR700/500-AP AC100V   |
|           |                              |                        |       |                             | G2RV-SR700/500-AP AC110V   |
|           |                              |                        |       |                             | G2RV-SR700/500-AP AC200V   |
|           |                              |                        |       |                             | G2RV-SR700/500-AP AC230V   |

**Note:** Voltage is reduced within the socket for the slim I/O relay, so the rated input voltage and rated coil voltage of replacement relays are different.

### Accessories (order separately)

Refer to page 25 for G2RV-SR/G3VR-SR Common Accessories.

## Specifications

### Ratings

#### Coil ratings

| Rated input voltage | Rated current |         |         | Must operate voltage            | Must release voltage | Power consumption               |                | Maximum allowable voltage |
|---------------------|---------------|---------|---------|---------------------------------|----------------------|---------------------------------|----------------|---------------------------|
|                     | AC            |         | DC      |                                 |                      | Percentage of the rated voltage | AC (VA)        |                           |
|                     | 50 Hz         | 60 Hz   |         | Percentage of the rated voltage | AC (VA)              |                                 |                | DC (mW)                   |
| 12 VDC              | –             | –       | 27.9 mA | 80% max.*                       | 10% min.             | –                               | Approx. 300 mW | 110%                      |
| 24 VDC              | –             | –       | 13.5 mA |                                 |                      | –                               | Approx. 300 mW |                           |
| 24 VAC/VDC          | 12.5 mA       | 12.6 mA | 12.6 mA |                                 |                      | Approx. 0.5 VA                  | Approx. 300 mW |                           |
| 48 VAC/VDC          | 5.9 mA        | 6.1 mA  | 5.2 mA  |                                 |                      | Approx. 0.4 VA                  | Approx. 250 mW |                           |
| 100 VAC             | 5.9 mA        | 6.0 mA  | –       |                                 |                      | Approx. 0.8 VA                  | –              |                           |
| 110 VAC             | 5.9 mA        | 5.9 mA  | –       |                                 |                      | Approx. 0.8 VA                  | –              |                           |
| 200 VAC             | 6.6 mA        | 7.6 mA  | –       |                                 |                      | Approx. 1.7 VA                  | –              |                           |
| 230 VAC             | 7.3 mA        | 8.4 mA  | –       |                                 |                      | Approx. 1.7 VA                  | –              |                           |

**Note:** The operating characteristics are measured at ambient temperature of 23°C.

\* Operating voltage will be, for mounting in the upside down direction, 85% max.

(Upside down: Direction in which the mechanical indicator faces down)

#### Contact ratings

| Item                                      | Standard (G2RV-SR700, 500, 701, 501) |                                    | For microloads (G2RV-SR700-AP, 500-AP) *2 |
|---|--------------------------------------|------------------------------------|---|
| Contact configuration                     | SPDT                                 |                                    |   |
| Load                                      | Resistive load (cosφ=1)              | Inductive load (cosφ=0.4, L/R=7ms) | Resistive load (cosφ=1)                   |
| Rated load                                | 6 A at 250 VAC<br>6 A at 30 VDC      | 2.5 A at 250 VAC<br>2 A at 30 VDC  | 50 mA at 30 VAC<br>50 mA at 36 VDC        |
| Rated carry current                       | 6 A                                  |                                    | 50 mA                                     |
| Maximum switching voltage                 | 440 VAC, 125 VDC                     |                                    | 30 VAC, 36 VDC                            |
| Maximum switching current                 | 6 A                                  |                                    | 50 mA                                     |
| Maximum switching power                   | 1,500 VA<br>180 W                    | 500 VA<br>60 W                     | –   |
| Failure rate P value (reference value) *1 | 10 mA at 5 VDC                       |                                    | 1 mA at 100 mVDC                          |

\*1. P level:  $\lambda_{60}=0.1 \times 10^{-6}$ /times

This value is the value in switching frequency 120 operations/min.

\*2. If the Au plating layer is destroyed, the number will be the same as the standard type.

### Characteristics

| Item                          | Standard (G2RV-SR700, 500, 701, 501)   |  | For microloads (G2RV-SR700-AP, 500-AP) |
|-------------------------------|--|--|--|
| Contact resistance *          | 100 mΩ max.  |  |  |
| Operate (Set) time *          | 20 ms max.   |  |  |
| Release time *                | AC, AC/DC: 40 ms max.<br>DC: 20 ms max.  |  |  |
| Maximum operating frequency   | Mechanical: 18,000 operations/h<br>Electrical: 1,800 operations/h (rated load)   |  |  |
| Insulation resistance         | 1,000 MΩ min. (at 500 VDC)   |  |  |
| Dielectric strength           | Between coil and contacts: 4,000VAC 50/60 Hz 1 min<br>Contact between the same polarity: 1,000 VAC 50/60 Hz 1 min  |  |  |
| Vibration resistance          | Destruction: 10 to 55 to 10 Hz, single amplitude 0.50 mm (double amplitude 1.0 mm)<br>Malfunction: 10 to 55 to 10 Hz, single amplitude 0.50 mm (double amplitude 1.0 mm) |  |  |
| Shock resistance              | Destruction: 1,000 m/s <sup>2</sup><br>Malfunction: Energized 200m/s <sup>2</sup> , Non-energized 100m/s <sup>2</sup>  |  |  |
| Endurance *                   | Mechanical   | 5,000,000 operations min.  |  |
|                               | Electrical   | NO contact: 70,000 operations min.<br>NC contact: 50,000 operations min. | 5,000,000 operations min.              |
| Ambient operating temperature | Operating: –40 to +55°C (with no icing or condensation)  |  |  |
| Ambient operating humidity    | Operating: 5 to 85% RH   |  |  |
| Weight                        | Approx. 30 g   |  |  |
| Contact material              | Ag alloy   |  | Ag alloy + Au plating                  |

**Note:** Above values are initial values.

\* Value is at ambient temperature of 23°C.

# G2RV-SR

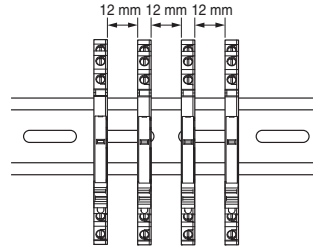
G2RV-SR

## Approved standards

UL508 (file No.E41643)

| Model          | Contact form | Operation coil ratings        | Contact ratings   | Operations |
|----------------|--------------|-------------------------------|---|------------|
| G2RV-SR series | SPDT         | 12 to 48 VDC<br>24 to 230 VAC | 6 A at 250 VAC (Resistive load)<br>6 A at 30 VDC (Resistive load)<br>2 A at 400 VAC (Resistive load)* | 6,000      |

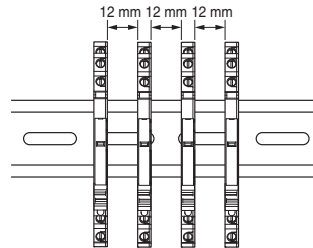
\* If the load voltage exceeds 250 VAC, please attach with a spacing of 12 mm min., or use a separate plate (XW5Z-EP12).



## TÜV (EN 61810-1)

| Model          | Contact form | Operation coil ratings                                 | Contact ratings   | Operations                |
|----------------|--------------|--|---|---------------------------|
| G2RV-SR series | SPDT         | 12, 24 VDC<br>24, 48 VAC/VDC<br>100, 110, 200, 230 VAC | 6 A at 250 VAC (Resistive load)<br>6 A at 30 VDC (Resistive load)<br>2 A at 400 VAC (Resistive load)* | 50,000<br>50,000<br>6,000 |

\* If the load voltage exceeds 250 VAC, please attach with a spacing of 12 mm min., or use a separate plate (XW5Z-EP12).



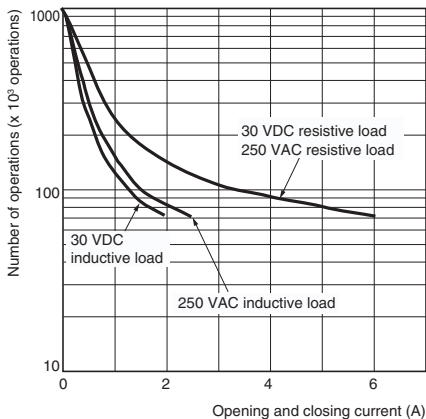
## Lloyd's (File No.07/10020)

| Model                          | Contact form | Operation coil ratings                                 | Contact ratings  |
|--------------------------------|--------------|--|--|
| G2RV-SR500<br>G2RV-SR700       | SPDT         | 12, 24 VDC<br>24, 48 VAC/VDC<br>100, 110, 200, 230 VAC | 6 A at 250 VAC (Resistive load)<br>2.5 A at 250 VAC (PF0.4)<br>6 A at 30 VAC (Ress)<br>2 A at 30 VDC (L/R=7ms) |
| G2RV-SR501<br>G2RV-SR701       | SPDT         | 12, 24 VDC<br>24 VAC/VDC                               | 6 A at 250 VAC (Resistive load)<br>2.5 A at 250 VAC (PF0.4)<br>6 A at 30 VAC (Ress)<br>2 A at 30 VDC (L/R=7ms) |
| G2RV-SR500-AP<br>G2RV-SR700-AP | SPDT         | 12, 24 VDC<br>24, 48 VAC/VDC<br>100, 110, 200, 230 VAC | 0.05 A at 30 VAC (Resistive load)<br>0.05 A at 36 VDC (Resistive load)   |

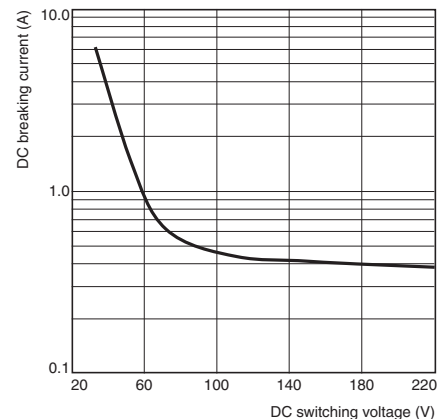
Common Precautions

## Engineering Data

Endurance curve (N.O. side)



Switching capacity of DC resistive load



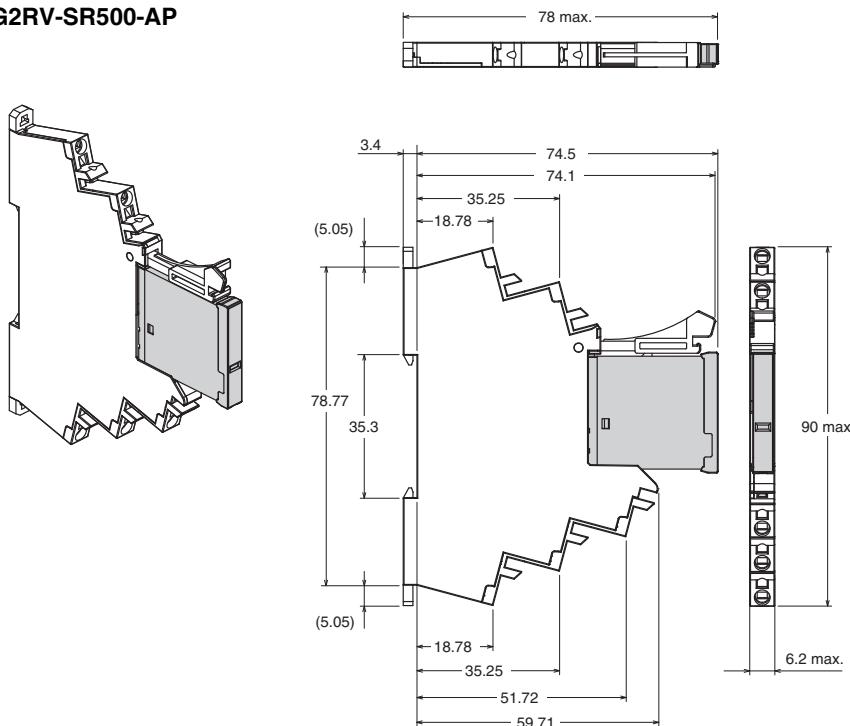
Common Accessories

# Dimensions

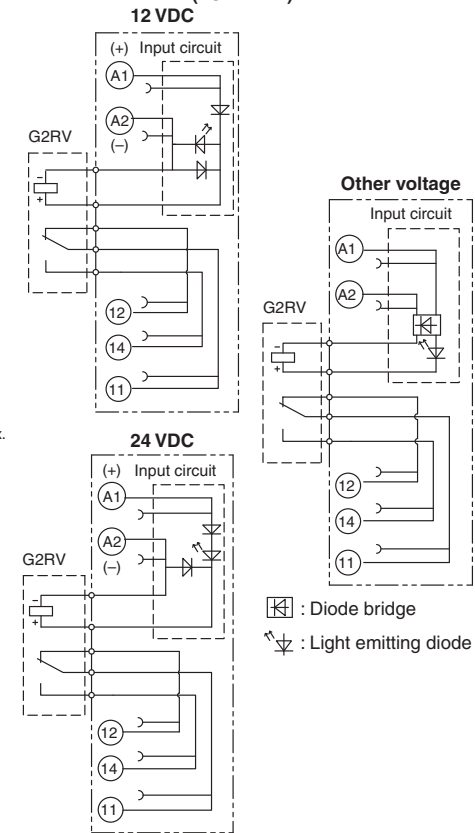
**Slim I/O Relay + socket**  
**Push-In Plus Terminal Block**

