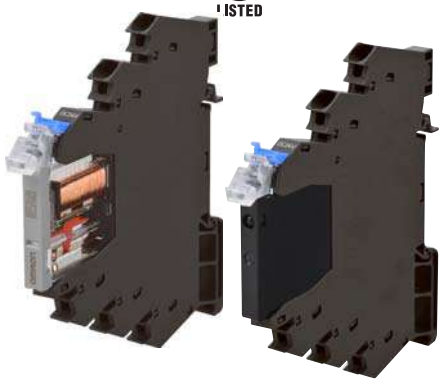
Slim I/O Relay/Slim I/O Solid State Relay

G2RV-ST/G3RV-ST

Slim I/O relay realizes space saving thanks to high-density mounting and ultra-slim body

- 60% space saving from G2R series with 6.2 mm width.
- 60%* reduction in wiring time and user-friendly with a low insertion force thanks to Push-In Plus Technology.
- Larger hole and angled structure contribute to efficient wiring and standardization of wires up to AWG14, 2.5 mm^2.
- Easy maintenance with improved LED visibility and color stopper voltage line identification.
- Low cutting force of short bars contribute to reducing health issues such as Tenosynovitis.

✻According to OMRON actual measurement data for both push-in plus terminal blocks and screw terminal blocks.



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

⚠ Refer to *Safety Precautions* on page 22.

Slim I/O Relay Types

G2RV-ST series **mounted relay: electromagnetic relay..... from page 2**
G3RV-ST series **mounted relay: solid state relay..... from page 12**

Common matter

Common precautions ..... from page 22
Common accessories (order separately)..... from page 29

Common features of G2RV-ST/G3RV-ST

Wiring standardization is also supported by 2.5 mm² compatibility

DC common wiring also provides support for 2.5 mm^2 dia./AWG14 (2.0 mm^2) needs



Wiring work efficiency improvement

Easy to see and easy insertion thanks to large-diameter wiring holes and tilted structure.



Maintainability is enhanced by color stoppers



Both easy replacement and detachment prevention of relays are achieved by locking and unlocking of stopper.

Designed so that wires are hard come out even if release levers are touched unintentionally.



Coil voltage line identification
Red: AC
Blue: DC
White: Multi (e.g. 24 VAC/VDC)

Work judgment support is provided through mounting feeling enhancement.

Work efficiency is enhanced by DIN rail sliding performance and short bar improvements.



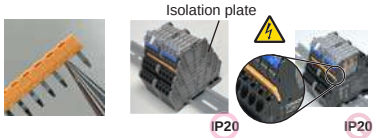
DIN rail tolerance is also supported through elasticity.



Insertion feeling to let you know when mounting is complete.

Easy and safe

Short bar cutting force has been decreased to reduce the burden during assembly. Electrification of the short bar fracture plane is prevented by an isolation plate.



Note. Cutting force of 25 kg, so easily cut by needle-nose pliers

Visibility is enhanced by release lever LED



Visibility from the front is improved by a structure where the actual release lever lights and by expanding the light emission area.

Note. The third relay from the right is equipped with a label.

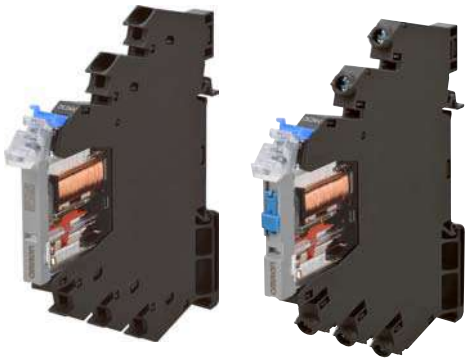
Slim I/O Relay

G2RV-ST

Slim I/O relay realizes space saving thanks to high-density mounting and ultra-slim body

- 60% space saving from G2R series with 6.2 mm width technology.
- 60%*1 reduction in wiring time and user-friendly with a low insertion force thanks to Push-In Plus Technology.
- Max. 6 A realized even with close-contact mounting.
- Au-plated contacts suitable for micro loads with a failure rate P value*2 of 1 mA at 100 mVDC.
- A transparent case that allows for easy on-site visual checks of contact state abnormalities.
- Easy relay replacement with a terminal structure that does not bend easily.
- Operation check using a test switch reduces inspection time.
- A coil surge absorption circuit equipped as standard.

1. According to OMRON actual measurement data for both push-in plus terminal blocks and screw terminal blocks.
2. Reference value

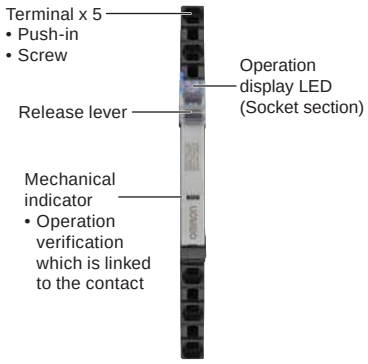


For the recent information on models that have been certified for safety standards, refer to your OMRON website.

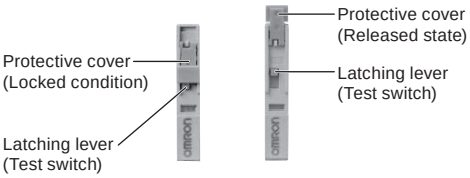
Refer to *Safety Precautions* on page 22.

Features

Standard model/Micro load

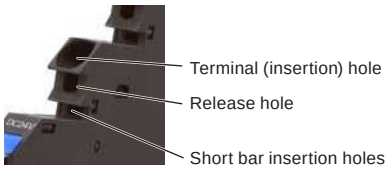


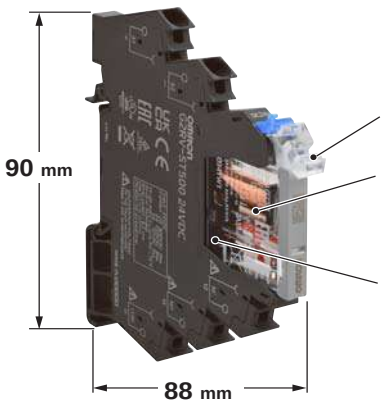
With latching lever (Test switch)



• Circuit check operation
Confirmation, reducing the inspection effort

Push-In Plus technology





Release lever
Relay easily fixed/removed

Transparent case
Relay contact
Easy confirmation of the situation



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

Model Number Structure

Model Number Legend

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

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

(2) Sub type
ST: 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/VDC
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-ST500 12 VDC**
				24	**G2RV-ST500 24 VDC**
			AC/DC	24	**G2RV-ST500 24 VAC/VDC**
				48	**G2RV-ST500 48 VAC/VDC**
			AC	100	**G2RV-ST500 100 VAC**
				110	**G2RV-ST500 110 VAC**
				200	**G2RV-ST500 200 VAC**
				230	**G2RV-ST500 230 VAC**
		Yes	DC	24	**G2RV-ST501 24 VDC**
			AC/DC	24	**G2RV-ST501 24 VAC/VDC**
	Microloads	No	DC	12	**G2RV-ST500-AP 12 VDC**
				24	**G2RV-ST500-AP 24 VDC**
			AC/DC	24	**G2RV-ST500-AP 24 VAC/VDC**
				48	**G2RV-ST500-AP 48 VAC/VDC**
			AC	100	**G2RV-ST500-AP 100 VAC**
				110	**G2RV-ST500-AP 110 VAC**
				200	**G2RV-ST500-AP 200 VAC**
				230	**G2RV-ST500-AP 230 VAC**
Screw terminal	Standard	No	DC	12	**G2RV-ST700 12 VDC**
				24	**G2RV-ST700 24 VDC**
			AC/DC	24	**G2RV-ST700 24 VAC/VDC**
				48	**G2RV-ST700 48 VAC/VDC**
			AC	100	**G2RV-ST700 100 VAC**
				110	**G2RV-ST700 110 VAC**
				200	**G2RV-ST700 200 VAC**
				230	**G2RV-ST700 230 VAC**
		Yes	DC	24	**G2RV-ST701 24 VDC**
			AC/DC	24	**G2RV-ST701 24 VAC/VDC**
	Microloads	No	DC	12	**G2RV-ST700-AP 12 VDC**
				24	**G2RV-ST700-AP 24 VDC**
			AC/DC	24	**G2RV-ST700-AP 24 VAC/VDC**
				48	**G2RV-ST700-AP 48 VAC/VDC**
			AC	100	**G2RV-ST700-AP 100 VAC**
				110	**G2RV-ST700-AP 110 VAC**
				200	**G2RV-ST700-AP 200 VAC**
				230	**G2RV-ST700-AP 230 VAC**

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-ST 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-ST700/500 12 VDC
			21	**G2RV-1-S-G DC21**	G2RV-ST700/500 24 VDC
					G2RV-ST700/500 24 VAC/VDC
			48	**G2RV-1-S-G DC48**	G2RV-ST700/500 48 VAC/VDC
					G2RV-ST700/500 100 VAC
					G2RV-ST700/500 110 VAC
					G2RV-ST700/500 200 VAC
					G2RV-ST700/500 230 VAC
	Yes	DC	21	**G2RV-1-SI-G DC21**	G2RV-ST701/501 24 VDC
					G2RV-ST701/501 24 VAC/VDC
Microload	No	DC	11	**G2RV-1-S-AP-G DC11**	G2RV-ST700/500-AP 12 VDC
			21	**G2RV-1-S-AP-G DC21**	G2RV-ST700/500-AP 24 VDC
					G2RV-ST700/500-AP 24 VAC/VDC
			48	**G2RV-1-S-AP-G DC48**	G2RV-ST700/500-AP 48 VAC/VDC
					G2RV-ST700/500-AP 100 VAC
					G2RV-ST700/500-AP 110 VAC
					G2RV-ST700/500-AP 200 VAC
					G2RV-ST700/500-AP 230 VAC

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 29 for G2RV-ST/G3RV-ST 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	13.7 mA	14.9 mA	12.6 mA			Approx. 0.4 VA	Approx. 300 mW	
48 VAC/VDC	5.9 mA	6.4 mA	5.4 mA			Approx. 0.3 VA	Approx. 250 mW	
100 VAC	6.8 mA	7.1 mA	–			Approx. 0.7 VA	–	
110 VAC	6.1 mA	6.4 mA	–			Approx. 0.7 VA	–	
200 VAC	6.1 mA	7.3 mA	–			Approx. 1.5 VA	–	
230 VAC	6.8 mA	8.2 mA	–			Approx. 1.9 VA	–	

Note: The operating characteristics are measured at ambient temperature of 23°C.
The rated current tolerances are as follows. AC rating: +15%/-20%, DC rating: ±10%

✻ 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-ST700, 500, 701, 501)		For microloads (G2RV-ST700-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 *3	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.
✻3. Please energize under 32A total when use short bar connection.

