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.
- Coil surge absorption circuit is equipped as standard.

✻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

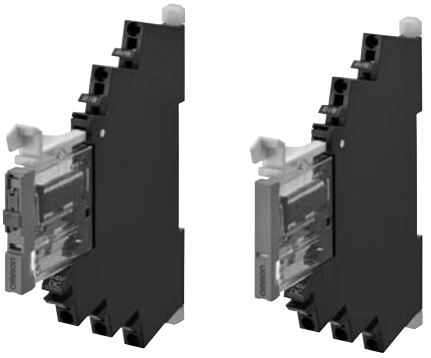
Common precautions ..... from page 20
Common accessories (order separately)..... from page 26

Slim I/O Relay

G2RV-SR

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

- 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.
- Coil surge absorption circuit is equipped as standard.

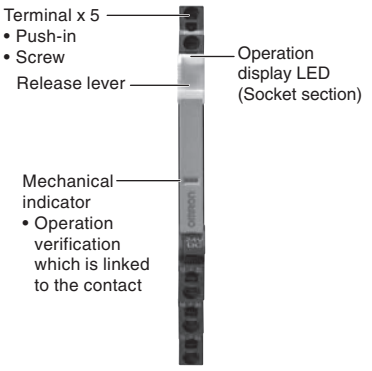


For the recent information on models that have been certified for safety standards, refer to your OMRON website.

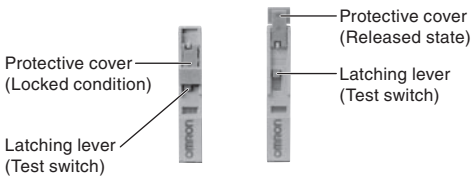
⚠ Refer to *Safety Precautions* on page 20.

Features

Standard model/Micro load



With latching lever (Test switch)

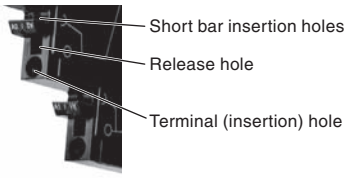


• Circuit check operation Confirmation, reducing the inspection effort

PAT

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

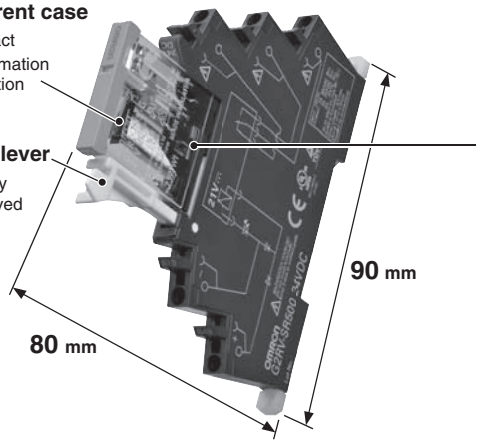
Push-In Plus technology

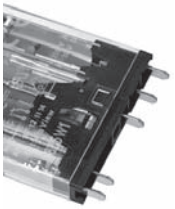


Transparent case

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/DC
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**
				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**
				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**
				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**
				110	**G2RV-SR700-AP AC110**
				200	**G2RV-SR700-AP AC200**
				230	**G2RV-SR700-AP AC230**

Note: Sockets are not sold individually.

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	**G2RV-1-S-G DC11**	G2RV-SR700/500 DC12V
			21	**G2RV-1-S-G DC21**	G2RV-SR700/500 DC24V
					G2RV-SR700/500 AC/DC24V
			48	**G2RV-1-S-G DC48**	G2RV-SR700/500 AC/DC48V
					G2RV-SR700/500 AC100V
					G2RV-SR700/500 AC110V
					G2RV-SR700/500 AC200V
					G2RV-SR700/500 AC230V
	Yes	DC	21	**G2RV-1-SI-G DC21**	G2RV-SR701/501 DC24V
					G2RV-SR701/501 AC/DC24V
Microload	No	DC	11	**G2RV-1-S-AP-G DC11**	G2RV-SR700/500-AP DC12V
			21	**G2RV-1-S-AP-G DC21**	G2RV-SR700/500-AP DC24V
					G2RV-SR700/500-AP AC/DC24V
			48	**G2RV-1-S-AP-G DC48**	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 26 for G2RV-SR/G3RV-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)	DC (mW)	Percentage of the rated voltage
	50 Hz	60 Hz						
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 6 A at 30 VDC	2.5 A at 250 VAC 2 A at 30 VDC	50 mA at 30 VAC 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 180 W	500 VA 60 W	–
Failure rate P value (reference value) *1	10 mA at 5 VDC		1 mA at 100 mVDC