**Models without latching lever (without test switch)**

**G2RV-SR500**  
**G2RV-SR500-AP**

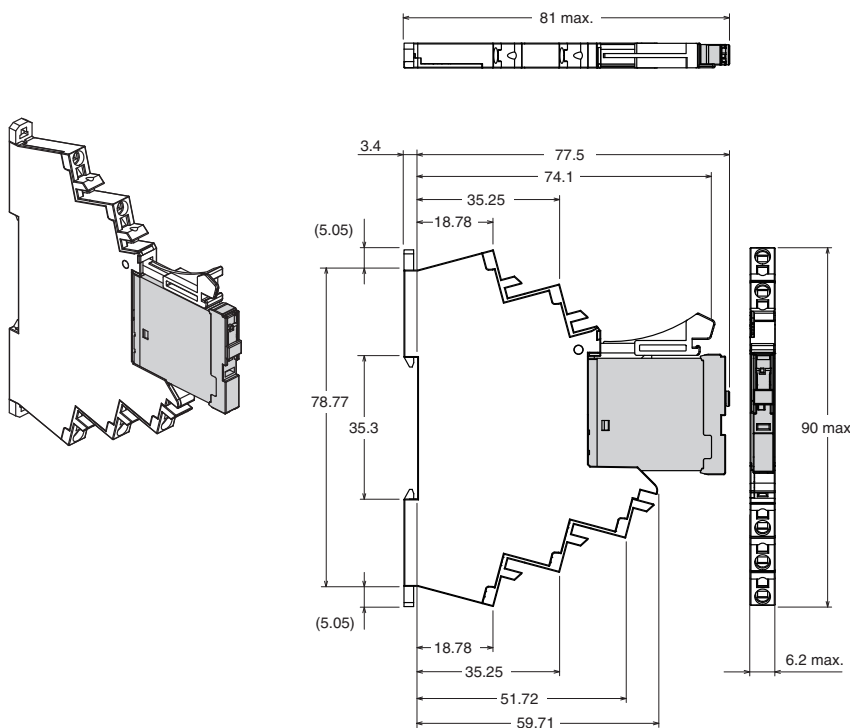


**Terminal Arrangement/Internal Connection Diagram (TOP VIEW)**

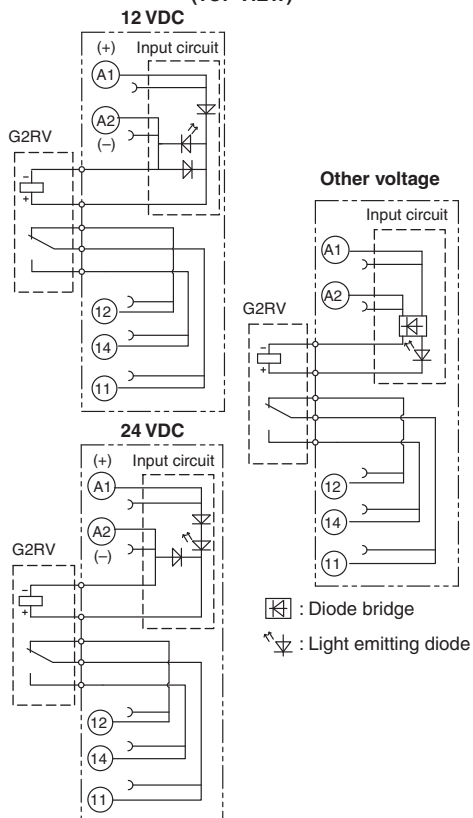


**Models with latching lever (with test switch)**

**G2RV-SR501**



**Terminal Arrangement/Internal Connection Diagram (TOP VIEW)**



G2RV-SR

G3RV-SR

Common Precautions

Common Accessories

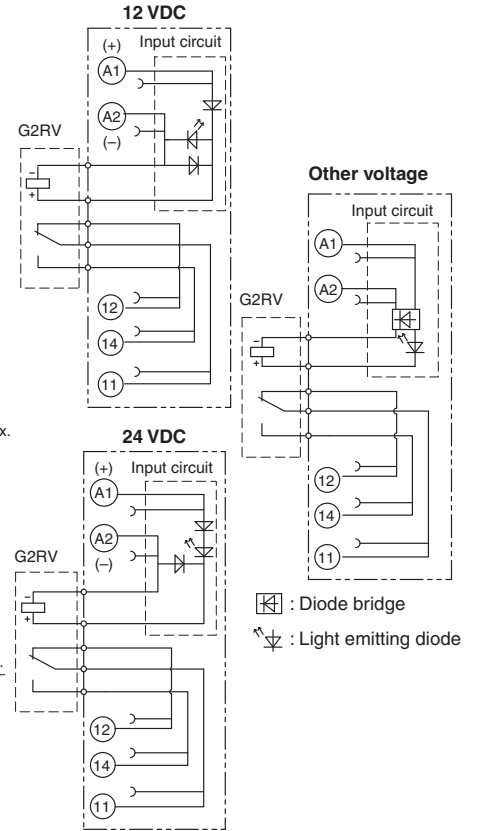
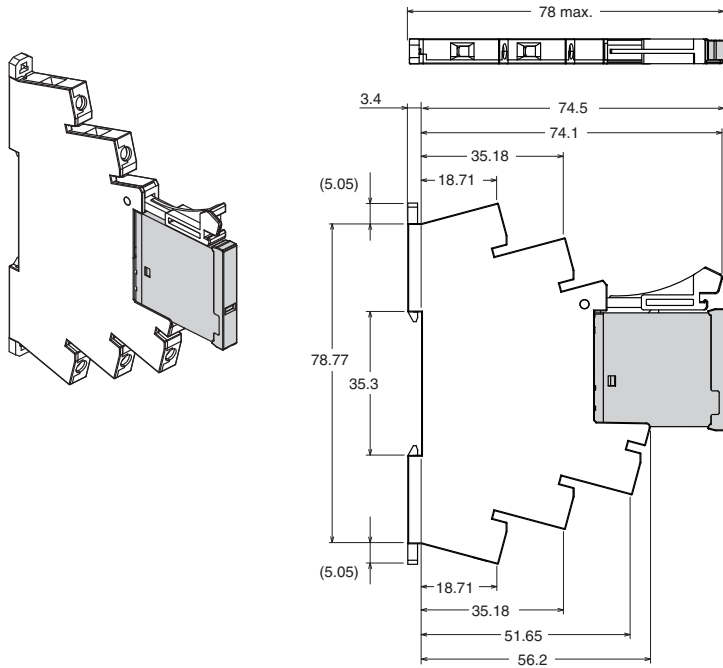
# G2RV-SR

## Screw terminal

### Models without latching lever (without test switch)

G2RV-SR700  
G2RV-SR700-AP

### Terminal Arrangement/Internal Connection Diagram (TOP VIEW)



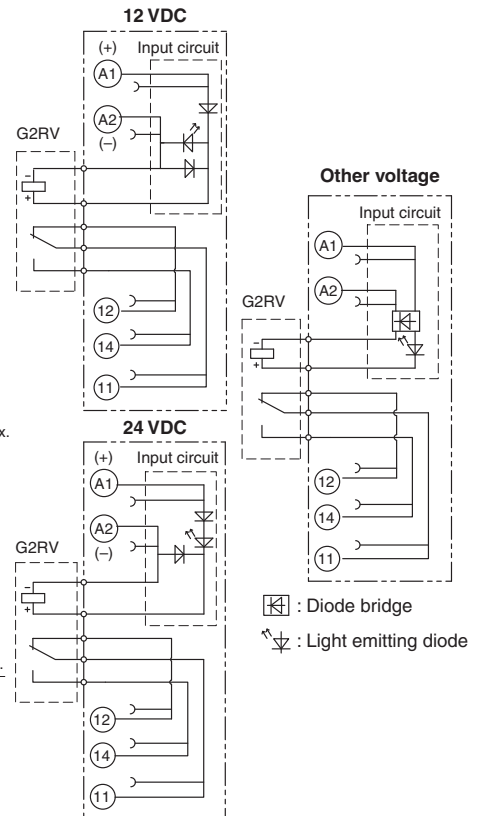
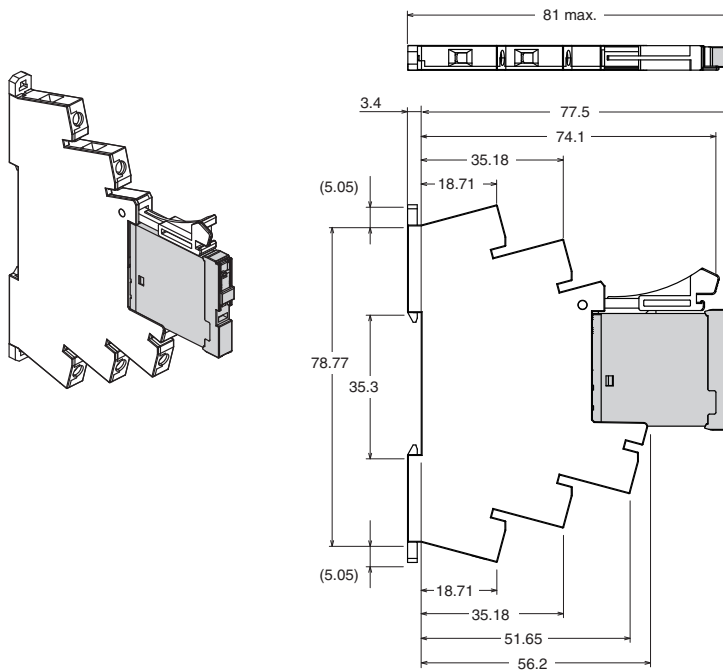
G2RV-SR

G3RV-SR

### Models with latching lever (with test switch)

G2RV-SR701

### Terminal Arrangement/Internal Connection Diagram (TOP VIEW)



Common Precautions

Common Accessories

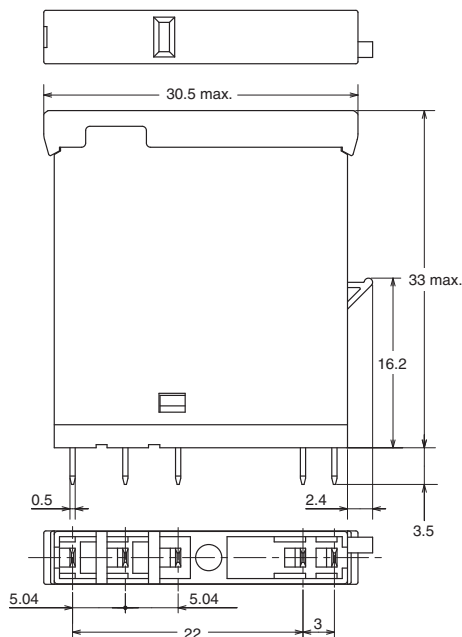
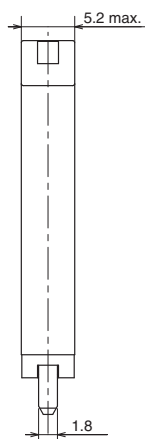


Relay for maintenance

Models without latching lever

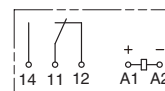
G2RV-1-S-G

G2RV-1-S-AP-G



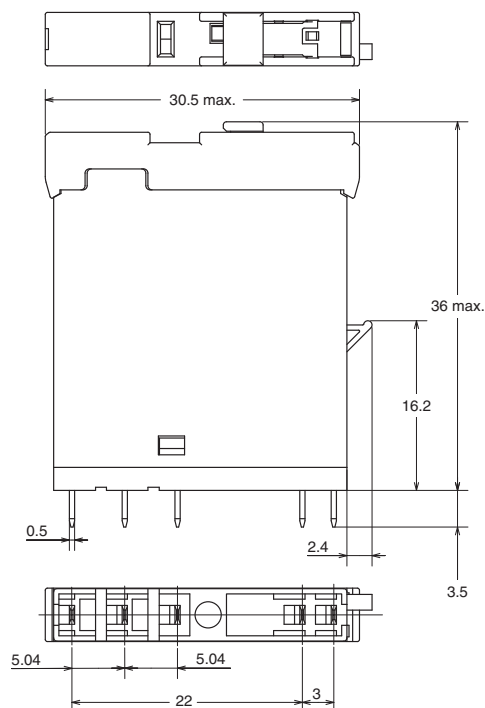
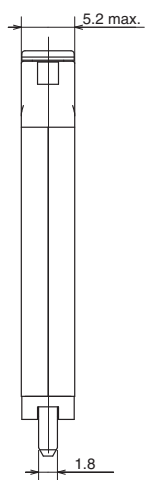
Terminal Arrangement/  
Internal Connection Diagram  
(TOP VIEW)

(Input circuit)



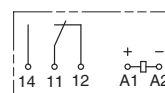
Models with latching lever (test switch)

G2RV-1-SI-G



Terminal Arrangement/  
Internal Connection Diagram  
(TOP VIEW)

(Input circuit)



# Slim I/O Solid State Relay G3RV-SR

G2RV-SR

G3RV-SR

Global standard size, low profile type slim I/O solid state relay with width 6.2 mm.