Characteristics

Item		Standard (G2RV-ST700, 500, 701, 501)	For microloads (G2RV-ST700-AP, 500-AP)
Contact resistance *		100 m Ω max.	
Operate time *		20 ms max.	
Release time *		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		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		Destruction: 1,000 m/s^2 Malfunction: Energized 200m/s^2, Non-energized 100m/s^2	
Endurance *	**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	
Type of interruption		Micro-disconnection	
Type of insulation		Basic isolation: Coil-Contact, Live parts-Ground	
Pollution degree		2	
Impulse withstand voltage		4.0 kV	
Test procedure		A (Group mounting)	
Categories of environmental protection		RT 1	
Degree of protection by enclosure according to IEC 60529		IP20	
Contact material		Ag alloy	Ag alloy + Au plating

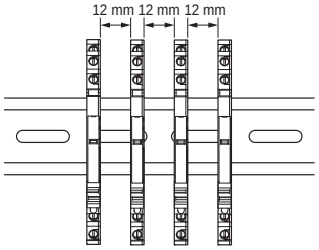
Note: Above values are initial values.
✻Value is at ambient temperature of 23°C.

Approved standards

UL (File No.E41515)

Model	Contact form	Operation coil ratings	Contact ratings	Operations
G2RV-ST 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

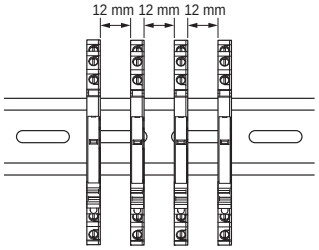
✻ If the load voltage exceeds 250 VAC, please attach with a spacing of 12 mm min., or use a separate plate (XW5Z-EP12) or 4psc of isolation plate (P2RV-P3.1T).



TÜV (File No.R50559210, EN61810-1)

Model	Contact form	Operation coil ratings	Contact ratings	Operations
G2RV-ST 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) or 4psc of isolation plate (P2RV-P3.1T).

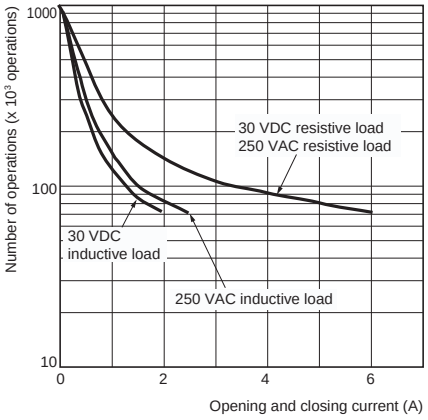


Lloyd's (File No.LR23158192TA)

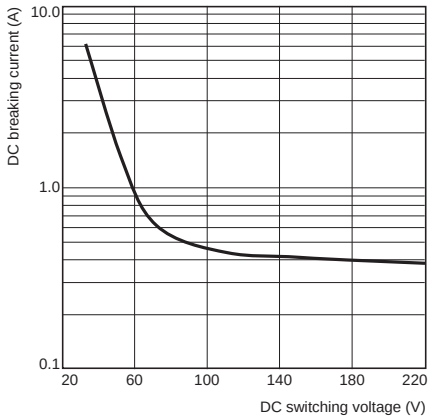
Model	No. of poles	Operation coil ratings	Contact ratings
G2RV-ST500 G2RV-ST700	1c	12, 24 VDC 24, 48 VAC/VDC 100, 110, 200, 230 VAC	6 A at 250 VAC (Resistive load) 2.5 A at 250 VAC (PF0.4) 6 A at 30 VDC (Resistive load) 2 A at 30 VDC (L/R=7 ms)
G2RV-ST501 G2RV-ST701	1c	12, 24 VDC 24 VAC/VDC	6 A at 250 VAC (Resistive load) 2.5 A at 250 VAC (PF0.4) 6 A at 30 VDC (Resistive load) 2 A at 30 VDC (L/R=7 ms)
G2RV-ST500-AP G2RV-ST700-AP	1c	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)

Reference Data

Endurance curve (N.O. side)



Switching capacity of DC resistive load



Dimensions

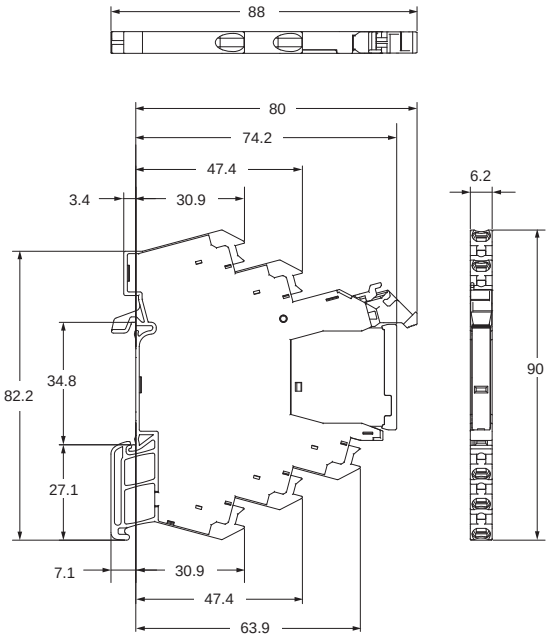
(unit: mm)

Slim I/O Relay + socket

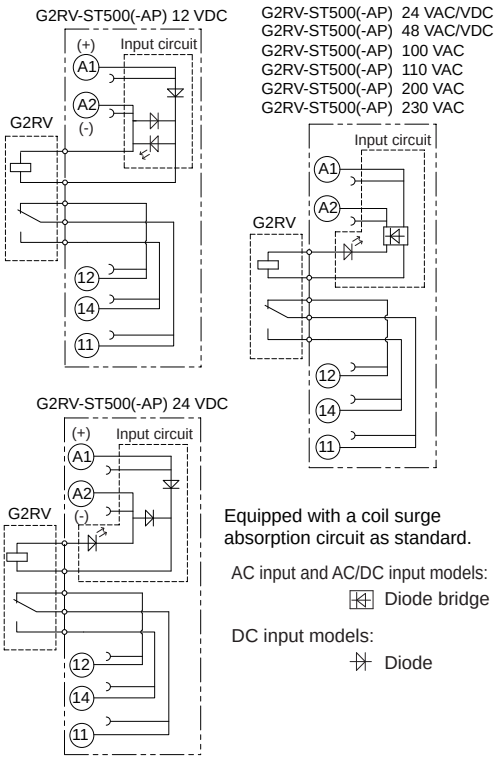
Push-In Plus Terminal Block

Models without latching lever (without test switch)
G2RV-ST500
G2RV-ST500-AP





Terminal Arrangement/Internal Connection Diagram (TOP VIEW)



Equipped with a coil surge absorption circuit as standard.

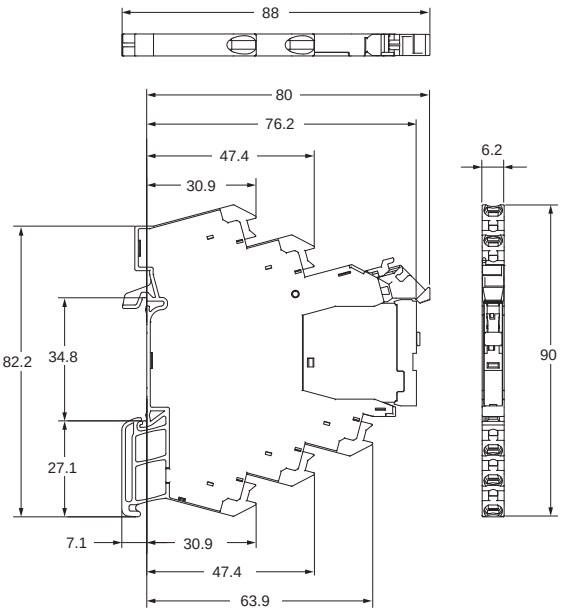
AC input and AC/DC input models: Diode bridge

DC input models: Diode

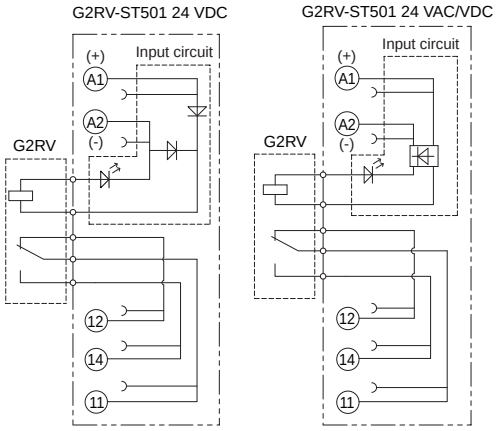
Note: For recommended ferrules, crimp tools, and types and gauges of wires, refer to *3. Recommended Ferrules and Crimp Tools* on page 26.

Models with latching lever (with test switch)
G2RV-ST501





Terminal Arrangement/Internal Connection Diagram (TOP VIEW)



Equipped with a coil surge absorption circuit as standard.

AC input and AC/DC input models: Diode bridge

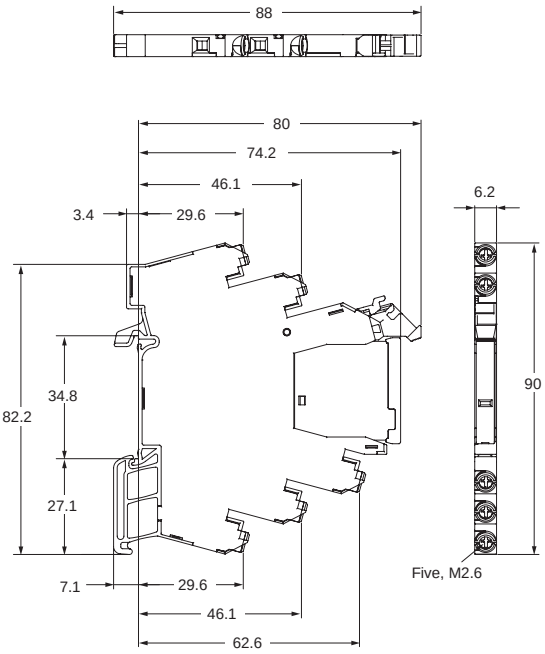
DC input models: Diode

Note: For recommended ferrules, crimp tools, and types and gauges of wires, refer to *3. Recommended Ferrules and Crimp Tools* on page 26.

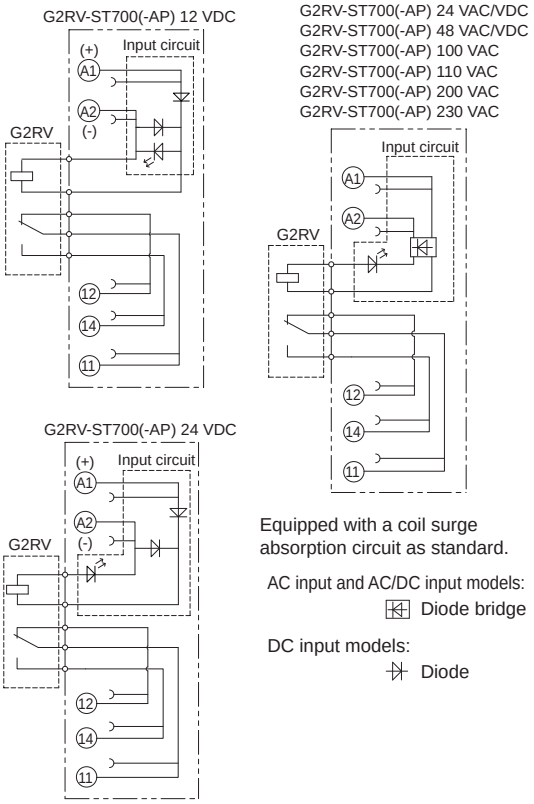
Screw terminal

Models without latching lever (without test switch)
G2RV-ST700
G2RV-ST700-AP





Terminal Arrangement/Internal Connection Diagram (TOP VIEW)



Equipped with a coil surge absorption circuit as standard.

