OMRON

Slim I/O Relays G2RV-SR/G3RV-SR

Global standard size, low profile slim (6.2 mm width) I/O relays

- 25% lower profile than conventional products, contributing to a smaller control panel.
- Push-In Plus terminal blocks reduce wiring work by 60%* compared to conventional screw terminals.
- 'Hand-free' structure that holds an inserted flat-blade screwdriver to achieve easier wiring work for stranded wires.
- Electromechanical relays (G2RV-SR) and solid state relays (G3RV-SR) are available.
- Screw terminal terminal block models are available.
- Plug-in terminal has strong mechanical pins that do not bend.
- * According to OMRON actual measurement data from November 2015.





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.

Slim I/O Relay Types

G2RV-SR seriesmounted relay: electromagnetic relay from page 2G3RV-SR seriesmounted relay: solid state relay from page 10

Common matter

Common precautions from page 20 Common accessories (order separately)..... page 24 G2RV-SR

G3RV-SR

1

OMRON

Slim Electromechanical I/O Relay

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

- 25% lower profile than conventional products, contributing to a smaller control panel.
- Opening and closing ability with one pole 6 A slim shape.
- Micro load products for one pole 50 mA using gold-plated contacts for small load switching also available.
- · Since G2RV has a transparent case, confirming the state of the contact with the naked eye is possible.
- Screw terminal terminal block models are available.
- Plug-in type terminal has strong mechanical pins that do not bend.



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



G3RV-SR

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 lever1: With latching lever

(5) Contact structure Blank: Standard AP: Microloads

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

Ordering Information

Terminal (Wire connection)	Classification	Latching lever (Test switch)	Rated input v	oltage (V)	Model
			D0	12	G2RV-SR500 DC12
			DC	24	G2RV-SR500 DC24
				24	G2RV-SR500 AC/DC24
		No	AC/DC	48	G2RV-SR500 AC/DC48
	Ctandard	INO		100	G2RV-SR500 AC100
	Standard		10	110	G2RV-SR500 AC110
			AC	200	G2RV-SR500 AC200
				230	G2RV-SR500 AC230
Push-In Plus		Vac	DC	24	G2RV-SR501 DC24
Terminal		Tes	AC/DC	24	G2RV-SR501 AC/DC24
				12	G2RV-SR500-AP DC12
			DC	24	G2RV-SR500-AP DC24
			40/00	24	G2RV-SR500-AP AC/DC24
	Microloads	No	AC/DC	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
			DC	12	G2RV-SR700 DC12
				24	G2RV-SR700 DC24
			AC/DC	24	G2RV-SR700 AC/DC24
		No		48	G2RV-SR700 AC/DC48
	Standard	NO		100	G2RV-SR700 AC100
	Standard		10	110	G2RV-SR700 AC110
			AC	200	G2RV-SR700 AC200
				230	G2RV-SR700 AC230
Screw terminal		Yes	DC	24	G2RV-SR701 DC24
		100	AC/DC	24	G2RV-SR701 AC/DC24
			DC	12	G2RV-SR700-AP DC12
			50	24	G2RV-SR700-AP DC24
				24	G2RV-SR700-AP AC/DC24
	Microloada	No	AU/DU	48	G2RV-SR700-AP AC/DC48
	WICTODAUS			100	G2RV-SR700-AP AC100
			10	110	G2RV-SR700-AP AC110
			AU	200	G2RV-SR700-AP AC200
				230	G2RV-SR700-AP AC230

Note: Solid wire cannot be used for Push-In Plus terminal type. Make sure to use stranded wire or stranded wire with ferrules.

Relay for Maintenance

Model Number Legend

G2RV-<u>1</u> - <u>S</u> - <u>G</u> - <u>G</u> $\overline{(1)} \quad \overline{(2)} \overline{(3)} \quad \overline{(4)} \quad \overline{(5)} \quad \overline{(6)}$ (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

List of Models

(4) Contact material Blank: Silver alloy AP: Silver alloy + gold plate

(5) Types of relay for exchange G: G2RV-SR series equipped Relay

(6) Rated coil voltage Number: 11, 21, 48 VDC



G2RV-1-S-G(-AP)