- Realized about 25% lower profile than conventional products, contributing to further miniaturization of the control panel.
- Optimal slim, high frequency, high-speed opening and closing SSR (solid state relay).
- Realized a slim shape with a switching capacity up to 3 A (DC), and 2 A (AC).
- Because MOSFET is used for the outlet element for the DC load, opening and closing load of 100  $\mu$ A to 3 A is possible.
- Check operating status at a glance at the operating display LED.
- Mounted I/O SSR (solid-state relay) uses plug-in terminals that are difficult to bend when exchanging.
- G2RV-SR featuring a general-purpose relay similar in shape to G3RV-SR also available.

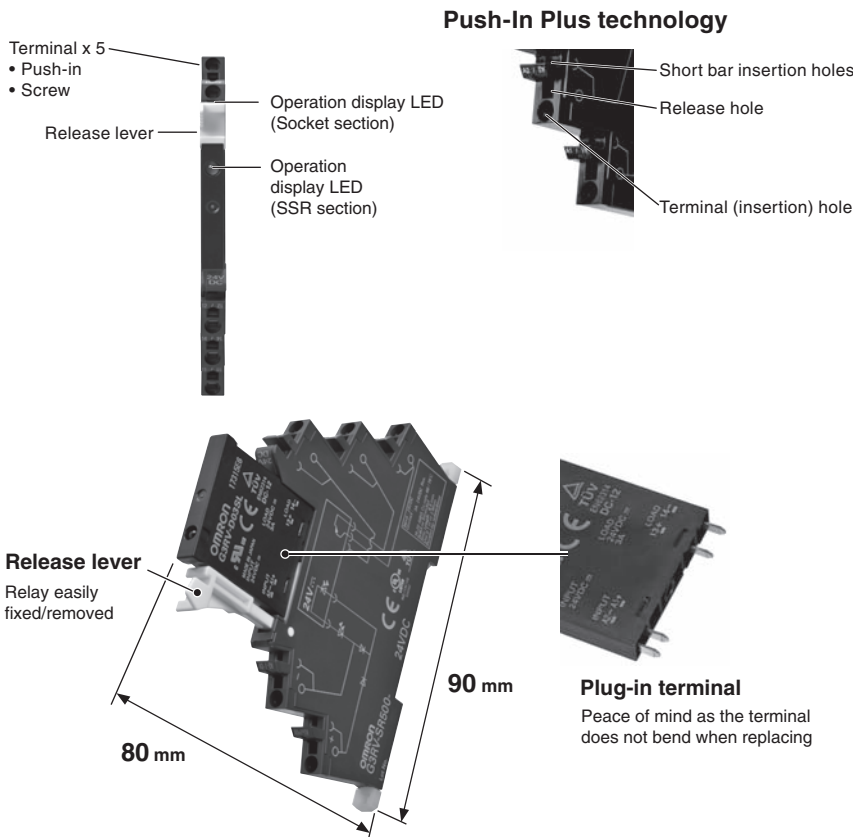
For the recent information on models that have been certified for safety standards, refer to your OMRON website.

Refer to *Safety Precautions* on page 20.

## Features

Common Precautions

Common Accessories



## Model Number Structure

### Model Number Legend

**G3RV-SR** □ □ □ - □ □  
 (1) (2) (3) (4) (5)

**(1) Basic model name**

G3RV: Slim I/O Solid State Relay

**(2) Sub type**

SR: Slim solid relay + integrated low profile socket

**(3) Terminal (wire connection)**

500: Push-In Plus Terminal

700: Screw terminal

**(4) Output voltage specification**

A : AC output (triac) zero cross function available

AL : AC output (triac) zero cross function not available

D : DC output (MOS FET)

**(5) Rated voltage input**

12, 24 VDC

24, 48 VAC/VDC

100, 110, 200, 230 VAC

G2RV-SR

G3RV-SR

Common Precautions

Common Accessories

# G3RV-SR

## Ordering Information

| Terminal (wire connection) | Applicable output load | Zero cross function | Rated input voltage (V) |     | Model                |                     |                       |
|----------------------------|------------------------|---------------------|-------------------------|-----|----------------------|---------------------|-----------------------|
| Push-In Plus Terminal      | DC load                | —                   | DC                      | 12  | G3RV-SR500-D DC12    |                     |                       |
|                            |                        |                     |                         | 24  | G3RV-SR500-D DC24    |                     |                       |
|                            |                        |                     | AC/DC                   | 24  | G3RV-SR500-D AC/DC24 |                     |                       |
|                            |                        |                     |                         | 48  | G3RV-SR500-D AC/DC48 |                     |                       |
|                            |                        |                     |                         | AC  | 100                  | G3RV-SR500-D AC100  |                       |
|                            |                        |                     | 110                     |     | G3RV-SR500-D AC110   |                     |                       |
|                            |                        |                     | 200                     |     | G3RV-SR500-D AC200   |                     |                       |
|                            |                        |                     | 230                     |     | G3RV-SR500-D AC230   |                     |                       |
|                            |                        |                     | AC load                 | Yes | DC                   | 12                  | G3RV-SR500-A DC12     |
|                            |                        |                     |                         |     |                      | 24                  | G3RV-SR500-A DC24     |
|                            |                        |                     |                         |     | AC/DC                | 24                  | G3RV-SR500-A AC/DC24  |
|                            |                        |                     |                         |     |                      | 48                  | G3RV-SR500-A AC/DC48  |
|                            | AC                     | 100                 |                         |     |                      | G3RV-SR500-A AC100  |                       |
|                            |                        | 110                 |                         |     | G3RV-SR500-A AC110   |                     |                       |
|                            |                        | 200                 |                         |     | G3RV-SR500-A AC200   |                     |                       |
|                            |                        | 230                 |                         |     | G3RV-SR500-A AC230   |                     |                       |
|                            | AC load                | No                  |                         |     | DC                   | 12                  | G3RV-SR500-AL DC12    |
|                            |                        |                     |                         |     |                      | 24                  | G3RV-SR500-AL DC24    |
|                            |                        |                     |                         |     | AC/DC                | 24                  | G3RV-SR500-AL AC/DC24 |
|                            |                        |                     |                         |     |                      | 48                  | G3RV-SR500-AL AC/DC48 |
|                            |                        |                     | AC                      | 100 |                      | G3RV-SR500-AL AC100 |                       |
|                            |                        |                     |                         | 110 | G3RV-SR500-AL AC110  |                     |                       |
|                            |                        |                     |                         | 200 | G3RV-SR500-AL AC200  |                     |                       |
|                            |                        |                     |                         | 230 | G3RV-SR500-AL AC230  |                     |                       |
| Screw terminal             |                        |                     | DC load                 | —   | DC                   | 12                  | G3RV-SR700-D DC12     |
|                            |                        |                     |                         |     |                      | 24                  | G3RV-SR700-D DC24     |
|                            |                        |                     |                         |     | AC/DC                | 24                  | G3RV-SR700-D AC/DC24  |
|                            |                        |                     |                         |     |                      | 48                  | G3RV-SR700-D AC/DC48  |
|                            | AC                     | 100                 |                         |     |                      | G3RV-SR700-D AC100  |                       |
|                            |                        | 110                 |                         |     | G3RV-SR700-D AC110   |                     |                       |
|                            |                        | 200                 |                         |     | G3RV-SR700-D AC200   |                     |                       |
|                            |                        | 230                 |                         |     | G3RV-SR700-D AC230   |                     |                       |
|                            | AC load                | Yes                 |                         |     | DC                   | 12                  | G3RV-SR700-A DC12     |
|                            |                        |                     |                         |     |                      | 24                  | G3RV-SR700-A DC24     |
|                            |                        |                     |                         |     | AC/DC                | 24                  | G3RV-SR700-A AC/DC24  |
|                            |                        |                     |                         |     |                      | 48                  | G3RV-SR700-A AC/DC48  |
|                            |                        |                     | AC                      | 100 |                      | G3RV-SR700-A AC100  |                       |
|                            |                        |                     |                         | 110 | G3RV-SR700-A AC110   |                     |                       |
|                            |                        |                     |                         | 200 | G3RV-SR700-A AC200   |                     |                       |
|                            |                        |                     |                         | 230 | G3RV-SR700-A AC230   |                     |                       |
|                            |                        |                     | AC load                 | No  | DC                   | 12                  | G3RV-SR700-AL DC12    |
|                            |                        |                     |                         |     |                      | 24                  | G3RV-SR700-AL DC24    |
|                            |                        |                     |                         |     | AC/DC                | 24                  | G3RV-SR700-AL AC/DC24 |
|                            |                        |                     |                         |     |                      | 48                  | G3RV-SR700-AL AC/DC48 |
|                            | AC                     | 100                 |                         |     |                      | G3RV-SR700-AL AC100 |                       |
|                            |                        | 110                 |                         |     | G3RV-SR700-AL AC110  |                     |                       |
|                            |                        | 200                 |                         |     | G3RV-SR700-AL AC200  |                     |                       |
|                            |                        | 230                 |                         |     | G3RV-SR700-AL AC230  |                     |                       |

Note: Sockets are not sold individually.

G2RV-SR

G3RV-SR

Common Precautions

Common Accessories

## Solid state relay for maintenance

### Model Number Legend

G3RV-□□S□□  
 (1) (2) (3) (4) (5)

**(1) Output voltage specification**

D: DC output  
 2: AC output

**(2) Rated current**

02: AC output 2 A  
 03: DC output 3 A

**(3) Terminal**

S: Plug-in type

**(4) Zero cross functions**

Blank: Zero cross function available  
 L: Zero cross function not available

**(5) Rated input voltage**

Number: 12, 24, 48 VDC



### List of Models

| Insulation method | Operation Display         | Output (SSR)          | Zero cross Function | Rated output Load *        | Rated input voltage (socket) | Model                | Applicable model          |                 |                        |
|-------------------|---------------------------|-----------------------|---------------------|----------------------------|------------------------------|----------------------|---------------------------|-----------------|------------------------|
| Photo-triac       | Yes (green)               | AC                    | Yes                 | 2 A (at 100 to 240 VAC)    | 12 VDC                       | G3RV-202S DC12       | G3RV-SR700/500-A DC12V    |                 |                        |
|                   |                           |                       |                     |                            | 24 VDC                       | G3RV-202S DC24       | G3RV-SR700/500-A DC24V    |                 |                        |
|                   |                           |                       |                     |                            | 24 VAC/VDC                   |                      | G3RV-SR700/500-A AC/DC24V |                 |                        |
|                   |                           |                       |                     |                            | 48 VAC/VDC                   | G3RV-202S DC48       | G3RV-SR700/500-A AC/DC48V |                 |                        |
|                   |                           |                       |                     |                            | 100 VAC                      |                      | G3RV-SR700/500-A AC100V   |                 |                        |
|                   |                           |                       |                     |                            | 110 VAC                      |                      | G3RV-SR700/500-A AC110V   |                 |                        |
|                   |                           |                       |                     |                            | 200 VAC                      |                      | G3RV-SR700/500-A AC200V   |                 |                        |
|                   |                           |                       |                     |                            | 230 VAC                      |                      | G3RV-SR700/500-A AC230V   |                 |                        |
|                   |                           |                       |                     |                            | 12 VDC                       | G3RV-202SL DC12      | G3RV-SR700/500-AL DC12V   |                 |                        |
|                   |                           | 24 VDC                | G3RV-202SL DC24     | G3RV-SR700/500-AL DC24V    |                              |                      |                           |                 |                        |
|                   |                           | 24 VAC/VDC            |                     | G3RV-SR700/500-AL AC/DC24V |                              |                      |                           |                 |                        |
|                   |                           | 48 VAC/VDC            | G3RV-202SL DC48     | G3RV-SR700/500-AL AC/DC48V |                              |                      |                           |                 |                        |
|                   |                           | 100 VAC               |                     | G3RV-SR700/500-AL AC100V   |                              |                      |                           |                 |                        |
|                   |                           | 110 VAC               |                     | G3RV-SR700/500-AL AC110V   |                              |                      |                           |                 |                        |
|                   |                           | 200 VAC               |                     | G3RV-SR700/500-AL AC200V   |                              |                      |                           |                 |                        |
|                   |                           | 230 VAC               |                     | G3RV-SR700/500-AL AC230V   |                              |                      |                           |                 |                        |
|                   |                           | Photo-voltage coupler |                     | DC                         | -                            | 3 A (at 5 to 24 VDC) | 12 VDC                    | G3RV-D03SL DC12 | G3RV-SR700/500-D DC12V |
|                   |                           |                       |                     |                            |                              |                      | 24 VDC                    | G3RV-D03SL DC24 | G3RV-SR700/500-D DC24V |
| 24 VAC/VDC        | G3RV-SR700/500-D AC/DC24V |                       |                     |                            |                              |                      |                           |                 |                        |
| 48 VAC/VDC        | G3RV-D03SL DC48           |                       |                     |                            |                              |                      | G3RV-SR700/500-D AC/DC48V |                 |                        |
| 100 VAC           |                           |                       |                     |                            |                              |                      | G3RV-SR700/500-D AC100V   |                 |                        |
| 110 VAC           |                           |                       |                     |                            |                              |                      | G3RV-SR700/500-D AC110V   |                 |                        |
| 200 VAC           |                           |                       |                     |                            |                              |                      | G3RV-SR700/500-D AC200V   |                 |                        |
| 230 VAC           |                           |                       |                     |                            |                              |                      | G3RV-SR700/500-D AC230V   |                 |                        |

\* Different depending on the ambient temperature.  
 For more details, refer to *Load current vs. ambient rated temperature* on page 16.