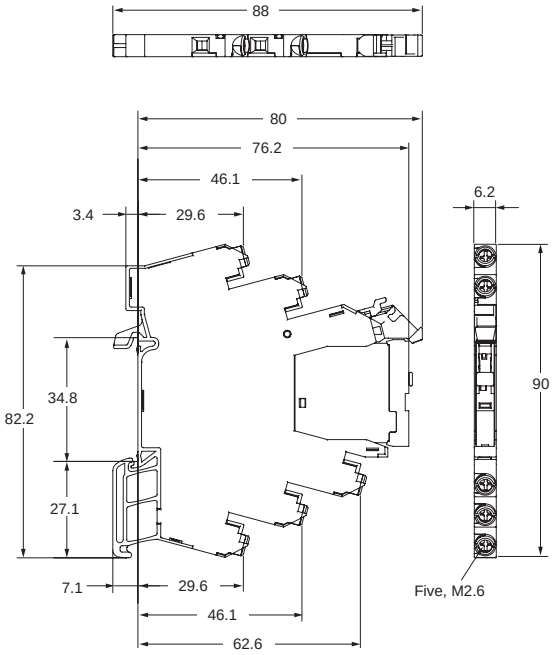
AC input and AC/DC input models: Diode bridge

DC input models: Diode

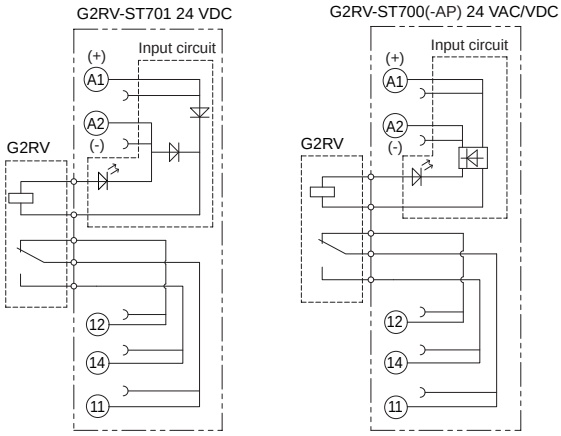
Note: For recommended ferrules, crimp tools, and types and gauges of wires, refer to *3. Recommended Ferrules and Crimp Tools* on page 26.

Models with latching lever (with test switch)
G2RV-ST701





Terminal Arrangement/Internal Connection Diagram (TOP VIEW)



Equipped with a coil surge absorption circuit as standard.

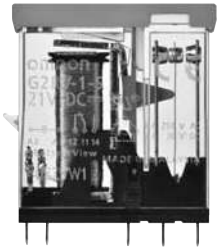
AC input and AC/DC input models: Diode bridge

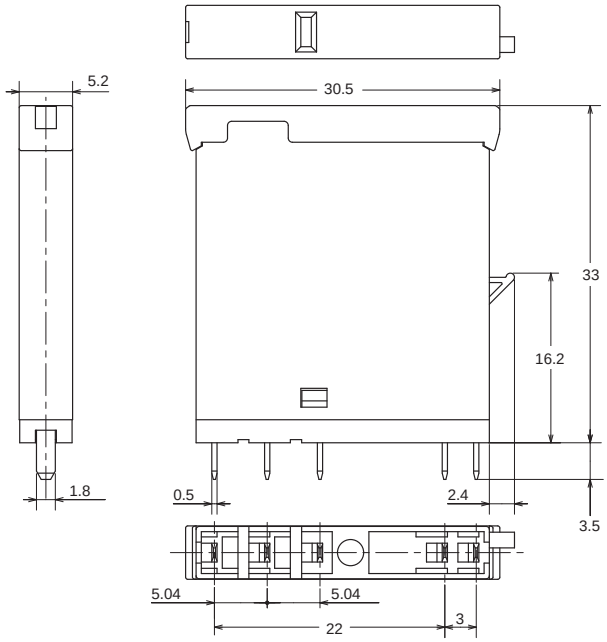
DC input models: Diode

Note: For recommended ferrules, crimp tools, and types and gauges of wires, refer to *3. Recommended Ferrules and Crimp Tools* on page 26.

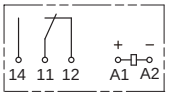
Relay for maintenance

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



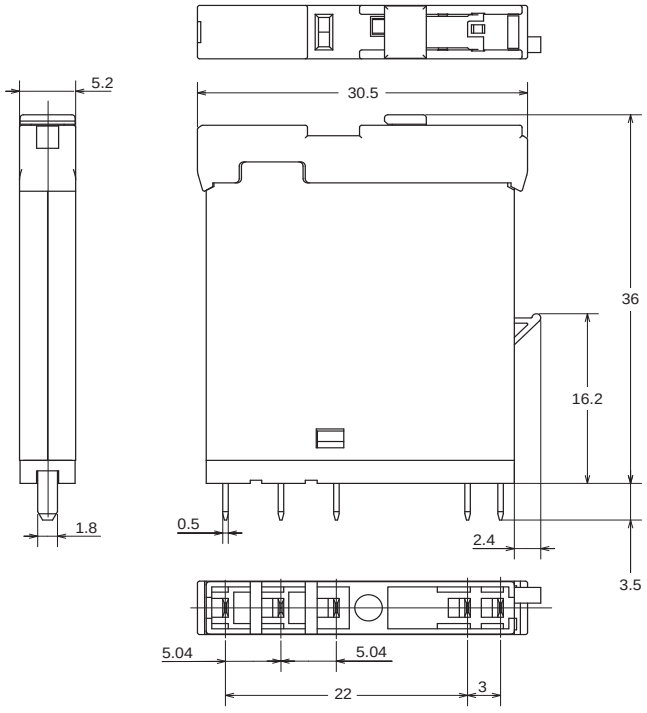


Terminal Arrangement/
Internal Connection Diagram
(TOP VIEW)

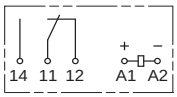


Models with latching lever (test switch)
G2RV-1-SI-G





Terminal Arrangement/
Internal Connection Diagram
(TOP VIEW)



MEMO

Slim I/O Solid State Relay

G3RV-ST

Slim I/O SSR realizes space saving thanks to high-density mounting and ultra-slim body

- 60% space saving from G3R-I/O series with 6.2 mm width technology.
- 60%* reduction in wiring time and user-friendly with a low insertion force thanks to Push-In Plus Technology.
- Maximum applicable load of 3 A (DC) and 2 A (AC) realized thanks to slim technology.
- The output DC type has a minimum applicable load of 100 μA and a leaked current of 10 μA or less.
- High-speed switching type (operation time of 0.2 ms or less, release time of 0.4 ms or less) added.

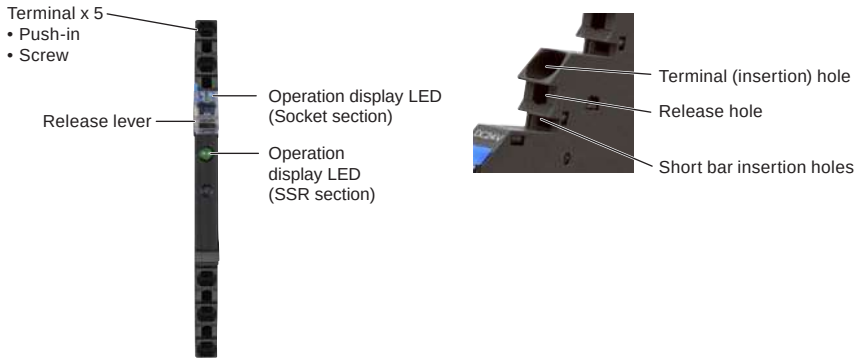
✻ According to OMRON actual measurement data for both push-in plus terminal blocks and screw terminal blocks.

⚠ Refer to *Safety Precautions* on page 22.

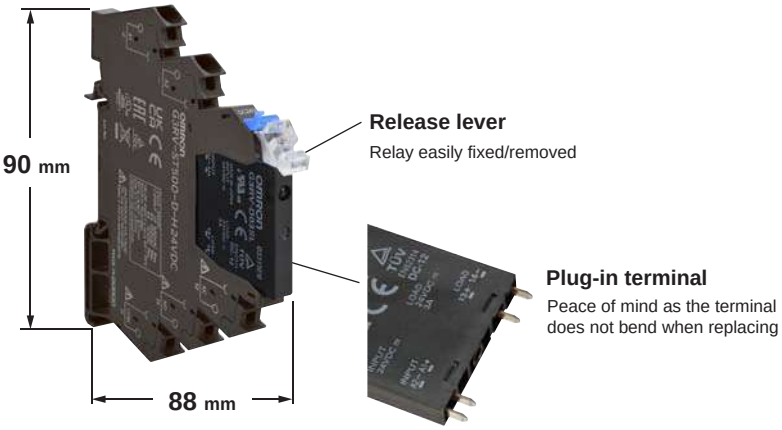


For the recent information on models that have been certified for safety standards, refer to your OMRON website.

Features



Push-In Plus technology



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

G3RV-ST □□□ - □ - □ □

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

(1) Basic model name
G3RV: Slim I/O Solid State Relay

(2) Sub type
ST: 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) Operation and release time
H : High speed type