✻**1.** P level: $\lambda_{60}=0.1\times10^{-6}$/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 *1		100 m Ω max.	
Operate (Set) time *1		20 ms max.	
Release time *1		AC, AC/DC: 40 ms max. DC: 20 ms max.	
Maximum operating frequency		Mechanical: 18,000 operations/h 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 Contact between the same polarity: 1,000 VAC 50/60 Hz 1 min	
Vibration resistance *2		Destruction: 10 to 55 to 10 Hz, single amplitude 0.50 mm (double amplitude 1.0 mm) Malfunction: 10 to 55 to 10 Hz, single amplitude 0.50 mm (double amplitude 1.0 mm)	
Shock resistance *2		Destruction: 1,000 m/s^2 Malfunction: Energized 200m/s^2, Non-energized 100m/s^2	
Endurance *1	**Mechanical**	5,000,000 operations min.	
	Electrical	NO contact: 70,000 operations min. 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.

✻**1.** Value is at ambient temperature of 23°C.

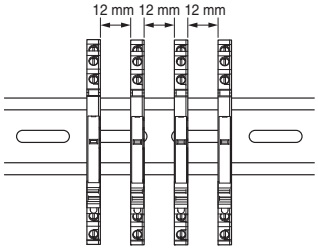
✻**2.** Value when the end plate is used.

Approved standards

UL (File No.E41643)

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

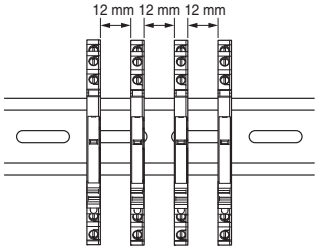
* If the load voltage exceeds 250 VAC, please attach with a spacing of 12 mm min., or use a separate plate (XW5Z-EP12).



TÜV (File No.R50327609, EN 61810-1)

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

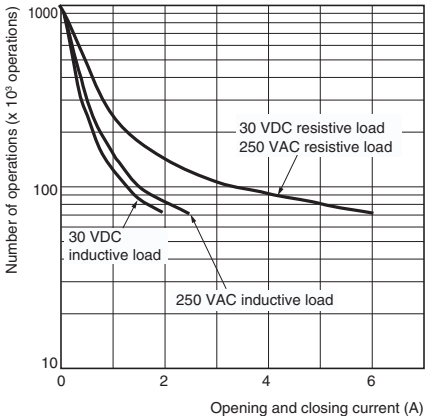


Lloyd's (File No.07/10020)

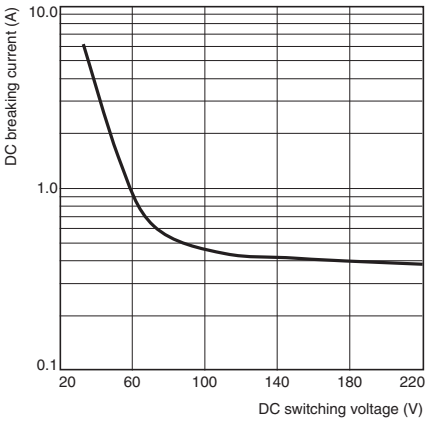
Model	Contact form	Operation coil ratings	Contact ratings
G2RV-SR500 G2RV-SR700	SPDT	12, 24 VDC 24, 48 VAC/VDC 100, 110, 200, 230 VAC	6 A at 250 VAC (Resistive load)
			2.5 A at 250 VAC (PF0.4)
			6 A at 30 VAC (Ress)
			2 A at 30 VDC (L/R=7ms)
G2RV-SR501 G2RV-SR701	SPDT	12, 24 VDC 24 VAC/VDC	6 A at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