### Accessories (order separately)

Refer to page 25 for G2RV-SR/G3VR-SR Common Accessories.

G2RV-SR

G3RV-SR

Common Precautions

Common Accessories

# G3RV-SR

## Specifications

### Rating (ambient temperature 25°C)

#### Input

##### G3RV-SR700/500-A series

| Rated input voltage | Rated current |         |         | Must operate voltage | Must release voltage | Input voltage                   |
|---------------------|---------------|---------|---------|----------------------|----------------------|---------------------------------|
|                     | AC            |         | DC      |                      |                      | Percentage of the rated voltage |
|                     | 50 Hz         | 60 Hz   |         |                      |                      |                                 |
| 12 VDC              | –             | –       | 15.0 mA | 10.8 V max.          | 1 V min.             | ±10%                            |
| 24 VDC              | –             | –       | 12.0 mA | 21.6 V max.          |                      |                                 |
| 24 VAC/VDC          | 11.3 mA       | 11.4 mA | 11.0 mA | 21.6 V max.          |                      |                                 |
| 48 VAC/VDC          | 6.8 mA        | 6.9 mA  | 6.0 mA  | 43.2 V max.          |                      |                                 |
| 100 VAC             | 6.2 mA        | 6.2 mA  | –       | 90 V max.            |                      |                                 |
| 110 VAC             | 6.2 mA        | 6.2 mA  | –       | 99 V max.            |                      |                                 |
| 200 VAC             | 6.7 mA        | 7.9 mA  | –       | 180 V max.           |                      |                                 |
| 230 VAC             | 7.5 mA        | 8.8 mA  | –       | 207 V max.           |                      |                                 |

##### G3RV-SR700/500-AL series

| Rated input voltage | Rated current |         |         | Must operate voltage | Must release voltage | Input voltage                   |
|---------------------|---------------|---------|---------|----------------------|----------------------|---------------------------------|
|                     | AC            |         | DC      |                      |                      | Percentage of the rated voltage |
|                     | 50 Hz         | 60 Hz   |         |                      |                      |                                 |
| 12 VDC              | –             | –       | 15.0 mA | 10.8 V max.          | 1 V min.             | ±10%                            |
| 24 VDC              | –             | –       | 12.0 mA | 21.6 V max.          |                      |                                 |
| 24 VAC/VDC          | 11.4 mA       | 11.5 mA | 11.0 mA | 21.6 V max.          |                      |                                 |
| 48 VAC/VDC          | 7.7 mA        | 7.7 mA  | 6.9 mA  | 43.2 V max.          |                      |                                 |
| 100 VAC             | 7.3 mA        | 7.3 mA  | –       | 90 V max.            |                      |                                 |
| 110 VAC             | 7.3 mA        | 7.3 mA  | –       | 99 V max.            |                      |                                 |
| 200 VAC             | 7.0 mA        | 8.1 mA  | –       | 180 V max.           |                      |                                 |
| 230 VAC             | 7.7 mA        | 8.9 mA  | –       | 207 V max.           |                      |                                 |

##### G3RV-SR700/500-D series

| Rated input voltage | Rated current |        |        | Must operate voltage | Must release voltage | Input voltage                   |
|---------------------|---------------|--------|--------|----------------------|----------------------|---------------------------------|
|                     | AC            |        | DC     |                      |                      | Percentage of the rated voltage |
|                     | 50 Hz         | 60 Hz  |        |                      |                      |                                 |
| 12 VDC              | –             | –      | 8.0 mA | 10.8 V max.          | 1 V min.             | ±10%                            |
| 24 VDC              | –             | –      | 4.6 mA | 21.6 V max.          |                      |                                 |
| 24 VAC/VDC          | 5.0 mA        | 5.1 mA | 4.3 mA | 21.6 V max.          |                      |                                 |
| 48 VAC/VDC          | 6.8 mA        | 6.9 mA | 6.0 mA | 43.2 V max.          |                      |                                 |
| 100 VAC             | 6.2 mA        | 6.2 mA | –      | 90 V max.            |                      |                                 |
| 110 VAC             | 6.2 mA        | 6.2 mA | –      | 99 V max.            |                      |                                 |
| 200 VAC             | 6.7 mA        | 7.9 mA | –      | 180 V max.           |                      |                                 |
| 230 VAC             | 7.5 mA        | 8.8 mA | –      | 207 V max.           |                      |                                 |

#### Output

| Item   | G3RV-SR700/500-A(L)                   | G3RV-SR700/500-D                         |
|--|---------------------------------------|--|
| Rated load voltage   | 100 to 240 VAC (50/60 Hz)             | 5 to 24 VDC                              |
| Load voltage range   | 75 to 264 VAC (50/60 Hz)              | 3 to 26.4 VDC                            |
| Load current   | 0.1 to 2 A (Ambient temperature=25°C) | 100 µA to 3 A (Ambient temperature=25°C) |
| Inrush current resistance  | 30 A (60 Hz, 1 cycle)                 | 30 A (60 Hz, 1 cycle)                    |
| Permissible I <sup>2</sup> t; Joule integral value (reference value) | 15A <sup>2</sup> s                    | 9 A <sup>2</sup> s                       |
| Applied load capacity  | 400 W<br>(Output voltage: 200 VAC)    | 72 W<br>(Output voltage: 24 VDC)         |

## Characteristics

| Item                                 | G3RV-SR700/500-A  | G3RV-SR700/500-AL | G3RV-SR700/500-D       |
|--------------------------------------|---|-------------------|------------------------|
| Operate time                         | 1/2 cycle of load power supply<br>+1 ms max.  | 3 ms max.         | 6 ms max.              |
| Release time                         | 60 ms max.  | 60 ms max.        | 60 ms max.             |
| Output ON voltage drop               | 1.6 V (RMS) max.  |                   | –                      |
| Output ON resistance                 | –   |                   | 0.3 Ω max. (at 24 VDC) |
| Leaked current                       | 5 mA max. (at 200 VAC, 50/60 Hz)  |                   | 10 μA max. (at 24 VDC) |
| Insulation resistance                | 100 MΩ min. (at 500 VDC)  |                   |                        |
| Dielectric strength                  | Between input and output 2,500 VAC 50/60 Hz 1 min   |                   |                        |
| Vibration resistance                 | Malfunction: 10 to 55 to 10 Hz double amplitude 0.70 mm   |                   |                        |
| Shock resistance                     | 300m/s <sup>2</sup>   |                   |                        |
| Ambient operating temperature        | Storage: –30 to +100°C (with no icing or no condensation)<br>Operating: –30 to +55°C (with no icing or no condensation) |                   |                        |
| Ambient operating humidity           | 45 to 85% RH  |                   |                        |
| Weight                               | Approx. 38 g  |                   |                        |
| Pollution degree                     | 2   |                   |                        |
| The degree of protection by IEC60529 | IP20  |                   |                        |
| Rated impulse dielectric strength    | 4.0 kV/III  |                   |                        |
| Load category                        | LC-A  |                   | DC-12                  |
| Overload current profile             | 1.5Ie 1.1Ie<br>5s ON, 10s OFF, 10 cycles  |                   |                        |
| Rated insulation voltage             | 240 V   |                   |                        |

## Approved standards

### UL 508 (file No.E64562)

| Model                      | Input ratings  | Contact ratings                      |
|----------------------------|--|--------------------------------------|
| G3RV-SR700/500-D series    | 12, 24 VDC<br>24, 48 VAC/VDC<br>100, 110, 200, 230 VAC | 24 VDC 3 A (resistive load) at 25°C  |
| G3RV-SR700/500-A(L) series | 12, 24 VDC<br>24, 48 VAC/DC<br>100, 110, 200, 230 VAC  | 240 VAC 2 A (resistive load) at 25°C |

### TÜV(EN 62314)

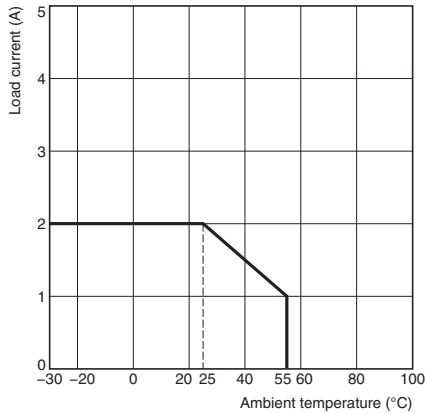
| Model                      | Input ratings  | Contact ratings              |
|----------------------------|--|------------------------------|
| G3RV-SR700/500-D series    | 12, 24 VDC<br>24, 48 VAC/VDC<br>100, 110, 200, 230 VAC | 24 VDC 3 A (resistive load)  |
| G3RV-SR700/500-A(L) series | 12, 24 VDC<br>24, 48 VAC/VDC<br>100, 110, 200, 230 VAC | 240 VAC 2 A (resistive load) |

Engineering Data

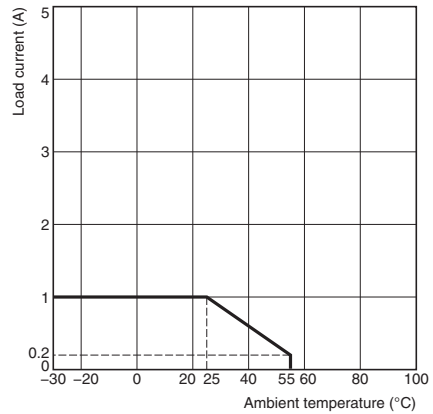
Load current vs. ambient rated temperature

G3RV-SR700/500-A(L) series

Product mounting spacing 10 mm (Separate Mounting)

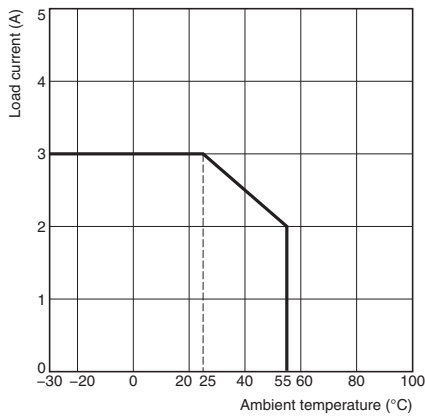


Close mounting (up to 5 units \*)

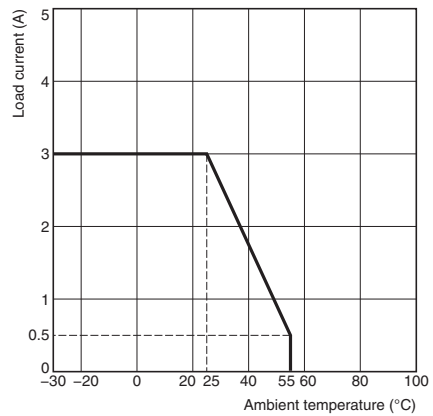


G3RV-SR700/500-D series

Product mounting spacing 10 mm (Separate Mounting)



Close mounting (up to 5 units \*)

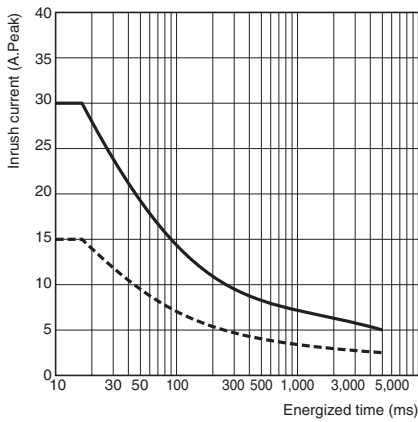


\* When five or more are installed, install with 10 mm space between each.  
For details, please refer to *Mounting* on page 23.