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

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-ST500-D 12 VDC**
				24	**G3RV-ST500-D 24 VDC**
			AC/DC	24	**G3RV-ST500-D 24 VAC/VDC**
				48	**G3RV-ST500-D 48 VAC/VDC**
			AC	100	**G3RV-ST500-D 100 VAC**
				110	**G3RV-ST500-D 110 VAC**
				200	**G3RV-ST500-D 200 VAC**
				230	**G3RV-ST500-D 230 VAC**
	DC load (high-speed opening and closing)	—	DC	24	**G3RV-ST500-D-H 24 VDC**
			AC/DC	24	**G3RV-ST500-D-H 24 VAC/VDC**
	AC load	Yes	DC	12	**G3RV-ST500-A 12 VDC**
				24	**G3RV-ST500-A 24 VDC**
			AC/DC	24	**G3RV-ST500-A 24 VAC/VDC**
				48	**G3RV-ST500-A 48 VAC/VDC**
			AC	100	**G3RV-ST500-A 100 VAC**
				110	**G3RV-ST500-A 110 VAC**
				200	**G3RV-ST500-A 200 VAC**
				230	**G3RV-ST500-A 230 VAC**
		No	DC	12	**G3RV-ST500-AL 12 VDC**
				24	**G3RV-ST500-AL 24 VDC**
			AC/DC	24	**G3RV-ST500-AL 24 VAC/VDC**
				48	**G3RV-ST500-AL 48 VAC/VDC**
			AC	100	**G3RV-ST500-AL 100 VAC**
				110	**G3RV-ST500-AL 110 VAC**
				200	**G3RV-ST500-AL 200 VAC**
				230	**G3RV-ST500-AL 230 VAC**
Screw terminal	DC load	—	DC	12	**G3RV-ST700-D 12 VDC**
				24	**G3RV-ST700-D 24 VDC**
			AC/DC	24	**G3RV-ST700-D 24 VAC/VDC**
				48	**G3RV-ST700-D 48 VAC/VDC**
			AC	100	**G3RV-ST700-D 100 VAC**
				110	**G3RV-ST700-D 110 VAC**
				200	**G3RV-ST700-D 200 VAC**
				230	**G3RV-ST700-D 230 VAC**
	DC load (high-speed opening and closing)	—	DC	24	**G3RV-ST700-D-H 24 VDC**
			AC/DC	24	**G3RV-ST700-D-H 24 VAC/VDC**
	AC load	Yes	DC	12	**G3RV-ST700-A 12 VDC**
				24	**G3RV-ST700-A 24 VDC**
			AC/DC	24	**G3RV-ST700-A 24 VAC/VDC**
				48	**G3RV-ST700-A 48 VAC/VDC**
			AC	100	**G3RV-ST700-A 100 VAC**
				110	**G3RV-ST700-A 110 VAC**
				200	**G3RV-ST700-A 200 VAC**
				230	**G3RV-ST700-A 230 VAC**
		No	DC	12	**G3RV-ST700-AL 12 VDC**
				24	**G3RV-ST700-AL 24 VDC**
			AC/DC	24	**G3RV-ST700-AL 24 VAC/VDC**
				48	**G3RV-ST700-AL 48 VAC/VDC**
			AC	100	**G3RV-ST700-AL 100 VAC**
				110	**G3RV-ST700-AL 110 VAC**
				200	**G3RV-ST700-AL 200 VAC**
				230	**G3RV-ST700-AL 230 VAC**

Note: Sockets are not sold individually.

Solid state relay for maintenance

Model Number Legend

G3RV-□ □ S □ - □ □
(1) (2) (3) (4) (5) (6)

(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) Operation and release time
H : High speed type

(6) Rated voltage input
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-ST700/500-A 12 VDC
					24 VDC	**G3RV-202S DC24**	G3RV-ST700/500-A 24 VDC
					24 VAC/VDC		G3RV-ST700/500-A 24 VAC/VDC
					48 VAC/VDC	**G3RV-202S DC48**	G3RV-ST700/500-A 48 VAC/VDC
					100 VAC		G3RV-ST700/500-A 100 VAC
					110 VAC		G3RV-ST700/500-A 110 VAC
					200 VAC		G3RV-ST700/500-A 200 VAC
					230 VAC		G3RV-ST700/500-A 230 VAC
			No		12 VDC	**G3RV-202SL DC12**	G3RV-ST700/500-AL 12 VDC
					24 VDC	**G3RV-202SL DC24**	G3RV-ST700/500-AL 24 VDC
					24 VAC/VDC		G3RV-ST700/500-AL 24 VAC/VDC
					48 VAC/VDC	**G3RV-202SL DC48**	G3RV-ST700/500-AL 48 VAC/VDC
					100 VAC		G3RV-ST700/500-AL 100 VAC
					110 VAC		G3RV-ST700/500-AL 110 VAC
					200 VAC		G3RV-ST700/500-AL 200 VAC
					230 VAC		G3RV-ST700/500-AL 230 VAC
Photo-voltage coupler		DC	–	3 A (at 5 to 24 VDC)	12 VDC	**G3RV-D03SL DC12**	G3RV-ST700/500-D 12 VDC
					24 VDC	**G3RV-D03SL DC24**	G3RV-ST700/500-D 24 VDC
					24 VAC/VDC		G3RV-ST700/500-D 24 VAC/VDC
					48 VAC/VDC	**G3RV-D03SL DC48**	G3RV-ST700/500-D 48 VAC/VDC
					100 VAC		G3RV-ST700/500-D 100 VAC
					110 VAC		G3RV-ST700/500-D 110 VAC
					200 VAC		G3RV-ST700/500-D 200 VAC
					230 VAC		G3RV-ST700/500-D 230 VAC
					24 VDC	**G3RV-D03SL-H DC24**	G3RV-ST700/500-D-H 24 VDC
							G3RV-ST700/500-D-H 24 VAC/VDC

✻Different depending on the ambient temperature.
For more details, refer to *Load current vs. ambient rated temperature* on page 18.

Accessories (order separately)

Refer to page 29 for G2RV-ST/G3RV-ST Common Accessories.

Specifications

Rating (ambient temperature 25°C)

Input

G3RV-ST700/500-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-ST700/500-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-ST700/500-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	6.8 mA	6.8 mA	–	90 V max.		
110 VAC	6.7 mA	6.7 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.		

High-speed type G3RV-ST700/500-D-H 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				
24 VDC	–	–	9.0 mA	21.6 V max.	1 V min.	±10%
24 VAC/VDC	9.0 mA	9.5 mA	8.4 mA	21.6 V max.		

Output

Item	G3RV-ST700/500-A(L)	G3RV-ST700/500-D(-H)
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 (10 ms)
Permissible I^2t; Joule integral value (reference value)	$15A^2s$	$9\ A^2\ s$
Applied load capacity	400 W (Output voltage: 200 VAC)	72 W (Output voltage: 24 VDC)

Characteristics

Item	G3RV-ST700/500-A	G3RV-ST700/500-AL	G3RV-ST700/500-D-H 24 VDC	G3RV-ST700/500-D-H 24 VAC/VDC	G3RV-ST700/500-D
Operate time	11 ms max. *1	3 ms max.	0.2 ms max.	3 ms max.	6 ms max.
Release time	31 ms max. *2	31 ms max. *2	0.4 ms max.	21 ms max. *3	21 ms max. *3
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	10 to 55 to 10 Hz double amplitude 0.70 mm				
Shock resistance	300m/s^2				
Ambient operating temperature	Storage: –30 to +100°C (with no icing or no condensation) Operating: –30 to +55°C (with no icing or no condensation)				
Ambient operating humidity	45 to 85% RH				
Weight	Approx. 30 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 1.1Ue 5s ON, 10s OFF, 10 cycles				
Rated insulation voltage	240 V				
MTTFd (Reference value)	1,000 years min.				

✻1. 1/2 cycle of load power supply frequency + 1 ms max.
✻2. 1/2 cycle of load power supply frequency + 1 ms + 1 cycle of input power supply frequency (AC input model)
✻3. 1 cycle of input power supply frequency + 1 ms

Approved standards

UL (File No.E41515)

Model	Input ratings	Contact ratings
G3RV-ST700/500-D(-H) series	12, 24 VDC 24, 48 VAC/VDC 100, 110, 200, 230 VAC	24 VDC 3 A (resistive load) at 25°C
G3RV-ST700/500-A(L) series	12, 24 VDC 24, 48 VAC/DC 100, 110, 200, 230 VAC	240 VAC 2 A (resistive load) at 25°C

TÜV (File No.R50559231, EN62314)

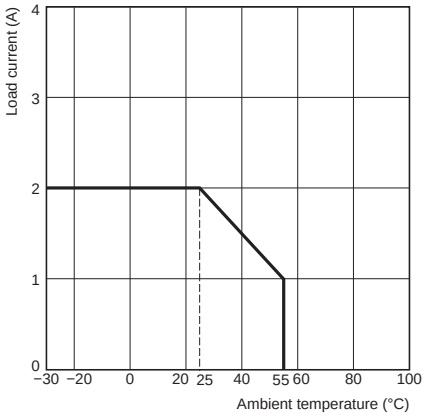
Model	Input ratings	Contact ratings
G3RV-ST700/500-D(-H) series	12, 24 VDC 24, 48 VAC/VDC 100, 110, 200, 230 VAC	24 VDC 3 A (resistive load)
G3RV-ST700/500-A(L) series	12, 24 VDC 24, 48 VAC/VDC 100, 110, 200, 230 VAC	240 VAC 2 A (resistive load)

Engineering Data

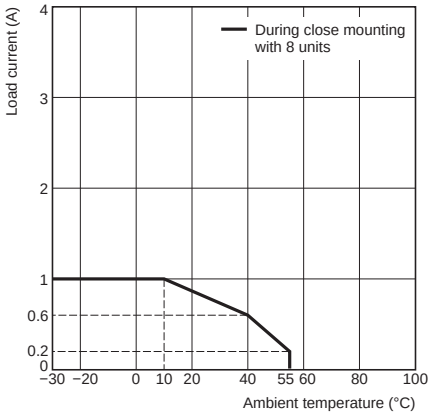
Load current vs. ambient rated temperature

G3RV-ST700/500-A(L) series

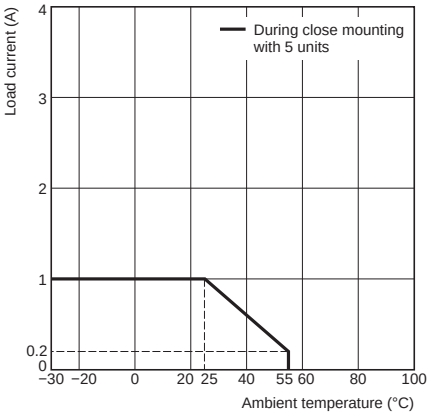
Product mounting spacing 10 mm
(Separate Mounting)



Close mounting (up to 8 units *)

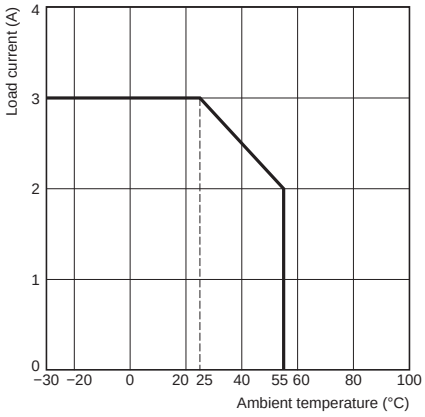


Close mounting (up to 5 units)

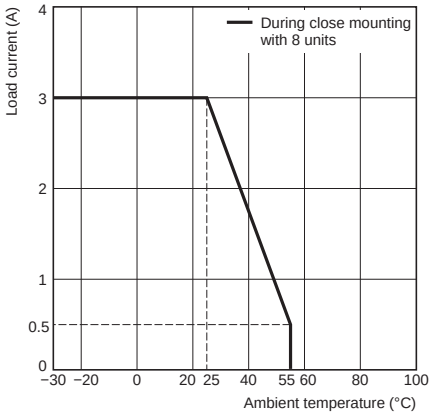


G3RV-ST700/500-D(-H) series

Product mounting spacing 10 mm
(Separate Mounting)



Close mounting (up to 8 units *)

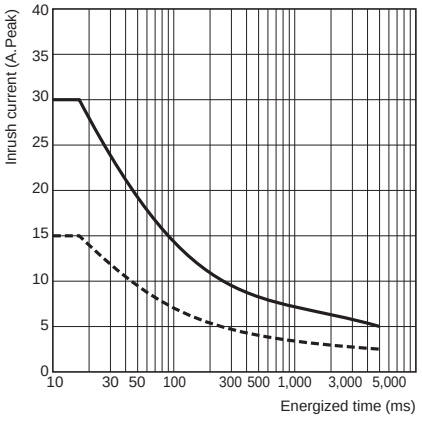


✻When eight or more are installed, install with 10 mm space between each.
For details, please refer to *Mounting* on page 28.