Engineering Data

Endurance curve (N.O. side)



Switching capacity of DC resistive load



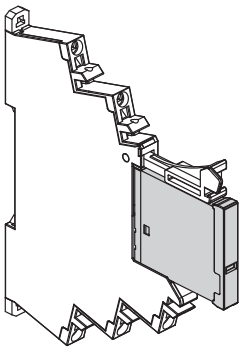
Dimensions

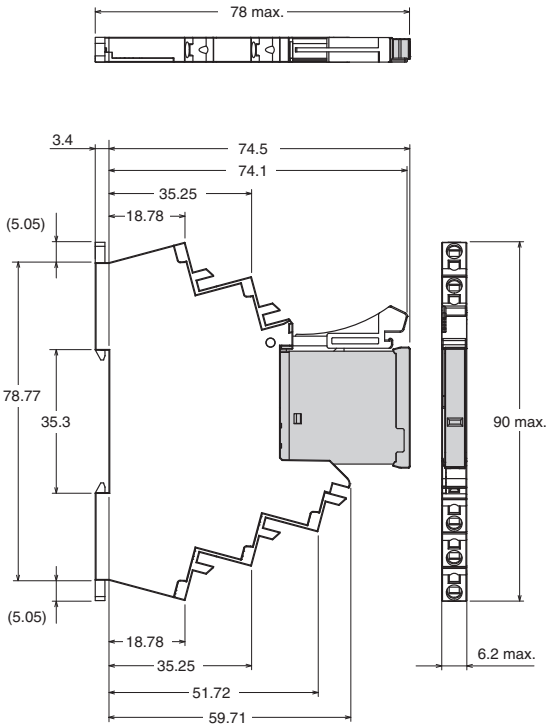
(unit: mm)