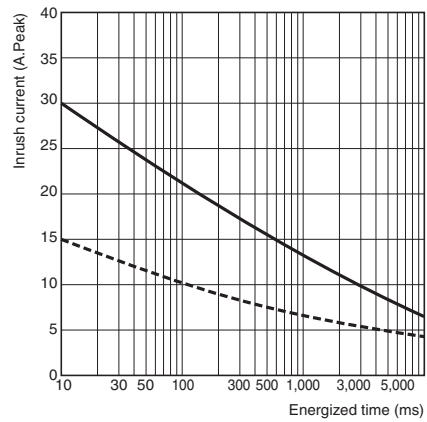
Inrush Current Resistance: Non-repetitive

Keep the inrush current to below the inrush current resistance value (i.e., below the broken line) if it occurs repetitively.

G3RV-SR700/500-A(L) series



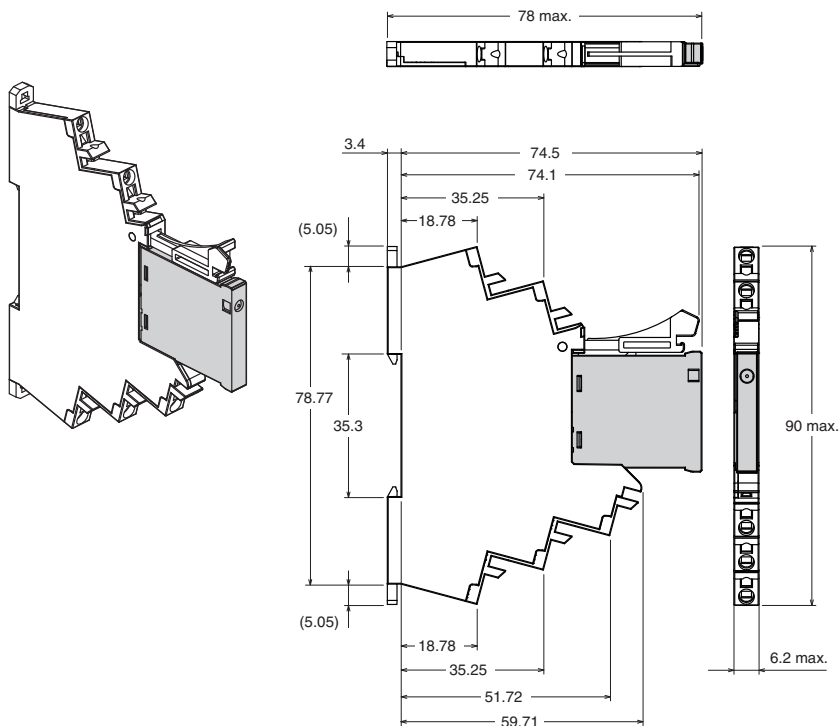
G3RV-SR700/500-D series





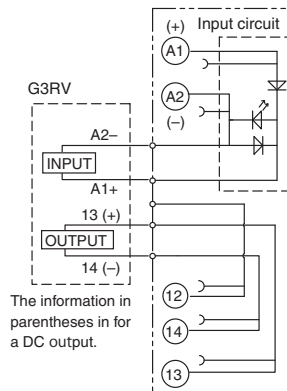
# Dimensions

**Solid state relay + socket**  
**Push-In Plus Terminal Block**  
**G3RV-SR500**

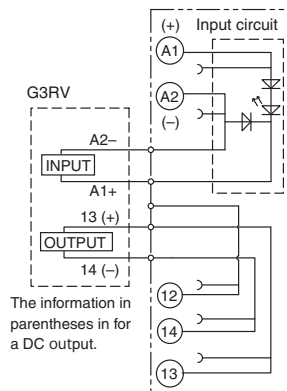


**Terminal Arrangement/  
Internal Connection Diagram  
(TOP VIEW)**

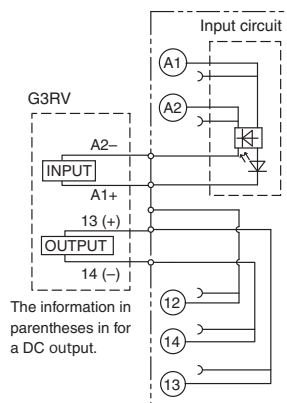
**12 VDC**



**24 VDC**



**Other voltage**



⊠ : Diode bridge

⚡ : Light emitting diode

G2RV-SR

G3RV-SR

Common Precautions

Common Accessories

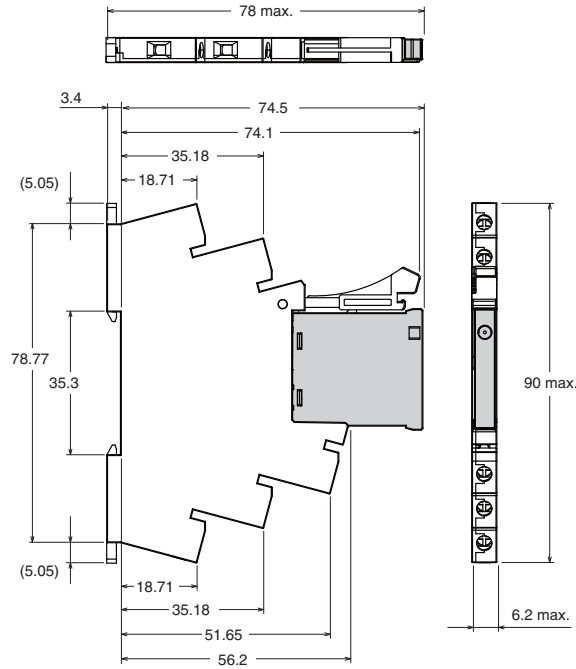
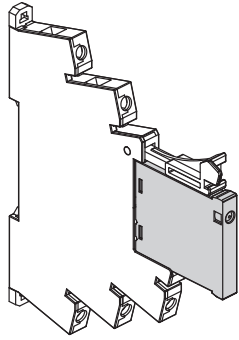
Screw terminal  
G3RV-SR700

G2RV-SR

G3RV-SR

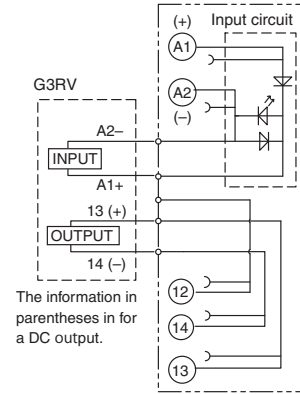
Common Precautions

Common Accessories

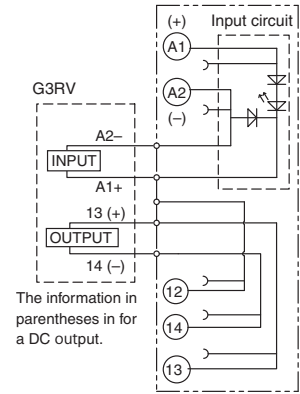


Terminal Arrangement/  
Internal Connection Diagram  
(TOP VIEW)

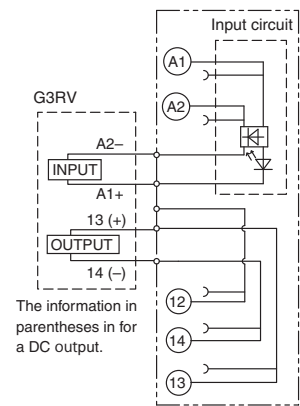
12 VDC



24 VDC



Other voltage

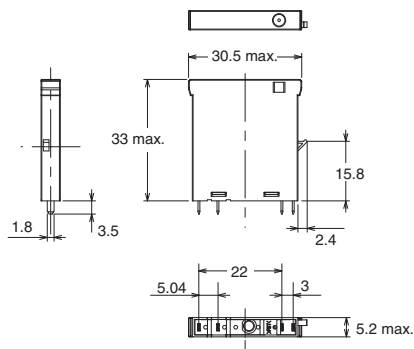


⊠ : Diode bridge

⚡ : Light emitting diode

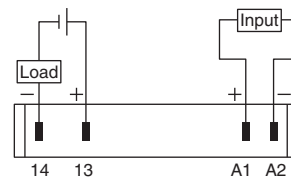
Solid state relay for maintenance

G3RV-D03SL  
G3RV-202S(L)

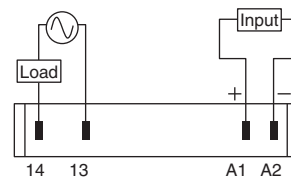


Terminal Arrangement/  
Internal Connection Diagram  
(TOP VIEW)

G3RV-D03SL (input circuit)



G3RV-202S(L) (input circuit)



G2RV-SR

G3RV-SR



Common Precautions

Common Accessories





Safety Precautions

Be sure to read the *Safety Precautions for All Relays* in the website at the following URL:  
<http://www.ia.omron.com/>.

Format of Warning Indications

|  |   |
|--|---|
|  <b>WARNING</b> | Indicates a potentially hazardous situation which, if not avoided, will result in minor or moderate injury, or may result in serious injury or death. Additionally, there may be significant property damage. |
|  <b>CAUTION</b> | Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.  |
| <b>Precautions for Safe Use</b>  | Indicates supplementary comments on what to do or avoid doing, to use the product safely.   |
| <b>Precautions for Correct Use</b>   | Includes operating precautions to ensure that the product will operate properly and that performance and functions will not be adversely affected.  |

Meaning of Graphic Symbols for Ensuring Product Safety

|   |   |
|---|---|
|    | Indicates the possibility of electric shock under specific conditions.  |
|   | Used for general CAUTION, WARNING, or DANGER precautions for which there is no specified symbol. (This symbol is also used as the alerting symbol, but shall not be used in this meaning on the product.) |
|  | Indicates the possibility of explosion or rupture under specific conditions.  |
|  | Indicates the possibility of injuries by high temperature under specific conditions.  |

 **WARNING**

Ensure that the socket is not charged during wiring and maintenance. Not doing so may result in electric shock.



Do not touch the terminal section of the G2RV-SR or the surrounding area while the power is being supplied. Doing so may result in electric shock.



 **CAUTION**

Minor electrical shock may occasionally occur. Do not touch the G3RV terminal section (i.e., current carrying parts) while the power is being supplied.



The G3RV may rupture if short-circuit current flows. As protection against accidents due to short-circuiting, be sure to install protective devices, such as fuses and no-fuse breakers, on the power supply side.



Minor electrical shock may occasionally occur. Do not touch the main circuit terminals on the G3RV immediately after the power supply has been turned OFF.

Shock may result due to the electrical charge stored in the built-in snubber circuit.  
 Note: G3RV-202S(L), G3RV-SR500/700-A(L) series models only



Minor burns may occasionally occur. Do not touch the G3RV or the heat sink while the power is being supplied or immediately after the power supply has been turned OFF. The G3RV becomes extremely hot.



Provide a space of at least 3 mm between the G2RV-SR and ground. Not doing so may result in a ground fault.



## Precautions for Safe Use

### Transport

- Do not use the product if it has been dropped on the ground. Dropping the product may adversely affect performance.
- Do not drop the product or subject it to abnormal vibration or shock during transportation or mounting. Doing so may result in deterioration of performance, malfunction, or failure.
- Do not transport the product without it being packaged. Doing so may result in damage, malfunction, or failure.
- Do not transport the G3RV under the following conditions. Doing so may result in damage, malfunction, or deterioration of performance characteristics.
  - High temperature, high humidity conditions
  - Conditions such as temperature change that causes rapid condensation
  - Condition where it is not packaged

### Operating and Storage Environments

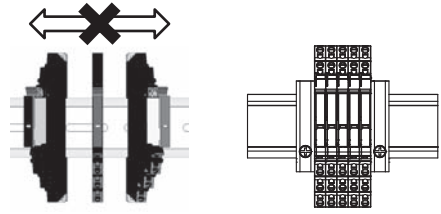
- Do not use or store the product in the following locations. Doing so may result in damage, malfunction, or deterioration of performance characteristics.
  - Do not store in locations subject to ambient storage temperatures outside the range  $-40$  to  $70^{\circ}\text{C}$  (for G2RV) and outside the range  $-30$  to  $100^{\circ}\text{C}$  (for G3RV).
  - Locations subject to relative humidity outside the range 5% to 85% (for G2RV) and outside the range 45% to 85% (for G3RV).
  - Locations subject to high temperature or high humidity.
  - Conditions such as temperature change that causes rapid condensation
  - Locations where corrosive gases or flammable gases are present
  - Location where rainwater or water droplets gets splashed
  - Location with splashes of water, oil, and chemicals, etc.
  - Locations with much dust, salt, and iron powder
  - Location with blockers
  - Where static electricity or noise occurs
  - Where strong electromagnetic field is generated
  - Where there is a risk of exposure to radioactivity
- Do not use or store Sockets in environments that contain silicone gas, sulfidizing gas (e.g.,  $\text{SO}_2$  or  $\text{H}_2\text{S}$ ), or organic gas, or near materials that contain silicone. Doing so may cause the contacts to be unstable or to fail.