Туре	Latching Lever (Test switch)	Rated coil voltage (V)		Model	Applicable model
			11	G2RV-1-S-G DC11	G2RV-SR700/500 DC12V
			01		G2RV-SR700/500 DC24V
			21	G2NV-1-3-G DC21	G2RV-SR700/500 AC/DC24V
	No	DC			G2RV-SR700/500 AC/DC48V
Ctondord	INO	DC			G2RV-SR700/500 AC100V
Standard			48 G2RV	G2RV-1-S-G DC48	G2RV-SR700/500 AC110V
					G2RV-SR700/500 AC200V
					G2RV-SR700/500 AC230V
1	Vee		01		G2RV-SR701/501 DC24V
	Tes	DC	21	G2NV-1-31-G DC21	G2RV-SR701/501 AC/DC24V
			11	G2RV-1-S-AP-G DC11	G2RV-SR700/500-AP DC12V
			01		G2RV-SR700/500-AP DC24V
			21	GZRV-1-S-AF-G DC21	G2RV-SR700/500-AP AC/DC24V
Miaralaad	No	DC			G2RV-SR700/500-AP AC/DC48V
Microload	INO	DC	48		G2RV-SR700/500-AP AC100V
				G2RV-1-S-AP-G DC48	G2RV-SR700/500-AP AC110V
					G2RV-SR700/500-AP AC200V
					G2RV-SR700/500-AP AC230V

Specifications

Ratings

Coil ratings

Rated input	Rated current		Operation voltage	Release voltage	Power consumption		Maximum allowable voltage	
voltage	AC		DC	Percentage of t	he rated voltage		DC (mW)	Percentage of the
	50 Hz	60 Hz		i creentage of t	A0 (VA)	50 (mw)	rated voltage	
12 VDC	-	-	27.2 mA			-	Approx. 300 mW	
24 VDC	-	-	13.3 mA			-	Approx. 300 mW	1100/
24 VAC/VDC	21.1 mA	22.5 mA	13.0 mA			Approx. 0.5 VA	Approx. 300 mW	
48 VAC/VDC	8.5 mA	9.0 mA	5.2 mA	90% mov *	109/ min	Approx. 0.4 VA	Approx. 250 mW	
100 VAC	7.1 mA	7.5 mA	-	80% max.	10% mm.	Approx. 0.8 VA	-	110%
110 VAC	7.1 mA	7.5 mA	-			Approx. 0.8 VA	-	
200 VAC	7.2 mA	7.9 mA	-			Approx. 1.7 VA	-	
230 VAC	7.3 mA	7.9 mA	-]		Approx. 1.7 VA	_	

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

* Operating voltage will be 85% max. for upside down mounting.

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)F		Resistive load (cosφ=1)	
Rated load	6 A at 250 VAC 2.5 A at 250 VAC 6 A at 30 VDC 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 500 VA 180 W 60 W		-	
Failure rate P value (reference value) *1	10 mA at 5 VDC		1 mA at 100 mVDC	

Characteristics

	-						
Maximum switching	g power	1,500 VA 180 W	500 VA 60 W	-	C o		
Failure rate P value (reference value) *1	• 	10 mA at 5 VDC		1 mA at 100 mVDC	mm		
 *1. P level: λ₆₀=0.1×² This value is the value is the value is the yable. 	10 ⁻⁶ /times value in switchi layer is destro	ng frequency 120 operation yed, the number will be the	ns/min. same as the standard type).	on P		
Characteristi	ics				rec		
Item		Standard (G2RV-S	R700, 500, 701, 501)	For microloads (G2RV-SR700-AP, 500-AP)	au		
Contact resistance	*	100 mΩ max.			tic		
Operate (Set) time	*	20 ms max.			ň		
Release time *	Release time * AC, AC/DC: 40 ms max. DC: 20 ms max. DC: 20 ms max.						
Maximum operating frequency Mechanical: 18,000 operations/h Electrical: 1,800 operations/h (rated load)							
Insulation resistant	sulation resistance 1,000 MΩ min. (at 500 VDC)				<u> </u> 2		
Dielectric strength		Between coil and contact Contact between the sam	s: 4,000VAC 50/60 Hz 1 mi e polarity: 1,000 VAC 50/60	n 0 Hz 1 min	mn		
Vibration resistanc	e	Destruction: 10 to 55 to 1 Malfunction: 10 to 55 to 1	0 Hz, single amplitude 0.50 0 Hz, single amplitude 0.50) mm (double amplitude 1.0 mm)) mm (double amplitude 1.0 mm)	non		
Shock resistance		Destruction: 1,000 m/s ² Malfunction: Energized 200m/s ² , Non-energized 100m/s ²					
	Mechanical	5,000,000 operations min			- Ce		
Endurance * Electrical		NO contact: 70,000 opera NC contact: 50,000 opera	ations min. ations min.	5,000,000 operations min.)SSC		
Ambient operating	temperature	Operating: -40 to +55°C	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			Ag alloy + Au plating	_			

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

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Approved standards

UL508 (file No.E41643)

Model	No. of poles	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).