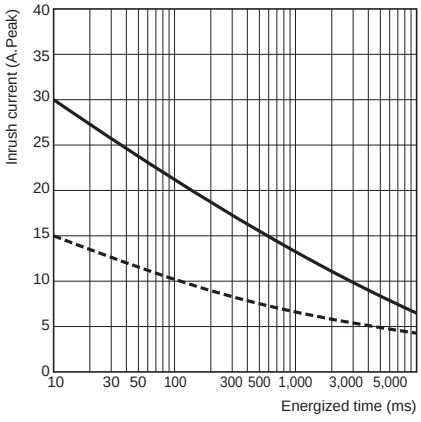
Inrush Current Resistance: Non-repetitive

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

G3RV-ST700/500-A(L) series



G3RV-ST700/500-D(-H) series



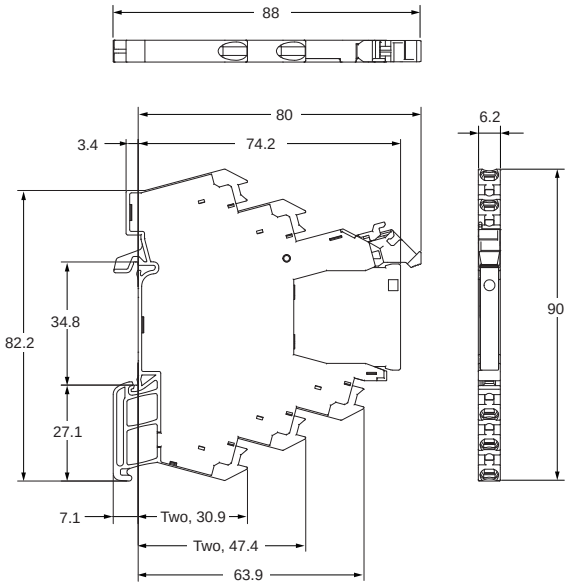
Dimensions

(unit: mm)

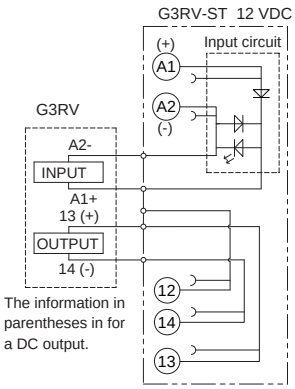
Solid state relay + socket

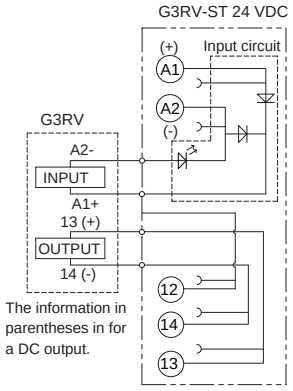
Push-In Plus Terminal Block
G3RV-ST500

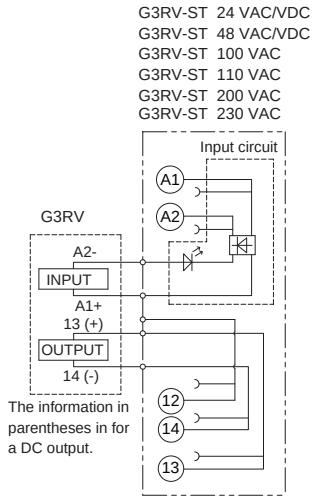




Terminal Arrangement/ Internal Connection Diagram (TOP VIEW)



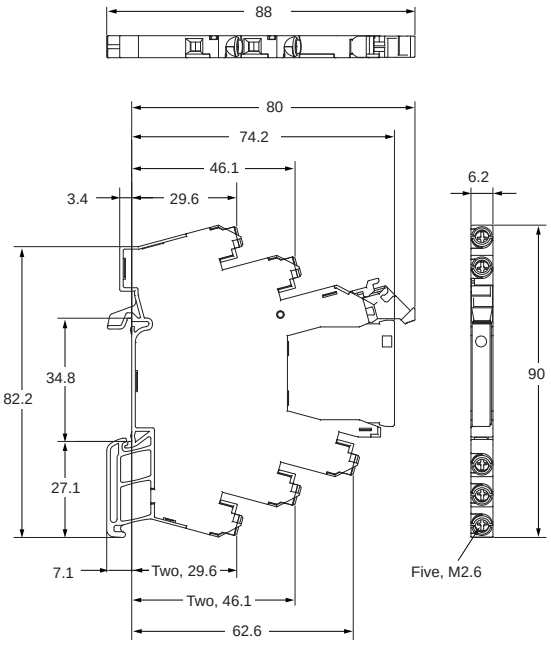




Note: For recommended ferrules, crimp tools, and types and gauges of wires, refer to *3. Recommended Ferrules and Crimp Tools* on page 26.

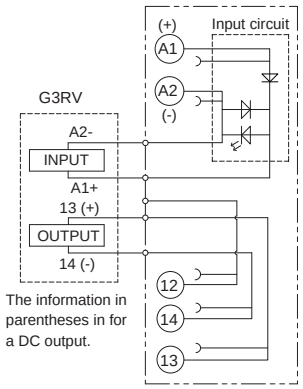
Screw terminal
G3RV-ST700





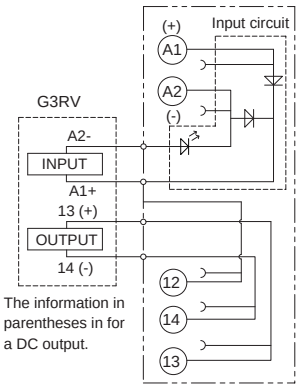
Terminal Arrangement/
Internal Connection Diagram
(TOP VIEW)

G3RV-ST 12 VDC



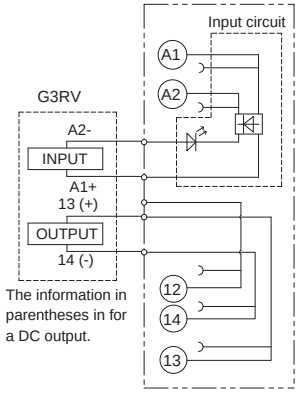
The information in parentheses in for a DC output.

G3RV-ST 24 VDC



The information in parentheses in for a DC output.

G3RV-ST 24 VAC/VDC
G3RV-ST 48 VAC/VDC
G3RV-ST 100 VAC
G3RV-ST 110 VAC
G3RV-ST 200 VAC
G3RV-ST 230 VAC



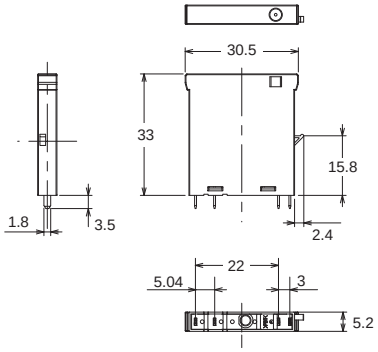
The information in parentheses in for a DC output.

Note: For recommended ferrules, crimp tools, and types and gauges of wires, refer to *3. Recommended Ferrules and Crimp Tools* on page 26.

Solid state relay for maintenance

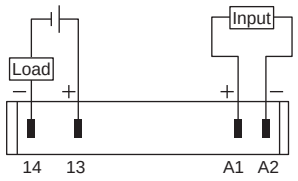
G3RV-D03SL(-H)
G3RV-202S(L)





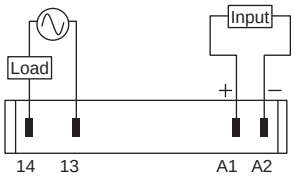
Terminal Arrangement/ Internal Connection Diagram (TOP VIEW)

G3RV-D03SL(-H)



Note: The load can be connected to either the positive or negative terminals.

G3RV-202S(L)



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

⚠ WARNING	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.
⚠ CAUTION	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.
Precautions for Safe Use	Indicates supplementary comments on what to do or avoid doing, to use the product safety.
Precautions for Correct Use	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-ST 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-ST500/700-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 or place an insulating plate (P2RV-P3.1ST) between the G2RV-ST or G3RV-ST and ground and other adjacent components. Not doing so may result in an electric shock.



When mounting the G2RV-ST or G3RV-ST with its input and output opposite to the input and output of an adjacent product, provide a space of at least 3 mm or place an insulating plate (P2RV-P3.1ST) between them.



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.
  - Storage in locations subject to ambient temperature outside the range -40 to 70°C (for G2RV) and -30 to 100°C (for G3RV), and usage in locations subject to ambient temperature outside the range -40 to 55°C (for G2RV) and -30 to 55°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
  - Storage in a state with a load applied to the product
  - Locations subject to ultraviolet rays from direct sunlight
- Do not use or store Sockets in environments that contain silicone gas, sulfidizing gas (e.g., SO_2 or H_2S), 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.
- When replacing a relay, set the stopper to the unlocked state and then eject the relay with the ejector lever. In addition, press the stopper after replacement to change the state from unlocked to locked.



Locked state



Unlocked state

- To operate the stopper, you can change the state from locked to unlocked by gripping the stopper protruding part with the recommended needle-nose pliers. (Needle-nose pliers with a tip shape that is 4 mm wide or less and 3 mm thick or less.)
- Do not use cutting nippers to operate the stopper. Doing so may damage the stopper.



- If the stopper is operated with an exceedingly strong force, the stopper protruding part may be damaged and the stopper may drop out. Since the function of the stopper is to fix the ejector lever, use as a product is possible even in the event that the stopper is damaged or drops out because the functionality is satisfied even without a stopper in respect to vibrations and impacts.

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 28. 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 (UL and EN standard certification)	Stripping length
0.5 to 2.5 mm^2 / AWG20 to AWG14 stranded wire, 0.5 to 2.5 mm^2 / AWG20 to AWG14 solid wire	8 to 10 mm

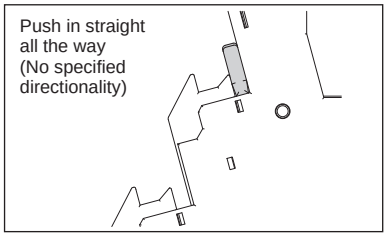
✻ The recommended wire gauge and stripping length values are for stranded wire or solid wire. When using ferrules, refer to the table of recommended ferrules in Precautions for Correct Use.

Disposal

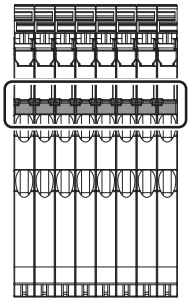
- When disposing of the product, do not put into the fire.

Precautions for Correct Use

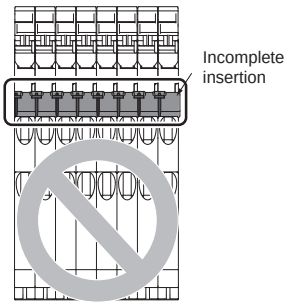
- Do not use or store the product in the following locations. Doing so may result in damage, malfunction, or deterioration of performance characteristics.
  - Where vibration or shock is directly transmitted to the body
  - Where the socket could come into contact with a solvent or alkaline agent
- When installing the short bar, insert it into the insertion hole, and insert until all terminals are all the way in.