### Handling <G3RV>

- Keep the G3RV well ventilated.  
There is a risk of short-circuiting or burning due to G3RV overheating.

### Mounting

- Before you start wiring, please make sure that the socket is securely attached to the mounting rail. If the socket is unstable, it may come loose and risk of injury towards the workers.
- Please insert the flat-blade screwdriver to the bottom of the hole. If you do not insert the flat-blade screwdriver correctly, the cable will not be connected correctly.
- When lubricant such as oil is attached to the tip of the driver, the driver will fall off, with a risk of injury towards the workers.
- Do not tilt the G2RV-SR/G3RV-SR after mounting to the support rail. Doing so may apply excessive force to the mounting portion, possibly damaging the product. Attach end plates (PFP-M) to sandwich the product and hold it in place.



### Usage

- Please select the load within the rated range. Doing so may result in damage, malfunction, or failure.
- Please use the power of the rated frequency. It may cause malfunction, failure, or risk of burnout.

### <G3RV>

- Install G3RV according to instructions *Mounting* on page 23. If you install in the wrong direction, abnormal heat is generated, and may lead to short-circuiting or burning the output element.
- G3RV is an SSR that generates heat. Please observe the ambient temperature setting range of G3RV. If installing in an enclosed space, set a fan, and ventilate.
- When mounting G3RV to DIN rail, firmly fits into the groove. If it is not properly installed, there is a risk of it falling.

### Wiring

- For the current to be applied, make sure a wire size with margin is used. Otherwise, excessive heat generated by the wires may cause burning.
- Do not attempt to use the wire if the coat is torn. Not doing so may result in electric shock.
- Always turn OFF the power supply before performing wiring. Not doing so may cause electrical shock.

### <G3RV>

- The wires of the socket for G3RV socket should not be passed through the same duct as that being connected to the high-voltage power supply. Otherwise, inductive noise may damage the G3RV or cause it to malfunction.

### Push-In Plus Terminal Block

- Do not wire anything to the release holes.
- Do not tilt or twist a flat-blade screwdriver while it is inserted into a release hole on the terminal block. The terminal block may be damaged.
- Insert a flat-blade screwdriver into the release holes at an angle. The terminal block may be damaged if you insert the screwdriver straight in.
- Do not allow the flat-blade screwdriver to fall out while it is inserted into a release hole.
- Do not bend the wire past its natural bending radius or pull on it with excessive force. Doing so may cause the wire disconnection.
- Do not insert more than one wire into each terminal (insertion) hole.
- To prevent wiring materials from smoking or ignition, confirm wire ratings and use the wiring materials given in the following table.

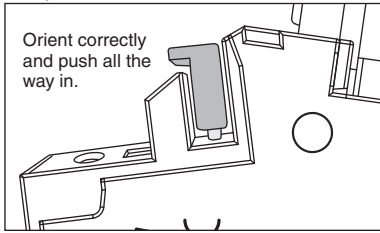
| Recommended Wire                           | Stripping length<br>(Ferrules not used) |
|--|---|
| 0.5 to 1.5 mm <sup>2</sup> /AWG20 to AWG16 | 8 mm                                    |

### Disposal

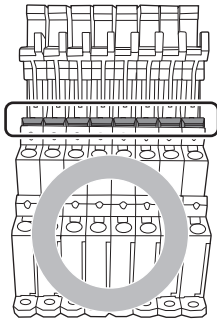
- When disposing of the product, do not put into the fire.

## Precautions for Correct Use

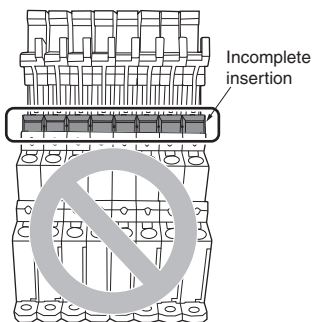
- Do not use or store the product in the following locations. Doing so may result in damage, malfunction, or deterioration of performance characteristics.
  - Where vibration or shock is directly transmitted to the body
  - Where the socket could come into contact with a solvent or alkaline agent
- Insert the short bar into the insertion hole in the correct orientation, and insert until all terminals are all the way in.
- If using a short bar, install the short bar before performing wiring work.
- A push-in Plus terminal block type and a screw terminal type have different insertion positions, so a mixed installation using the same short bar is not possible.



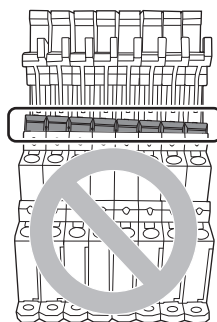
Completely inserted  
All terminals are inserted all the way in.



Incomplete insertion  
All terminals are not inserted all the way in.



Incorrect installation  
Some terminals not inserted completely.



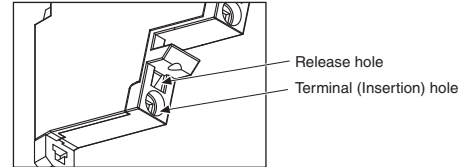
- Do not insert short bar in the hole for wire or screw driver, it may cause the result of failure of pull out. If insert short bar in the hole for wire or screw driver and try to pull out, it may cause damage for short bar or socket and failure in electric conductivity.
- Please insert P2RVC terminal into the short bar insertion hole of G2RV-SR/G3RV-SR. If insert P2RVC into the release hole or terminal (insertion) hole wrongly, P2RVC may stuck and can not remove and it may cause result of damage on P2RVC and G2RV-SR/G3RV-SR.

Please turn off the power of input and output side and remove PLC interface unit when replacing mounting relays and SSRs for maintenance.

- When replacing relays, there is a possibility the relay will pop out and fall. Take care to prevent the relay from falling during replacement.

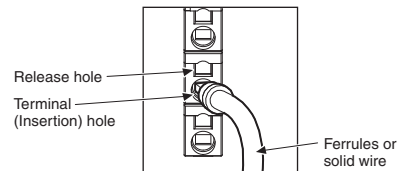
## Push-In Plus Terminal Block

### 1. Connecting Wires to the Push-In Plus Terminal Block Part Names of the Terminal Block



### Connecting Wires with Ferrules and Solid Wires

Insert the solid wire or ferrule straight into the terminal block until the end strikes the terminal block.

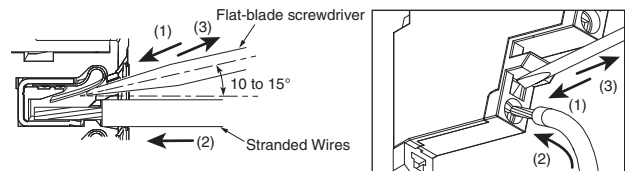


- If a wire is difficult to connect because it is too thin, use a flat-blade screwdriver in the same way as when connecting stranded wire.

### Connecting Stranded Wires

Use the following procedure to connect the wires to the terminal block.

- Hold a flat-blade screwdriver at an angle and insert it into the release hole. The angle should be between 10° and 15°. If the flat-blade screwdriver is inserted correctly, you will feel the spring in the release hole.
- With the flat-blade screwdriver still inserted into the release hole, insert the wire into the terminal hole until it strikes the terminal block.
- Remove the flat-blade screwdriver from the release hole.



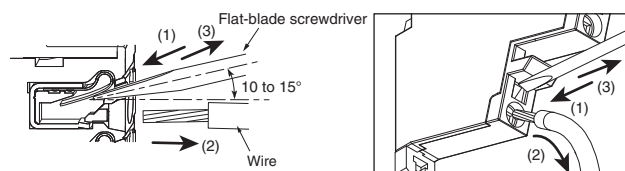
### Checking Connections

- After the insertion, pull gently on the wire to make sure that it will not come off and the wire is securely fastened to the terminal block.
- If you use a ferrule with a conductor length of 10 mm, part of the conductor may be visible after the ferrule is inserted into the terminal block, but the product insulation distance will still be satisfied.

### 2. Removing Wires from the Push-In Plus Terminal Block

Use the following procedure to remove wires from the terminal block. The same method is used to remove stranded wires, solid wires, and ferrules.

- Hold a flat-blade screwdriver at an angle and insert it into the release hole.
- With the flat-blade screwdriver still inserted into the release hole, remove the wire from the terminal insertion hole.
- Remove the flat-blade screwdriver from the release hole.

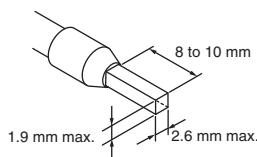


3. Recommended ferrules and Crimp Tools

Recommended ferrules

| Applicable wire        |       | Ferrules Conduct length (mm) | Stripping length (mm) (Ferrules used) | Recommended ferrules                     |                    |              |
|------------------------|-------|------------------------------|---------------------------------------|--|--------------------|--------------|
| (mm <sup>2</sup> )     | (AWG) |                              |                                       | Phoenix Contact product                  | Weidmuller product | Wago product |
| 0.25                   | 24    | 8                            | 10                                    | AI 0,25-8                                | H0.25/12           | 216-301      |
|                        |       | 10                           | 12                                    | AI 0,25-10                               | ---                | ---          |
| 0.34                   | 22    | 8                            | 10                                    | AI 0,34-8                                | H0.34/12           | 216-302      |
|                        |       | 10                           | 12                                    | AI 0,34-10                               | ---                | ---          |
| 0.5                    | 20    | 8                            | 10                                    | AI 0,5-8                                 | H0.5/14            | 216-201      |
|                        |       | 10                           | 12                                    | AI 0,5-10                                | H0.5/16            | 216-241      |
| 0.75                   | 18    | 8                            | 10                                    | AI 0,75-8                                | H0.75/14           | 216-202      |
|                        |       | 10                           | 12                                    | AI 0,75-10                               | H0.75/16           | 216-242      |
| 1/1.25                 | 18/17 | 8                            | 10                                    | AI 1-8                                   | H1.0/14            | 216-203      |
|                        |       | 10                           | 12                                    | AI 1-10                                  | H1.0/16            | 216-243      |
| 1.25/1.5               | 17/16 | 8                            | 10                                    | AI 1,5-8                                 | H1.5/14            | 216-204      |
|                        |       | 10                           | 12                                    | AI 1,5-10                                | H1.5/16            | 216-244      |
| Recommended crimp tool |       |                              |                                       | CRIMPFOX6<br>CRIMPFOX6T-F<br>CRIMPFOX10S | PZ6 roto           | Variocrimp4  |

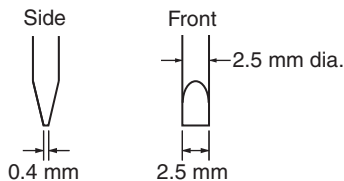
- Note:** 1. Make sure that the outer diameter of the wire is smaller than the inner diameter of the insulating sleeve of the recommended ferrule.  
 2. Make sure that the ferrule processing dimensions conform to the following figure.



3. If you use AWG24 to AWG22 (0.25 to 0.34 mm<sup>2</sup>) wires, UL certification will not apply.

Recommended Flat-blade Screwdriver

Use a flat-blade screwdriver to connect and remove wires. Use the following flat-blade screwdriver. The following table shows manufacturers and models as of 2015/Dec.



| Model                          | Manufacturer    |
|--------------------------------|-----------------|
| ESD 0,40x2,5                   | Wera            |
| SZS 0,4x2,5<br>SZF 0-0,4x2,5 * | Phoenix Contact |
| 0.4x2.5x75 302                 | Wiha            |
| AEF.2,5x75                     | Facom           |
| 210-719                        | Wago            |
| SDI 0.4x2.5x75                 | Weidmuller      |

\* OMRON's exclusive purchase model XW4Z-00B is available to order as SZF 0-0,4x2,5 (manufactured by Phoenix Contact).

Screw Terminal

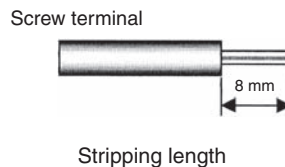
• Screw terminal

| Wired type  | Applicable wire size       | Stripping length |
|---|----------------------------|------------------|
| Stranded wires, without ferrule                     | 0.5 to 1.5 mm <sup>2</sup> | 8 mm             |
| Stranded wires, with ferrule and plastic collar     | 0.5 to 1.5 mm <sup>2</sup> | 8 mm             |
| Stranded wires with ferrule, without plastic collar | 0.5 to 1.5 mm <sup>2</sup> | 8 mm             |
| Single wire   | 0.5 to 1.5 mm <sup>2</sup> | 8 mm             |

• Tightening Torque  
0.4 N • m

• Electric wiring

Use the electric wire of specified size as shown above. The length of the that is not covered is 8 mm.