Slim I/O Relay + socket

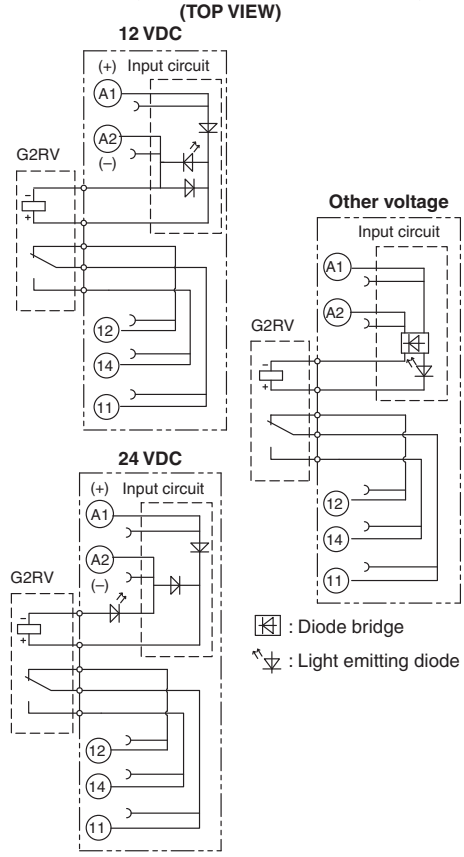
Push-In Plus Terminal Block

Models without latching lever (without test switch)
G2RV-SR500
G2RV-SR500-AP

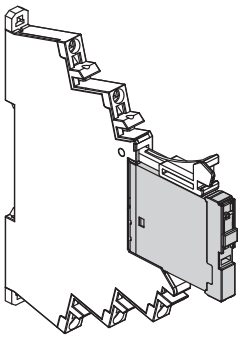


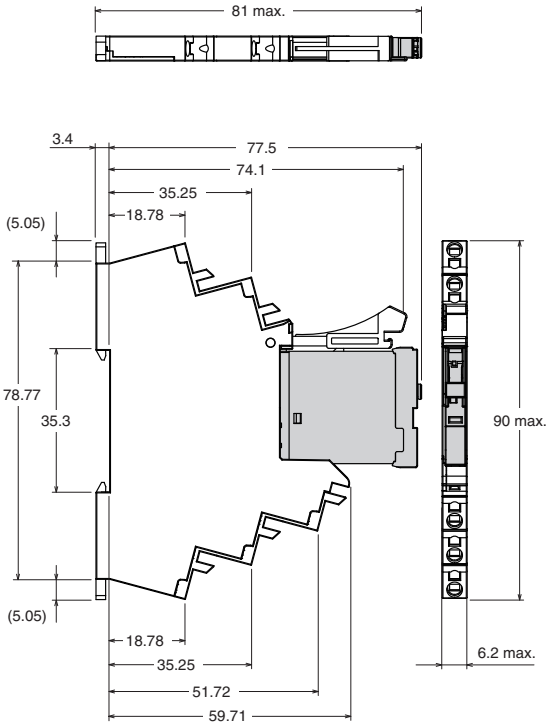


Terminal Arrangement/Internal Connection Diagram (TOP VIEW)

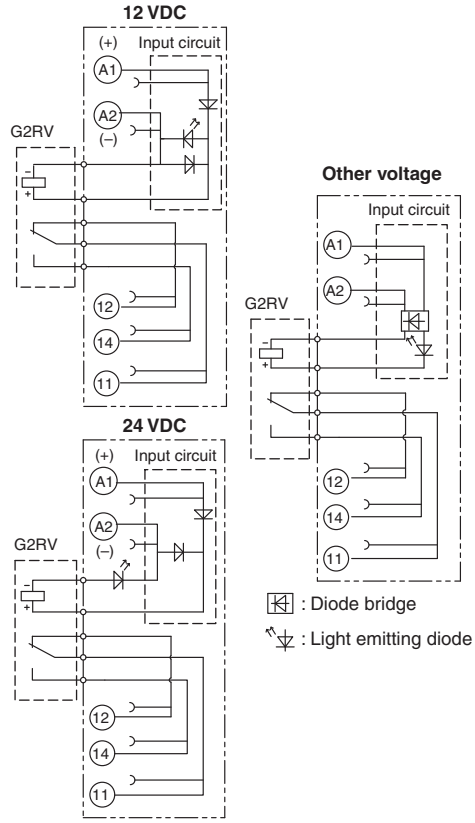


Models with latching lever (with test switch)
G2RV-SR501



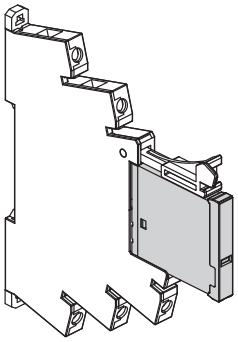


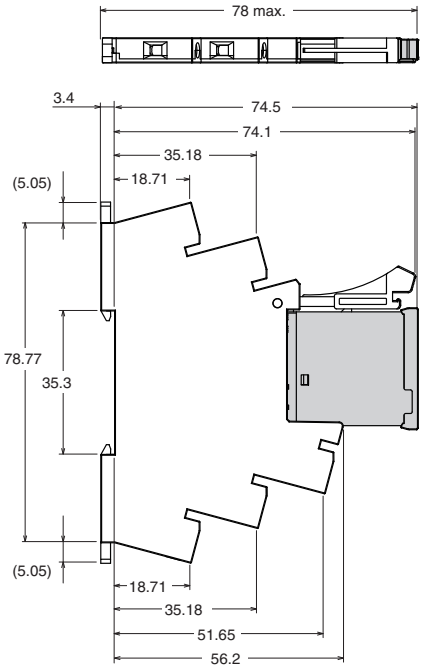
Terminal Arrangement/Internal Connection Diagram (TOP VIEW)