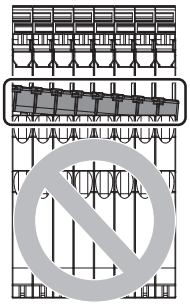
Completely inserted
All terminals are inserted all the way in.
Correct



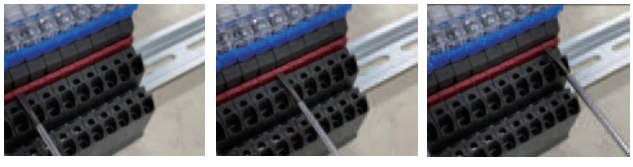
Incomplete insertion
All terminals are not inserted all the way in.
Incorrect



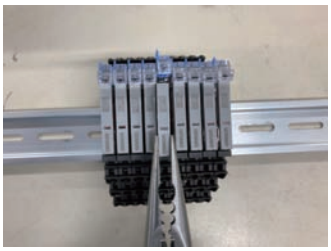
Incorrect installation
Some terminals not inserted completely.
Incorrect



- To remove the short bar, insert a screwdirver beneath the hole on top of the short bar and lift up.
  Start lifting up from either end, lift up all screwdriver in order, and then remove the short bar.
- When removing the short bar while the product is mounted in a control panel or on equipment, make sure there is enough space to use the screwdriver.
- Remove the short bar with the wiring disconnected.



- 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.
- 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-ST/G3RV-ST. 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-ST/G3RV-ST.
  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.
- When replacing a relay, remove it by tilting it to the left as shown in the figure below because the protrusion to prevent pop-out relay will get in the way.



- Dedicated accessories for G2RV-SR/G3RV-SR are not compatible and cannot be used.

Short Bars

- PYDN-6.2-020□
- PYDN-6.2-030□
- PYDN-6.2-040□
- PYDN-6.2-100□
- PYDN-6.2-200□

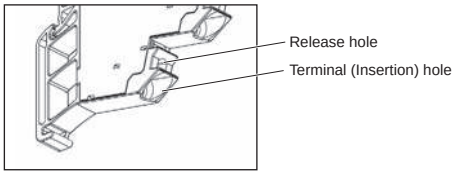
PLC interface unit

- P2RVC-8-I-5-1
- P2RVC-8-I-5
- P2RVC-8-I-7-1
- P2RVC-8-O-5-1
- P2RVC-8-O-5
- P2RVC-8-O-7-1

Push-In Plus Terminal Block

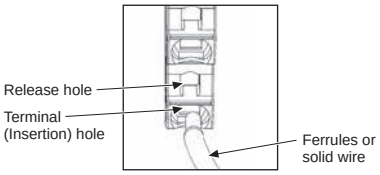
1. Connecting Wires to the Push-In Plus Terminal Block

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.

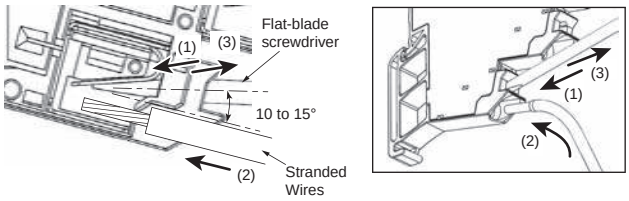


- If a wire is difficult to connect because it is too thin, use a flat-blade screwdriver in the same way as when connecting stranded wire.

Connecting Stranded Wires

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

(1) Hold a flat-blade screwdriver at an angle and insert it into the release hole.
The angle should be between 10°and15°. If the flat-blade screwdriver is inserted correctly, you will feel the spring in the release hole.
(2) With the flat-blade screwdriver still inserted into the release hole, insert the wire into the terminal hole until it strikes the terminal block.
(3) Remove the flat-blade screwdriver from the release hole.



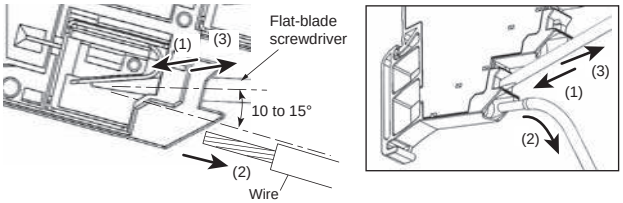
Checking Connections

- 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.

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



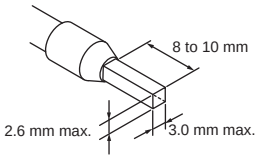
3. Recommended ferrules and Crimp Tools

Recommended ferrules

Applicable wire		Ferrules Conduct length (mm)	Stripping length (mm) (Ferrules used)	Recommended ferrules		
(mm^2)	(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
2.0/2.5	14	10	12	AI 2,5-10	H2.5/16DS	
Recommended crimp tool				CRIMPFOX6 CRIMPFOX6T-F 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.

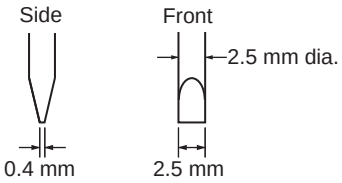
2. Make sure that the ferrule processing dimensions conform to the following figure.



3. If you use AWG24 to AWG22 (0.25 to 0.34 mm^2) wires, UL and TÜV 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 0,40×2,5	Wera
SZS 0,4×2,5 SZF 0-0,4×2,5 ✻	Phoenix Contact
0.4×2.5×75 302	Wiha
AEF.2,5×75	Facom
210-719	Wago
SDI 0.4×2.5×75	Weidmuller

✻ OMRON's exclusive purchase model XW4Z-00B is available to order as SZF 0-0,4×2,5 (manufactured by Phoenix Contact).

Screw Terminal

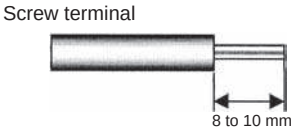
• Screw terminal

Wired type	Applicable wire size	Stripping length
Stranded wires, without ferrule	0.5 to 2.5 mm^2	8 to 10 mm
Stranded wires, with ferrule and plastic collar		
Stranded wires with ferrule, without plastic collar		
Single wire		

• Tightening Torque
0.36 to 0.46 N • m

• Electric wiring

Use the electric wire of specified size as shown above. The length of the that is not covered is 8 to 10 mm.

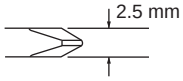


Stripping length

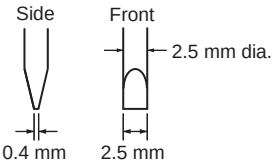
Recommended Flat-blade Screwdriver/ Phillips Screwdriver

Use a Phillips screwdriver or flat-blade screwdriver to remove the product from a DIN rail and connect and remove the electric wires.
Use a Phillips screwdriver with the shape specified below and a flat-blade screwdriver in the table below.
The following table shows manufacturers and models as of 2015/Dec.

Recommended Phillips Screwdriver



Recommended Flat-blade Screwdriver

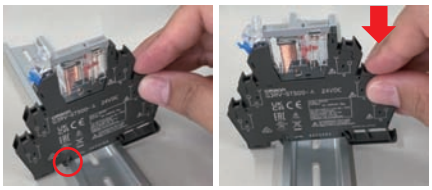


Model	Manufacturer
ESD 0,40×2,5	Wera
SZS 0,4×2,5 SZF 0-0,4×2,5 ✻	Phoenix Contact
0.4×2.5×75 302	Wiha
AEF.2,5×75	Facom
210-719	Wago
SDI 0.4×2.5×75	Weidmuller

✻ OMRON's exclusive purchase model XW4Z-00B is available to order as SZF 0-0,4×2,5 (manufactured by Phoenix Contact).

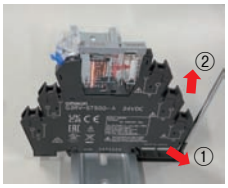
Mounting Method

To mount the product to a DIN rail, hook one side of the socket and then press the socket onto the DIN rail.



Removal Method

To remove the product from the DIN rail, catch the tip of a screwdriver in the hook and then move the screwdriver so that the tip moves in the directions indicated by the arrows.



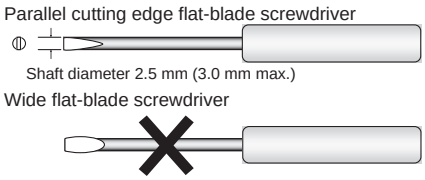
<G2RV>

Operating latching lever (test switch)

When operating the latching lever for G2RV-ST701/501 series, use a 2.5 mm width flat-blade screwdriver.

- **Applicable flat-blade screwdriver**

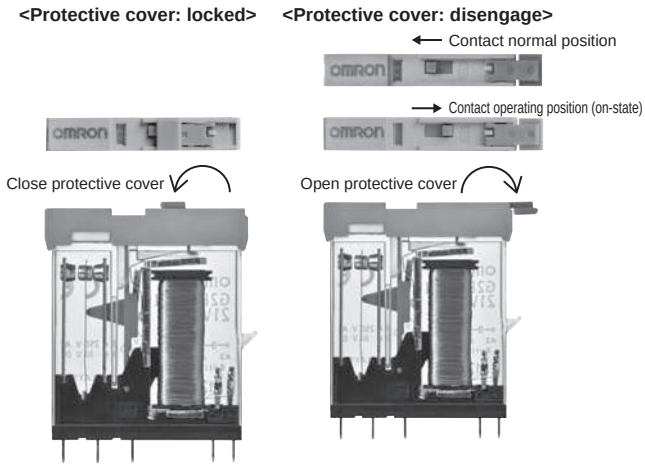
Flat-blade screwdriver with parallel cutting edge: shaft diameter 2.5 mm (3.0 mm max.)



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)



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

Input ratings

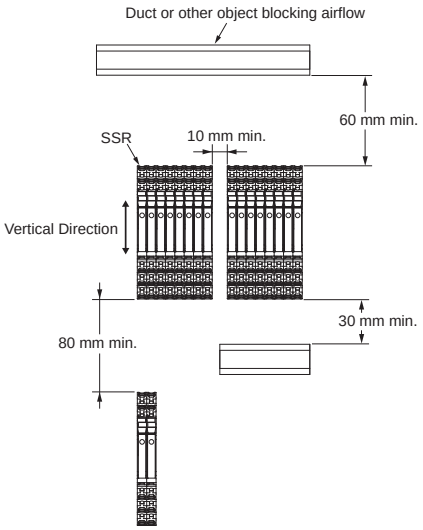
Smoothing capacitors are used in the internal circuits of AC/DC-type G2RV-ST devices. AC/DC-type G2RV-ST devices driven by the sensor may not operate normally due to the characteristics of the smoothing capacitor. When driving such devices by the sensor, use the DC specification settings.

<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 0.36 to 0.46 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.