VDE (EN 61810-1)

]	Model	No. of poles 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).



Engineering Data

Endurance curve (N.O. side)



Switching capacity of DC resistive load



Common Precautions

(unit: mm)

G2RV-SR



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



6.2 max.

(12)

(14) (11)

(5.05)

18.78

35.25 51.72

59.71

Common Precautions

G3RV-SR

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: Diode bridge





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2.4

3

5.04

22

3.5

0.5

5.04

1.8

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Slim I/O Solid State Relay

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

- 25% lower profile than conventional products, contributing to a smaller control panel.
- Optimal slim, high frequency, high-speed opening and closing SSR (solid state relay).
- Slim shape with a switching capacity up to 3 A (DC), and 2 A (AC).
- Because MOSFET is used for the outlet element for the DC load, opening and closing load of 100 µA to 3 A is possible.
- Check operating status at a glance with the operating display LED.
- Mounted I/O SSR (solid-state relay) uses plug-in terminals with strong mechanical pins that do not bend.



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.



G2RV-SR

G3RV-SF

10

Model Number Structure

Model Number Legend

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

(1) Basic model name

G3RV: Slim I/O Solid State Relay

(2) Sub type

SR: Slim solid relay + integrated low profile socket

(3) Terminal (wire connection) 500: Push-In Plus Terminal

700: Screw terminal

(4) Output voltage specification

- A : AC output (triac) zero cross function available AL : AC output (triac) zero cross function not available
- D : DC output (MOS FET)

(5) Rated voltage input

12, 24 VDC 24, 48 VAC/VDC 100, 110, 200, 230 VAC

Ordering Information

	Terminal (wire connection)	Applicable output load	Zero cross function	Rated input (V)	voltage	Model
ດູ					12	G3RV-SR500-D DC12
2RV-SR				DC	24	G3RV-SR500-D DC24
					24	G3RV-SR500-D AC/DC24
		DC load		AC/DC	48	G3RV-SR500-D AC/DC48
		DC load	_		100	G3RV-SR500-D AC100
				10	110	G3RV-SR500-D AC110
				AC	200	G3RV-SR500-D AC200
					230	G3RV-SR500-D AC230
	-			50	12	G3RV-SR500-A DC12
				DC	24	G3RV-SR500-A DC24
				10/20	24	G3RV-SR500-A AC/DC24
				AC/DC	48	G3RV-SR500-A AC/DC48
	Push-In Plus Terminal		Yes		100	G3RV-SR500-A AC100
\mathbf{a}					110	G3RV-SR500-A AC110
33				AC	200	G3RV-SR500-A AC200
R					230	G3RV-SR500-A AC230
		AC load			12	G3RV-SR500-AL DC12
Ĥ				DC	24	G3RV-SR500-AL DC24
			No	AC/DC	24	G3RV-SR500-AL AC/DC24
					48	G3RV-SR500-AL AC/DC48
				AC	100	G3RV-SR500-AL AC100
					110	G3RV-SR500-AL AC110
					200	G3RV-SR500-AL AC200
					230	G3RV-SR500-AL AC230
0		DC load	_	DC AC/DC	12	G3RV-SB700-D DC12
n l					24	G3BV-SB700-D DC24
n					24	G3BV-SB700-D AC/DC24
0					48	G3BV-SB700-D AC/DC48
				AC	100	G3BV-SB700-D AC100
P					110	G3BV-SB700-D AC110
ec					200	G3BV-SB700-D AC200
ä					230	G3BV-SB700-D AC230
Ŧ	-				12	G3BV-SB700-A DC12
9				DC	24	G3BV-SB700-A DC24
ร					24	G3BV-SB700-A AC/DC24
				AC/DC	24 18	
	Screw terminal		Yes		100	G3BV-SB700-4 AC100
0					110	G3RV-SR700-A AC110
ŏ				AC	200	G3RV-SR700-A AC200
B					200	C2PV_SP700_A AC220
B		AC load			10	C2PV-SP700-AL DC12
n				DC	24	
Þ					24	
õ				AC/DC	24 40	
ĕ			No		40	
SS					110	G3HV-SH/UU-AL AC100
Q				AC	110	G3HV-5H/UU-AL AC110
ie					200	G3RV-SR/00-AL AC200
ŭ	ň				230	G3RV-SR700-AL AC230

Note: Solid wire cannot be used for Push-In Plus terminal type. Make sure to use stranded wire or stranded wire with ferrules.