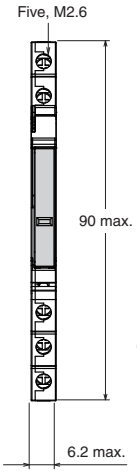


Screw terminal

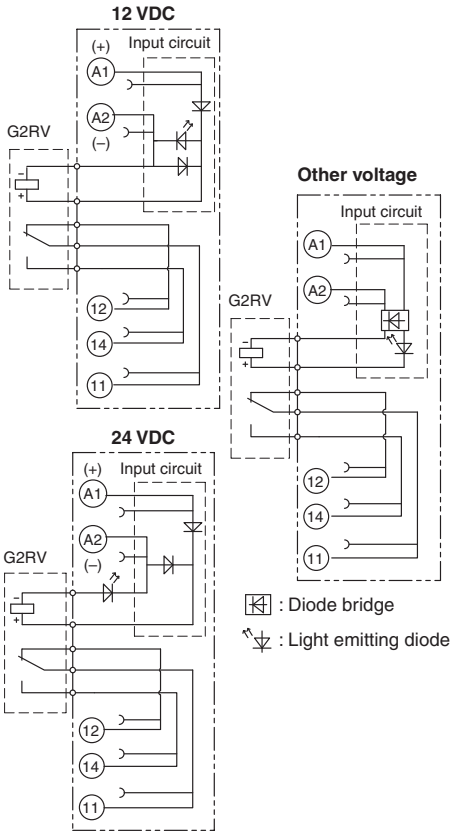
Models without latching lever (without test switch)
G2RV-SR700
G2RV-SR700-AP



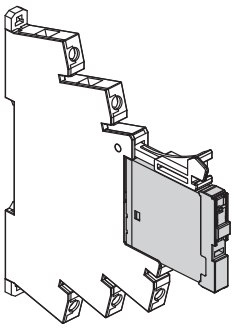


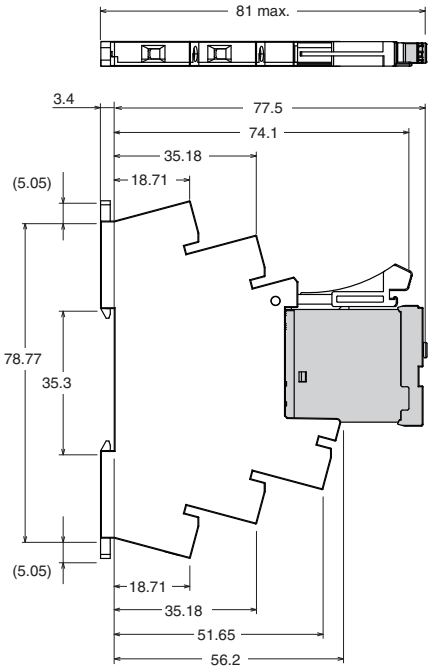


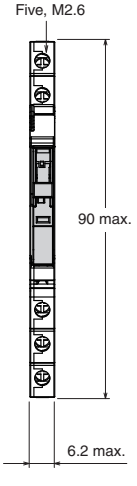
Terminal Arrangement/Internal Connection Diagram (TOP VIEW)



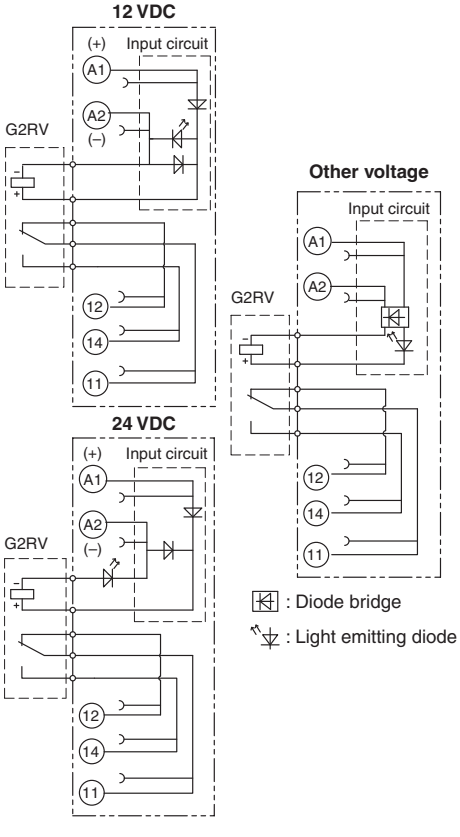
Models with latching lever (with test switch)
G2RV-SR701