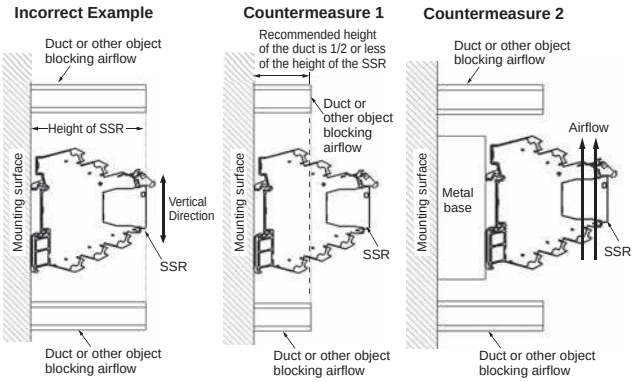
Mounting

<The SSR Mounting Pitch (Panel Mounting)>



✻ When over eight are installed, install with 10 mm space between each.
✻ Please ask distributor or sales when need assistance in detail of mounting pitch.

<Relationship of SSR and duct (duct depth)>

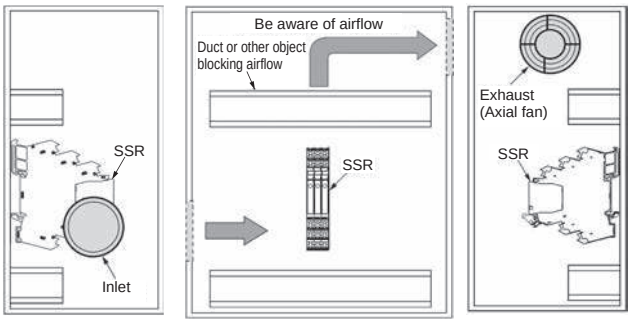


Do not enclose the SSR in a duct of the same height. It will interfere with the heat dissipation of SSR.

Use ducts that have a shallow depth, to provide a sufficient ventilation area.

If the ducts cannot be made lower, place the SSR on a metal base so that it is not surrounded by the ducts.

<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-ST/G3RV-ST
Common Accessories (order separately)

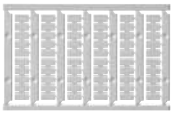
Ordering Information

Short Bars

Appearance	Pitch	No. of poles	Colors	Model ✻1	Minimum order (Quantity)	Maximum energizing current
	6.2 mm	20	Red (R), Blue (S), Yellow (Y)	**PYDN-6.2ST-200□**	10	32 A

Note: Use for wiring to the adjacent socket.
✻1. 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) (Pieces per sheet)
	**XW5Z-P2.5LB1**	5 (1 sheet/72 pieces)

Separate Plate

Appearance	Model
	**XW5Z-EP12**

Isolation plate

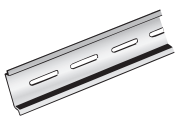
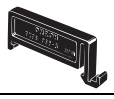
Appearance	Model
	**P2RV-P3.1ST**

PLC interface unit

Appearance	I/O classification	Connection method	Common process	Applicable Models ✻1	Model
	For input	Push-In	PNP	G2RV-ST500-AP ✻2	**P2RVC-8ST-I-5-1**
			NPN		**P2RVC-8ST-I-5**
		Screw	PNP	G2RV-ST700-AP ✻2	**P2RVC-8ST-I-7-1**
	For output	Push-In	PNP	G3RV-ST500(-D)/(-D-H)/(-A)/(-AL) or G2RV-ST500 series ✻3	**P2RVC-8ST-O-5-1**
			NPN		**P2RVC-8ST-O-5**
		Screw	PNP	G3RV-ST700(-D)/(-D-H)/(-A)/(-AL) or G2RV-ST700 series ✻3	**P2RVC-8ST-O-7-1**

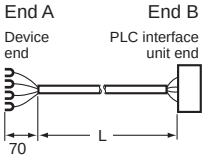
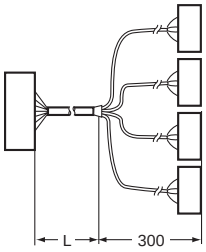
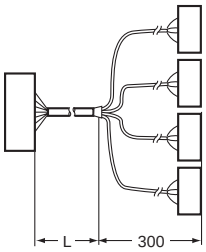
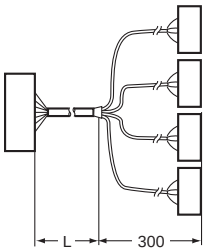
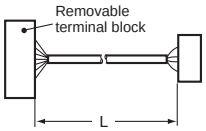
✻1. Please make sure applicable models, P2RVC can not be used other combination than the above table.
✻2. The maximum contact voltage is 30 VAC/DC.
✻3. Operating coils are only available in 12 and 24 VDC and 24 VAC/DC.

Parts for DIN Track Mounting

Appearance	Type		Model	Minimum order (Quantity)
	DIN Tracks	1 m	**PFP-100N**	1
		0.5 m	**PFP-50N**	
	End Plate ✻		**PFP-M**	10
	Spacer		**PFP-S**	

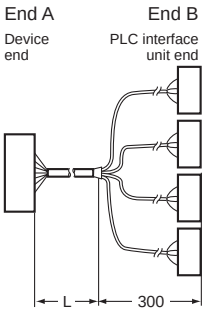
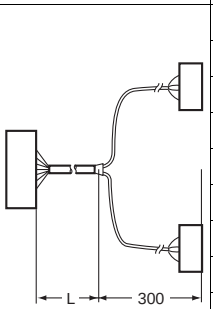
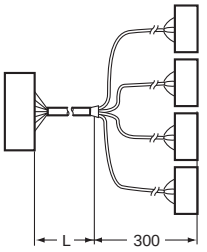
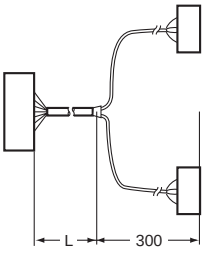
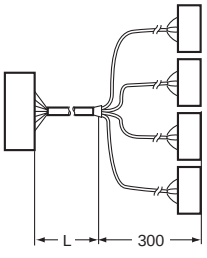
✻ When mounting DIN Track, please use End Plate (PFP-M).
Refer to your OMRON website for details on PFP-□.

Applicable Cables

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

***1.** Use the P2RVC-8ST-I-□-1(PNP) as the PLC interface unit when connecting to the CJ1W-ID232/ID262 (or a unit with an equivalent terminal arrangement).

***2.** Use the P2RVC-8ST-I-□-1(PNP) as the PLC interface unit when connecting to the CJ1W-ID231/ID261 (or a unit with an equivalent terminal arrangement).

Name		Appearance	Cable length L (mm)	Connecting Cables	Applicable Connectors
Schneider Electric PLC Connecting Cables P2RV-□C-SCH-□	32 input points / 32 output points		500	**P2RV-050C-SCH-A**	Schneider Electric PLCs with 32-point connectors (1:4) For inputs: 140 DDI 353 00 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**	
			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 / 16 output points		500	**P2RV-050C-SCH-C**	Schneider Electric PLCs with 16-point connectors (1:2) For inputs: BMX DDI 1602 For outputs: BMX DDO 1602
			1,000	**P2RV-100C-SCH-C**	
			2,000	**P2RV-200C-SCH-C**	
			3,000	**P2RV-300C-SCH-C**	
			5,000	**P2RV-500C-SCH-C**	
			500	**P2RV-050C-SCH-D**	
			1,000	**P2RV-100C-SCH-D**	
			2,000	**P2RV-200C-SCH-D**	
			3,000	**P2RV-300C-SCH-D**	
			5,000	**P2RV-500C-SCH-D**	
Siemens PLC Connecting Cables P2RV-□C-SIM-□	32 input points / 32 output points		500	**P2RV-050C-SIM-A**	Siemens PLCs with 32-point connectors (1:4) For inputs: 6ES7 321-1BL00-0AA0 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**	
			500	**P2RV-050C-SIM-B**	
			1,000	**P2RV-100C-SIM-B**	
			2,000	**P2RV-200C-SIM-B**	
			3,000	**P2RV-300C-SIM-B**	
			5,000	**P2RV-500C-SIM-B**	
	16 input points		500	**P2RV-050C-SIM-C**	Siemens PLCs with 16-point connectors (1:2) For inputs: 6ES7 321-1BH02-0AA0
			1,000	**P2RV-100C-SIM-C**	
			2,000	**P2RV-200C-SIM-C**	
			3,000	**P2RV-300C-SIM-C**	
			5,000	**P2RV-500C-SIM-C**	
	32 input points / 32 output points		500	**P2RV-050C-SIM-D**	Siemens PLCs with 32-point connectors (1:4) For inputs: 6ES7 421-1BL-0AA0 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**	
			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**	

PLC interface unit

Ratings / characteristices

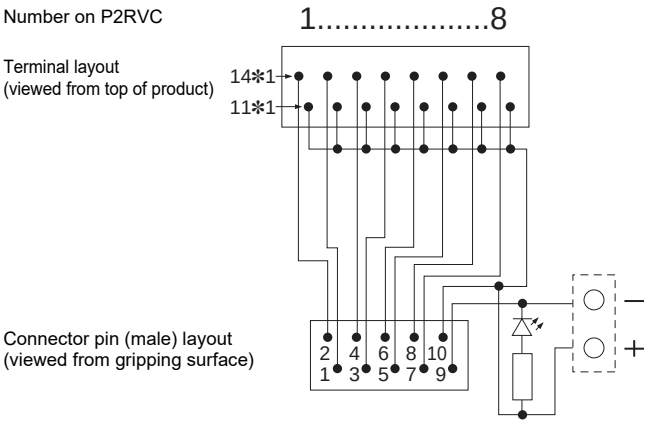
Rated insulation voltage		30 VAC/DC ✻
Rated current		0.5 A/poles, 2 A/unit
Ambient operating temperature		–40 to 55°C
Vibration resistance	**Destruction**	10 to 55 to 10 Hz, single amplitude 0.50 mm (double amplitude 1.0 mm)
	Malfunction	10 to 55 to 10 Hz, single amplitude 0.50 mm (double amplitude 1.0 mm)
Shock resistance	**Destruction**	300 m/s^2
	Malfunction	100 m/s^2

✻ DC voltage is limited to 30 V.