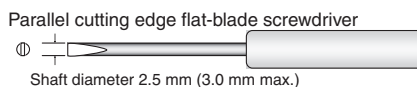
<G2RV>

Operating latching lever (test switch)

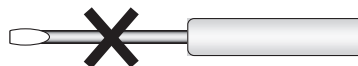
When operating the latching lever for G2RV-SR701/501 series, use a 2.5 mm width flat-blade screwdriver.

• Applicable flat-blade screwdriver

Flat-blade screwdriver with parallel cutting edge: shaft diameter 2.5 mm (3.0 mm max.)



Wide flat-blade screwdriver



Driver with a thick shaft cannot be used.

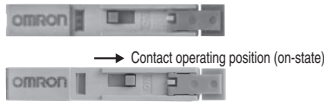
- Always turn OFF the power supply before operating latching lever.
- Return to its original state after using the latching lever.

- Do not use the latching lever as a switch.
- Operation durability of the latching lever is 100 times or more.
- Do not keep the latching lever ON for a long period of time (24 hours or more) in order to maintain the operation check function.

## Method of operation of the latching lever (test switch)

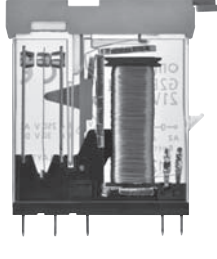
<Protective cover: locked>

<Protective cover: disengage>



Close protective cover

Open protective cover



Keep the protective cover open when using the latching lever. Move until the latching lever clicks to the ON position (ON state). After use latching lever, in order to prevent malfunction, return the switch to contact normal position (OFF state), and make sure the protective cover is firmly closed.

### Using the latching lever

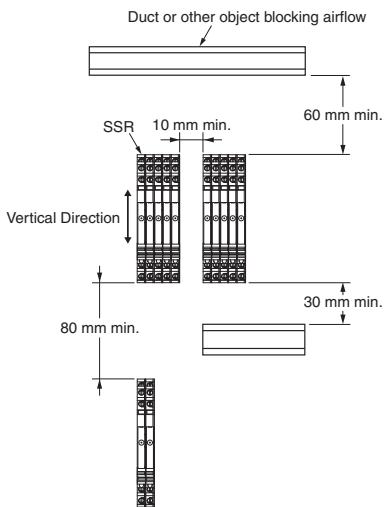
Example: check the operation of the relay and the sequence circuit

## <G3RV>

- Since the G3RV uses electronic components, do not allow it to fall, vibrate, or apply shock that exceeds the criteria. Doing so may result in failure, malfunction, or deterioration of performance.
- Tighten screw terminal for G3RV at torque 0.4 N · m. It may cause short-circuit failure or burning.
- Please use the voltage and current suitable for the input and output terminal portion of G3RV. It may cause short-circuit failure or burning.

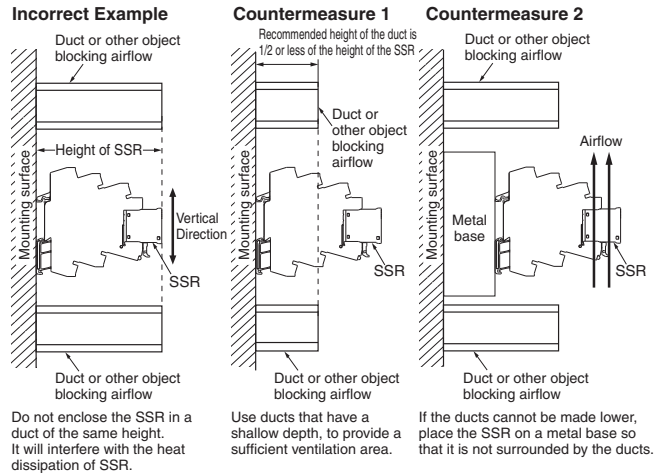
## Mounting

### <The SSR Mounting Pitch (Panel Mounting)>

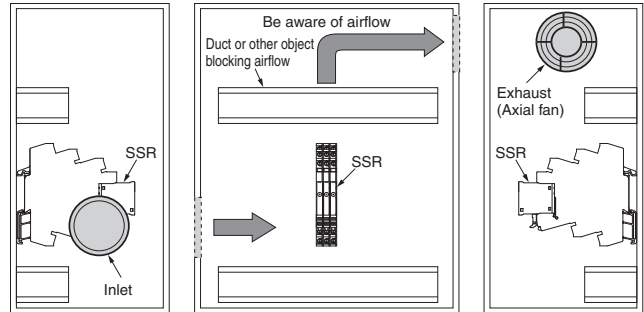


\* When five or more are installed, install with 10 mm space between each.

## <Relationship of SSR and duct (duct depth)>



## <Ventilation Outside the Control Panel>



- If the air inlet or air outlet has a filter, clean the filter regularly to prevent it from clogging to ensure an efficient flow of air.
- Do not place objects that may obstruct the proper ventilation for outside or inside the inlet or exhaust port, and in the outside vicinity.
- A heat exchanger, if used, should be located in front of the G3RV to ensure the efficiency of the heat exchanger.
- Please observe the ambient temperature of G3RV. The rated current of the G3RV is measured at an ambient temperature of 25°C.
- The G3RV uses a semiconductor in the output element. This causes the temperature inside the control panel to increase due to heating resulting from the flow of electrical current through the load. The G3RV reliability can be increased by adding a ventilation fan to the control panel to dispel this heat, thus lowering the ambient temperature of the G3RV. (It suggests that life expectancy is doubled by each 10°C reduction in ambient temperature.)

## EMI

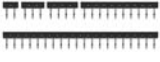
The G3RV is a Class A product (for industrial environments). When used in a residential environment, it may cause radio interference. In such case, the user may be required to take appropriate measures.



**For G2RV-SR/G3VR-SR  
Common Accessories (order separately)**

## Ordering Information

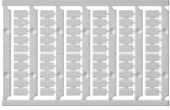
### Short Bars

| Appearance  | Pitch  | No. of poles | Colors                              | Model *       | Minimum order (Quantity) | Maximum energizing current |
|---|--------|--------------|-------------------------------------|---------------|--------------------------|----------------------------|
|  | 6.2 mm | 2            | Red (R),<br>Blue (S),<br>Yellow (Y) | PYDN-6.2-020□ | 10                       | 32 A                       |
|   |        | 3            |                                     | PYDN-6.2-030□ |                          |                            |
|   |        | 4            |                                     | PYDN-6.2-040□ |                          |                            |
|   |        | 10           |                                     | PYDN-6.2-100□ |                          |                            |
|   |        | 20           |                                     | PYDN-6.2-200□ |                          |                            |

**Note:** Use for wiring to the adjacent socket.


\* Replace the box (□) in the model number with the code for the covering color. □ color selection: R = red, S = blue, Y = yellow

### Label


| Appearance  | Model          | Minimum order (Sheet)<br>(Pieces per sheet) |
|---|----------------|---|
|  | XW5Z-P2.5LB1 * | 5<br>(1 sheet/72 pieces)                    |
|   | XW5Z-P2.5LB2   |   |

\* Available following June 2017 production.

### Separate Plate

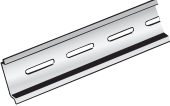


| Appearance  | Model     |
|---|-----------|
|  | XW5Z-EP12 |

### PLC interface unit

| Appearance  | I/O classification | Connection method | Common process | Applicable Models *                    | Model                                  |               |
|---|--------------------|-------------------|----------------|--|--|---------------|
|  | For input          | Push-In           | PNP            | G2RV-SR500-AP                          | P2RVC-8-I-5-1                          |               |
|   |                    | Screw             | NPN            |  | G2RV-SR700-AP                          | P2RVC-8-I-7-1 |
|   | For output         | Push-In           |                | PNP                                    | G2RV-SR500<br>G2RV-SR501<br>G3RV-SR500 | P2RVC-8-O-5-1 |
|   |                    |                   |                | NPN                                    |  | P2RVC-8-O-5   |
|   | Screw              |                   | PNP            | G2RV-SR700<br>G2RV-SR701<br>G3RV-SR700 | P2RVC-8-O-7-1                          |               |

\* Please make sure applicable models, P2RVC can not be used other combination than the above table.

### Parts for DIN Track Mounting

| Appearance  | Type        | Model | Minimum order (Quantity) |
|---|-------------|-------|--------------------------|
|  | DIN Tracks  | 1 m   | 1                        |
|   |             | 0.5 m |                          |
|  | End Plate * | PFP-M | 10                       |
|  | Spacer      | PFP-S |                          |

\* When mounting DIN Track, please use End Plate (PFP-M).  
Refer to your OMRON website for details on PFP-□.

# G2RV-SR/G3RV-SR

## Applicable Cables

| Name  |                  | Appearance | Cable length L (mm) | Connecting Cables    | Applicable Connectors   |
|---|------------------|------------|---------------------|----------------------|---|
| Cables with Loose Wires<br>P2RV-A□C               | 8 I/O points     |            | 1,000               | P2RV-A100C           | Various devices   |
|   |                  |            | 2,000               | P2RV-A200C           |   |
|   |                  |            | 3,000               | P2RV-A300C           |   |
|   |                  |            | 5,000               | P2RV-A500C           |   |
| Cables with Connectors (1:4)<br>P2RV-4□C          | 32 output points |            | 1,000               | P2RV-4-100C          | PLC I/O Units with MIL connectors (1:4)<br>CJ1W-OD232/OD262, etc.   |
|   |                  |            | 2,000               | P2RV-4-200C          |   |
|   |                  |            | 3,000               | P2RV-4-300C          |   |
|   |                  |            | 5,000               | P2RV-4-500C          |   |
| Cables with Connectors (1:4)<br>P2RV-4□IMC        | 32 input points  |            | 1,000               | P2RV-4-100IMC        | PLC I/O Units with MIL connectors (1:4)<br>CJ1W-ID232/ID262, etc.   |
|   |                  |            | 2,000               | P2RV-4-200IMC        |   |
|   |                  |            | 3,000               | P2RV-4-300IMC        |   |
|   |                  |            | 5,000               | P2RV-4-500IMC        |   |
| Cables with Connectors (1:4)<br>P2RV-4□IFC        | 32 input points  |            | 1,000               | P2RV-4-100IFC        | PLC I/O Units with Fujitsu connectors (1:4)<br>CJ1W-ID231/ID261, etc.                                       |
|   |                  |            | 2,000               | P2RV-4-200IFC        |   |
|   |                  |            | 3,000               | P2RV-4-300IFC        |   |
|   |                  |            | 5,000               | P2RV-4-500IFC        |   |
| Cables with Connectors (1:1)<br>P2RV-A□C-OMR GRT1 | 8 output points  |            | 500                 | P2RV-A050C-OMR GRT1  | Slice I/O Units (1:1)<br>For inputs: GRT1-ID8-1<br>For outputs: GRT1-OD8-1                                  |
|   | 8 input points   |            | 1,000               | P2RV-A100C-OMR GRT1  |   |
|   |                  |            | 1,000               | P2RV-A100IC-OMR GRT1 |   |
| Cables with Connectors (1:1)<br>P2RV-A□C-OMR NX   | 8 output points  |            | 500                 | P2RV-A050C-OMR NX    | PLC I/O Units with screw-less clamp terminal block (1:1)<br>For inputs: NX-ID4442<br>For outputs: NX-OD4256 |
|   | 8 input points   |            | 1,000               | P2RV-A100C-OMR NX    |   |
|   |                  |            | 500                 | P2RV-A050IC-OMR NX   |   |
|   |                  |            | 1,000               | P2RV-A100IC-OMR NX   |   |