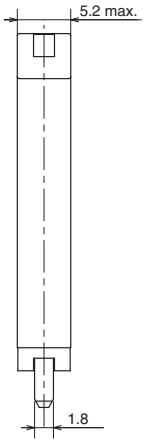


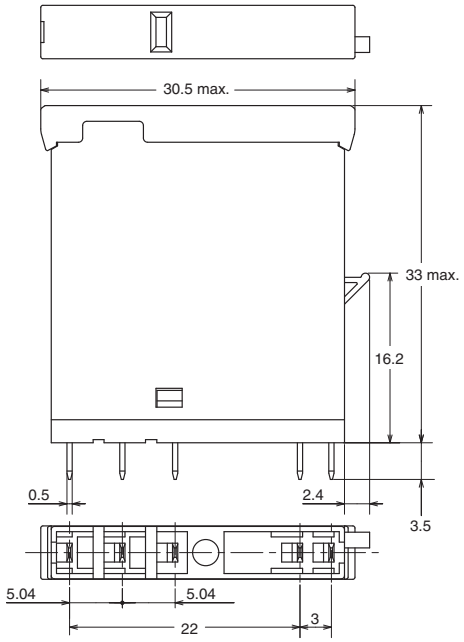
Terminal Arrangement/Internal Connection Diagram (TOP VIEW)



Relay for maintenance

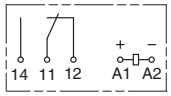
Models without latching lever
G2RV-1-S-G
G2RV-1-S-AP-G



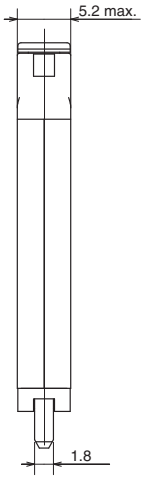


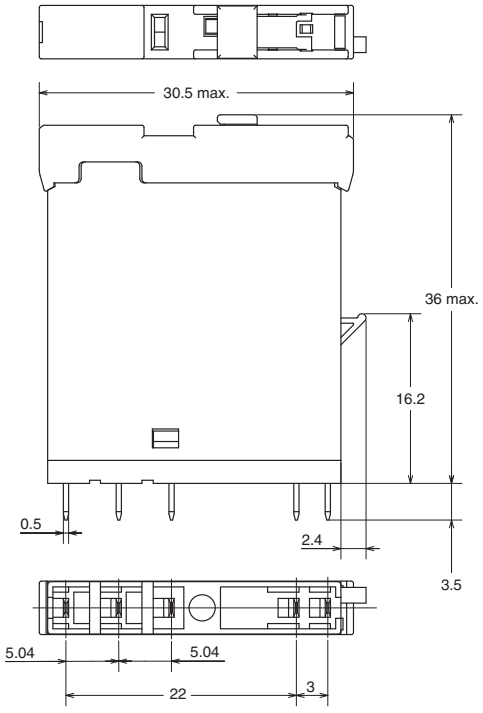
Terminal Arrangement/ Internal Connection Diagram (TOP VIEW)

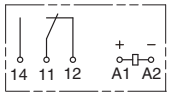
(Input circuit)



Models with latching lever (test switch)
G2RV-1-SI-G





Terminal Arrangement/ Internal Connection Diagram (TOP VIEW)

(Input circuit)