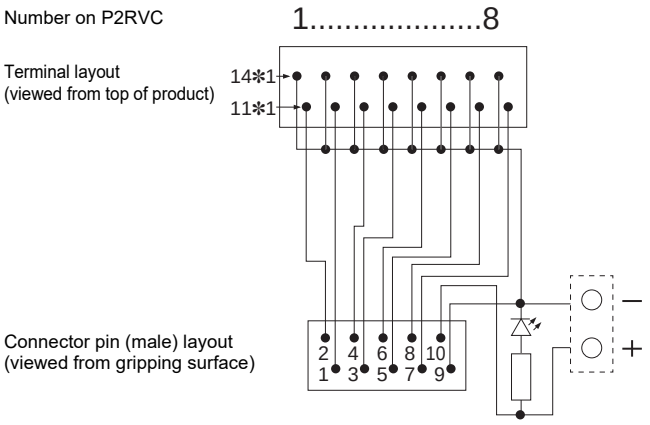
Electrical schematic

Input

P2RVC-8ST-I-□-1 (PNP)



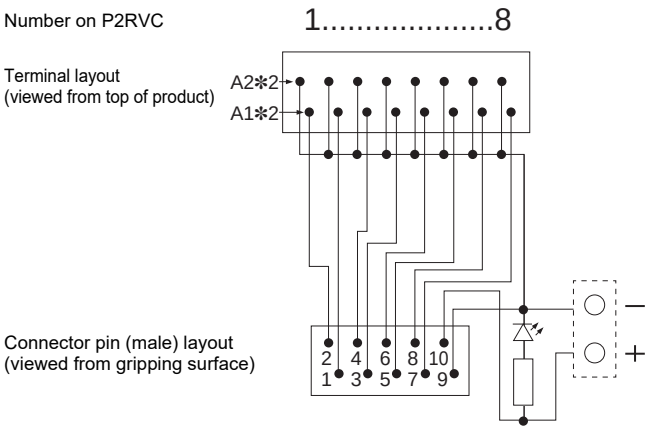
P2RVC-8ST-I-5 (NPN)



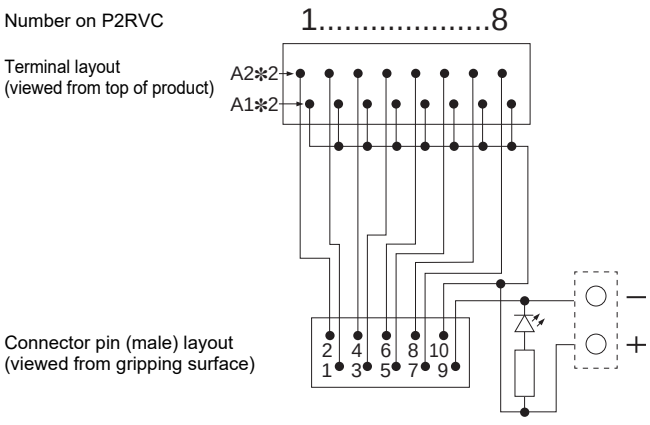
✻**1.**Terminal numbers on G2RV-ST

Output

P2RVC-8ST-O-□-1 (PNP)



P2RVC-8ST-O-5 (NPN)



✻**2.**Terminal numbers on G2RV-ST/G3RV-ST

Dimensions

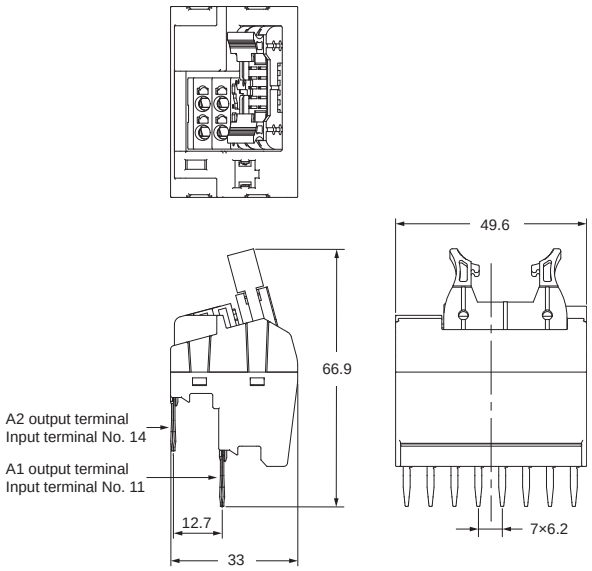
(unit: mm)

PLC interface unit

Push-IN

P2RVC-8ST-I-5(-1)
P2RVC-8ST-O-5(-1)

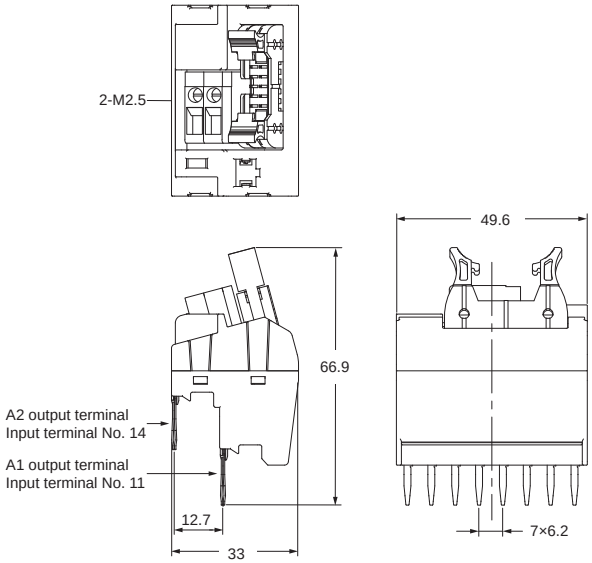




Screw

P2RVC-8ST-I-7-1
P2RVC-8ST-O-7-1



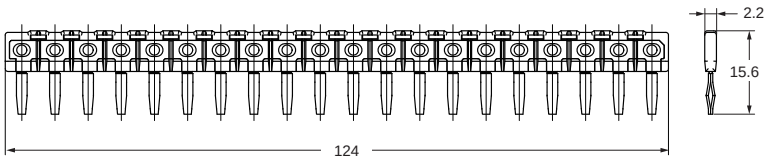


(Except for PLC interface unit)
Common Accessories (order separately)

Dimensions

(unit: mm)

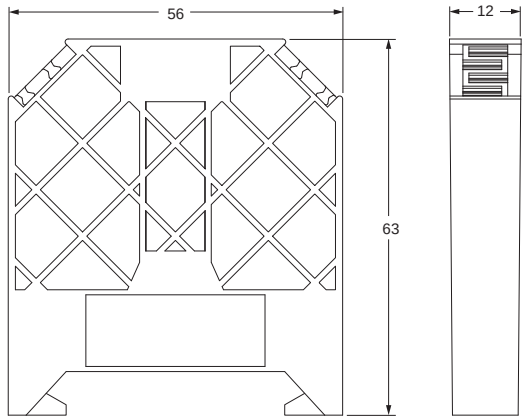
Short Bars
PYDN-6.2ST-200□



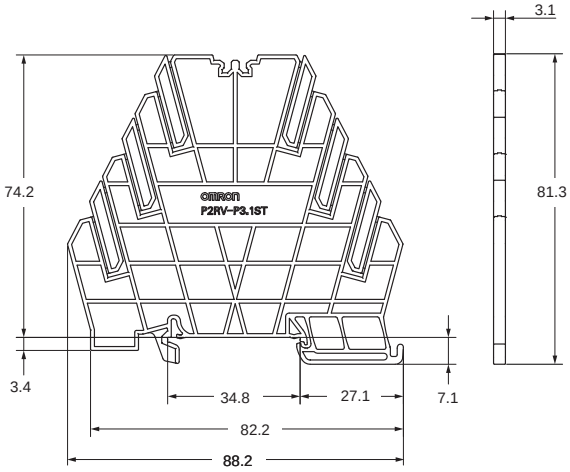
Pitch	No. of poles	L (Length)	Colors	Model ✻	Maximum carry current
6.2 mm	20	124	Red (R) Blue (S) Yellow (Y)	**PYDN-6.2ST-200□**	32 A

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.

Separate Plate
XW5Z-EP12



Isolation plate
P2RV-P3.1ST



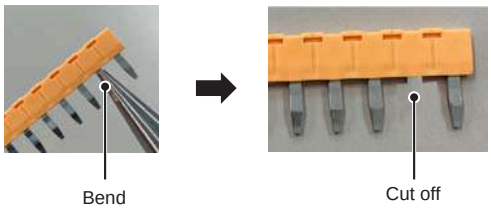
Parts for DIN Track Mounting
Refer to your OMRON website for details on the PFP-□.

Safety Precautions

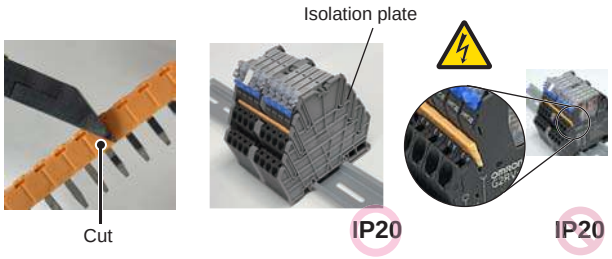
Precautions for Correct Use

When mounting a short bar

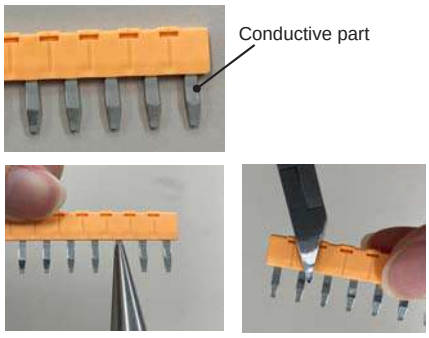
- Intermediate pins can be bent by a tool and cut off for use.



- 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, since the metal on the cut surface will be exposed, human safety and insulation countermeasures between adjacent products must be ensured.
  Such countermeasures include using insulating plate model P2RV-P3.1-ST or taking an equivalent insulation countermeasure.



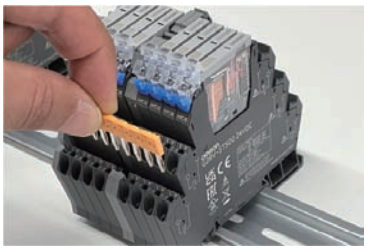
- When cutting the short bar or its pins, do not touch the conductive part. If the conductive part is deformed, contact failure may result.
- When cutting the product, check that there is no person nearby and take care that a cut off piece does not fly off.



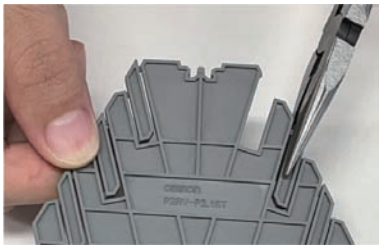
Using an isolation plate and short bar together

- Using two isolation plates makes it possible to configure the same 6.2 mm pitch used by slim relays and short bars.
- When using a short bar with two isolation plates, cutting the joining parts of the isolation plate make it possible to use the short bar without cutting the conductive part.
- The joining parts of the isolation plate can be easily cut using needle-nose pliers.
- Cut the joining parts for a single isolation plate at a time.

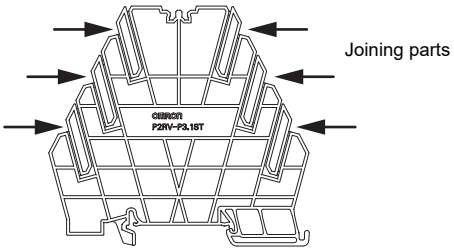
Connecting two isolation plates with a short bar



Isolation plate



- After mounting to a DIN rail, check that the product is correctly held in place.



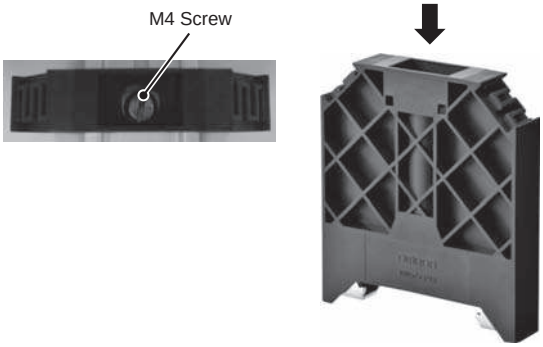
Removing the PLC interface

- To remove the PLC interface, place a finger at the location indicated below and pull out the interface.



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.



MEMO

Terms and Conditions Agreement

Read and understand this catalog.

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

Warranties.

(a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.

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