G2RV-SR

G3RV-SR

Common Precautions

Common Accessories

| Name  | Appearance       | Cable length L (mm) | Connecting Cables | Applicable Connectors   |   |
|---|------------------|---------------------|-------------------|---|---|
| Schneider Electric PLC Connecting Cables<br>P2RV-□C-SCH-□ |                  | 500                 | P2RV-050C-SCH-A   | Schneider Electric PLCs with 32-point connectors (1:4)<br>For inputs: 140 DDI 353 00<br>For outputs: 140 DDO 353 00 |   |
|   |                  | 1,000               | P2RV-100C-SCH-A   |   |   |
|   |                  | 2,000               | P2RV-200C-SCH-A   |   |   |
|   |                  | 3,000               | P2RV-300C-SCH-A   |   |   |
|   |                  | 5,000               | P2RV-500C-SCH-A   |   |   |
|   |                  | 32 output points    | 500               |   | P2RV-050C-SCH-B   |
|   |                  |                     | 1,000             |   | P2RV-100C-SCH-B   |
|   |                  |                     | 2,000             |   | P2RV-200C-SCH-B   |
|   |                  |                     | 3,000             |   | P2RV-300C-SCH-B   |
|   |                  |                     | 5,000             |   | P2RV-500C-SCH-B   |
|   | 16 input points  |                     | 500               | P2RV-050C-SCH-C   | Schneider Electric PLCs with 16-point connectors (1:2)<br>For inputs: BMX DDI 1602<br>For outputs: BMX DDO 1602 |
|   |                  | 1,000               | P2RV-100C-SCH-C   |   |   |
|   |                  | 2,000               | P2RV-200C-SCH-C   |   |   |
|   |                  | 3,000               | P2RV-300C-SCH-C   |   |   |
|   | 16 output points | 500                 | P2RV-050C-SCH-D   |   |   |
|   |                  | 1,000               | P2RV-100C-SCH-D   |   |   |
| 2,000   |                  | P2RV-200C-SCH-D     |                   |   |   |
| 3,000   |                  | P2RV-300C-SCH-D     |                   |   |   |
| Siemens PLC Connecting Cables<br>P2RV-□C-SIM-□            |                  | 500                 | P2RV-050C-SIM-A   | Siemens PLCs with 32-point connectors (1:4)<br>For inputs: 6ES7 321-1BL00-0AA0<br>For outputs: 6ES7 322-1BL00-0AA0  |   |
|   |                  | 1,000               | P2RV-100C-SIM-A   |   |   |
|   |                  | 2,000               | P2RV-200C-SIM-A   |   |   |
|   |                  | 3,000               | P2RV-300C-SIM-A   |   |   |
|   |                  | 5,000               | P2RV-500C-SIM-A   |   |   |
|   |                  | 32 output points    | 500               |   | P2RV-050C-SIM-B   |
|   |                  |                     | 1,000             |   | P2RV-100C-SIM-B   |
|   |                  |                     | 2,000             |   | P2RV-200C-SIM-B   |
|   |                  |                     | 3,000             |   | P2RV-300C-SIM-B   |
|   |                  | 16 input points     | 500               |   | P2RV-050C-SIM-C   |
|   | 1,000            |                     | P2RV-100C-SIM-C   |   |   |
|   | 2,000            |                     | P2RV-200C-SIM-C   |   |   |
|   | 3,000            |                     | P2RV-300C-SIM-C   |   |   |
|   | 32 input points  |                     | 500               | P2RV-050C-SIM-D   | Siemens PLCs with 32-point connectors (1:4)<br>For inputs: 6ES7 421-1BL-0AA0<br>For outputs: 6ES7 422-1BL-0AA0  |
|   |                  |                     | 1,000             | P2RV-100C-SIM-D   |   |
|   |                  |                     | 2,000             | P2RV-200C-SIM-D   |   |
| 3,000   |                  |                     | P2RV-300C-SIM-D   |   |   |
| 5,000   |                  |                     | P2RV-500C-SIM-D   |   |   |
| 32 output points  |                  |                     | 500               | P2RV-050C-SIM-E   |   |
|   |                  |                     | 1,000             | P2RV-100C-SIM-E   |   |
|   |                  |                     | 2,000             | P2RV-200C-SIM-E   |   |
|   |                  |                     | 3,000             | P2RV-300C-SIM-E   |   |
|   |                  |                     | 5,000             | P2RV-500C-SIM-E   |   |

G2RV-SR

G3RV-SR

Common Precautions

Common Accessories

# G2RV-SR/G3RV-SR

## PLC interface unit

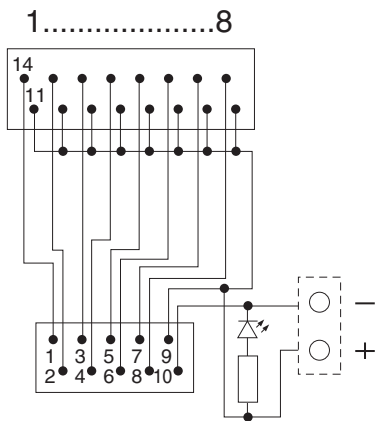
### Ratings / characteristics

|                               |             |   |
|-------------------------------|-------------|---|
| Rated voltage                 |             | 30 VAC/DC   |
| Rated current                 |             | 0.5 A/poles, 2 A/unit   |
| Ambient operating temperature |             | -40 to 55°C   |
| Vibration resistance          | Destruction | 10 to 55 to 10 Hz, single amplitude 0.75 mm (double amplitude 1.5 mm) |
|                               | Malfunction | 10 to 55 to 10 Hz, single amplitude 0.75 mm (double amplitude 1.5 mm) |
| Shock resistance              | Destruction | 300 m/s <sup>2</sup>  |
|                               | Malfunction | 100 m/s <sup>2</sup>  |

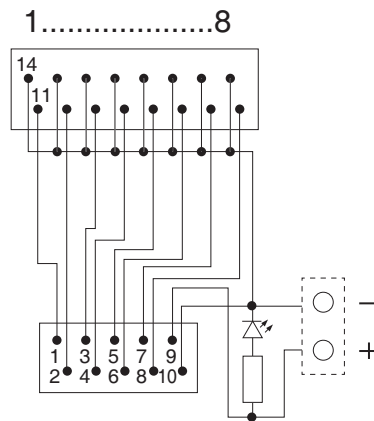
### Electrical schematic

#### Input

##### P2RVC-8-I-□-1 (PNP)

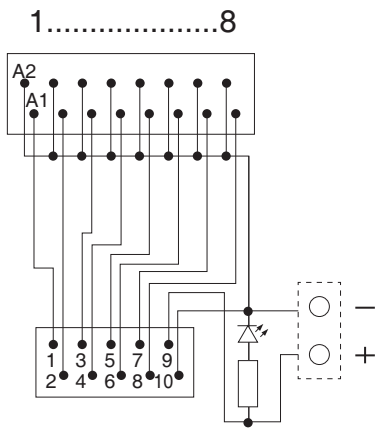


##### P2RVC-8-I-5 (NPN)

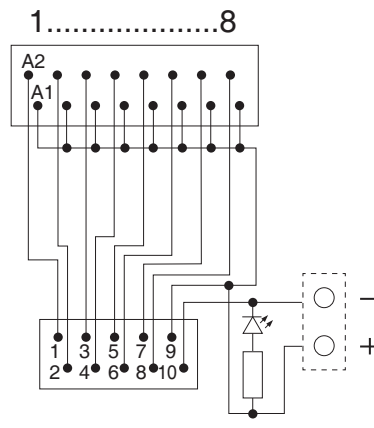


#### Output

##### P2RVC-8-O-□-1 (PNP)



##### P2RVC-8-O-5 (NPN)

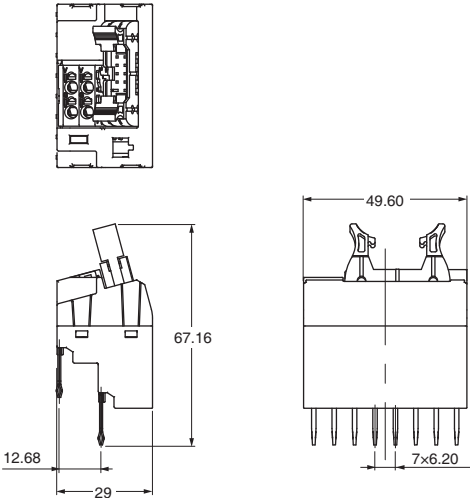
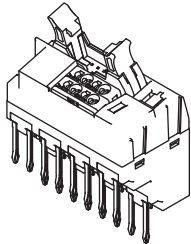


Dimensions

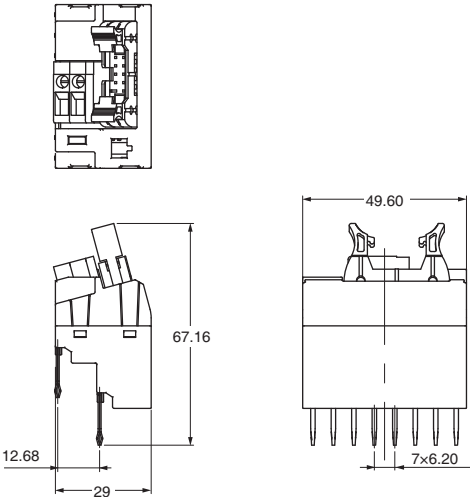
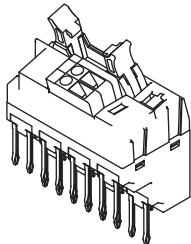
(unit: mm)

PLC interface unit

Push-IN  
P2RVC-8-I-5(-1)  
P2RVC-8-O-5(-1)



Screw  
P2RVC-8-I-7-1  
P2RVC-8-O-7-1



G2RV-SR

G3RV-SR

Common Precautions

Common Accessories

# G2RV-SR/G3RV-SR

(Except for PLC interface unit)  
**Common Accessories (order separately)**

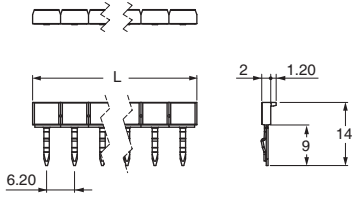
G2RV-SR

## Dimensions

(unit: mm)

### Short Bars

PYDN-6.2-□□ (6.2 mm)



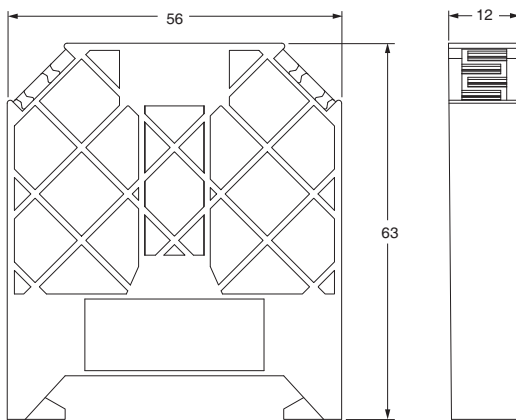
| Pitch  | No. of poles | L (Length) | Colors                            | Model *       | Maximum carry current |
|--------|--------------|------------|-----------------------------------|---------------|-----------------------|
| 6.2 mm | 2            | 12.4       | Red (R)<br>Blue (S)<br>Yellow (Y) | PYDN-6.2-020□ | 32 A                  |
|        | 3            | 18.6       |                                   | PYDN-6.2-030□ |                       |
|        | 4            | 24.8       |                                   | PYDN-6.2-040□ |                       |
|        | 10           | 62         |                                   | PYDN-6.2-100□ |                       |
|        | 20           | 124        |                                   | PYDN-6.2-200□ |                       |

**Note:** Use the Short Bars for crossover wiring within one Socket or between Sockets.  
 \* Replace the box (□) in the model number with the code for the covering color.

G3RV-SR

### Separate Plate

XW5Z-EP12



Common Precautions

### Parts for DIN Track Mounting

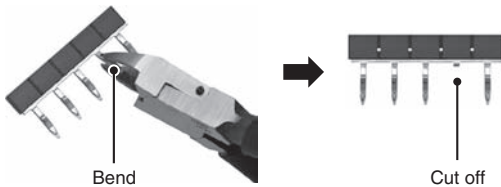
Refer to your OMRON website for details on the PFP-□.

## Safety Precautions

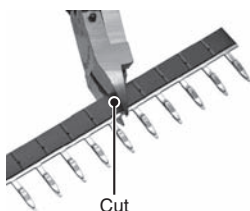
### Precautions for Correct Use

#### When mounting a short bar

- Intermediate pins can be bent by a tool or by hand and cut off for use.

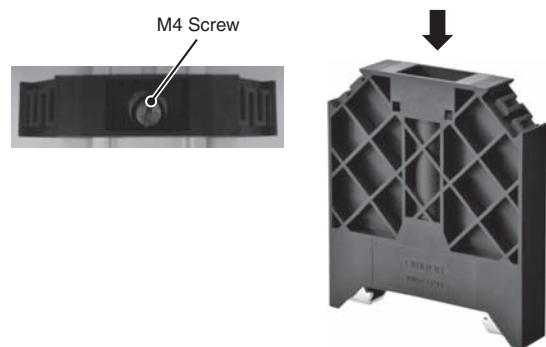


- The short bar can be cut to as many poles as needed. Insert the tool from the plastic part side, and cut along the groove in the plastic part between the terminals. When cutting, take care not to break or deform the terminals. However, because the metal on the cut surface will be exposed, insulation countermeasures between adjacent products must be ensured. Such countermeasures include widening the intervals between products or using XW5Z-EP12 separate plates (order separately).



#### Mounting a separate plate

- Use a flat-blade screwdriver to tighten the center top screw and secure the plate. Loosen the screw to remove the plate from the DIN rail.



Common Accessories

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