12

Model Number Legend

G3RV- 🗆 🗆 S 🗆	
$\overline{(1)}$ $\overline{(2)}$ $\overline{(3)}$ $\overline{(4)}$	(5)

(1) Output voltage specification D: DC output 2: AC output

(2) Rated current

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

List of Models

(3) Terminal S: Plug-in type

(4) Zero cross functions Blank: Zero cross function available L: Zero cross function not available

(5) Rated input voltage Number: 12, 24, 48 VDC



Insulation method	Operation Display	Output (SSR)	Zero cross Function	Rated output Load *	Rated input voltage (socket)	Model	Applicable model
					12 VDC	G3RV-202S DC12	G3RV-SR700/500-A DC12V
					24 VDC		G3RV-SR700/500-A DC24V
					24 VAC/VDC	G3HV-2023 DC24	G3RV-SR700/500-A AC/DC24V
			Vaa		48 VAC/VDC		G3RV-SR700/500-A AC/DC48V
			res		100 VAC		G3RV-SR700/500-A AC100V
					110 VAC	G3RV-202S DC48	G3RV-SR700/500-A AC110V
				2.4	200 VAC		G3RV-SR700/500-A AC200V
Photo-		10		2 A (at 100 to	230 VAC		G3RV-SR700/500-A AC230V
triac		AC	No	240 VAC)	12 VDC	G3RV-202SL DC12	G3RV-SR700/500-AL DC12V
					24 VDC	G3RV-202SL DC24	G3RV-SR700/500-AL DC24V
	Yes (green)				24 VAC/VDC		G3RV-SR700/500-AL AC/DC24V
					48 VAC/VDC	G3RV-202SL DC48	G3RV-SR700/500-AL AC/DC48V
					100 VAC		G3RV-SR700/500-AL AC100V
					110 VAC		G3RV-SR700/500-AL AC110V
					200 VAC		G3RV-SR700/500-AL AC200V
					230 VAC		G3RV-SR700/500-AL AC230V
					12 VDC	G3RV-D03SL DC12	G3RV-SR700/500-D DC12V
					24 VDC		G3RV-SR700/500-D DC24V
					24 VAC/VDC	G3NV-D035L DC24	G3RV-SR700/500-D AC/DC24V
Photo-		DC		3 A	48 VAC/VDC		G3RV-SR700/500-D AC/DC48V
coupler		DC	-	(at 5 to 24 VDC)	100 VAC		G3RV-SR700/500-D AC100V
					110 VAC	G3RV-D03SL DC48	G3RV-SR700/500-D AC110V
					200 VAC		G3RV-SR700/500-D AC200V
					230 VAC		G3RV-SR700/500-D AC230V

* Different depending on the ambient temperature.

For more details, refer to Load current vs. ambient rated temperature on page 16.

Specifications

Rating (ambient temperature 25°C)

G2RV-SR

Input G3RV-SR700/500-A series

	Rated current					Input voltage
Rated input voltage	AC		DC	Operation voltage	voltage	Percentage of the
	50 Hz	60 Hz				rated voltage
12 VDC	-	-	15 mA	10.8 V max.		
24 VDC	-	-	12 mA	21.6 V max.	- - - 1 V min. <u>+</u> -	. 10%
24 VAC/VDC	20 mA	21 mA	11 mA	21.6 V max.		
48 VAC/VDC	10 mA	11 mA	6 mA	43.2 V max.		
100 VAC	7.5 mA	7.5 mA	-	90 V max.		±10%
110 VAC	7.5 mA	7.7 mA	-	99 V max.		
200 VAC	7.3 mA	8.6 mA	-	180 V max.		
230 VAC	7.3 mA	8.6 mA	-	207 V max.		

G3RV-SR700/500-AL series

	Rated current			a		Input voltage
Rated input voltage	AC		DC	voltage	voltage	Percentage of the
go	50 Hz	60 Hz	DC		Ū	rated voltage
12 VDC	-	-	15 mA	10.8 V max.		
24 VDC	-	-	12 mA	21.6 V max.		
24 VAC/VDC	20 mA	21 mA	11 mA	21.6 V max.		
48 VAC/VDC	10 mA	11 mA	6 mA	43.2 V max.	1 V min	+10%
100 VAC	7.5 mA	7.7 mA	-	90 V max.	1 V 11111.	10 /8
110 VAC	7.5 mA	7.7 mA	-	99 V max.		
200 VAC	7.3 mA	8.6 mA	-	180 V max.		
230 VAC	7.3 mA	8.6 mA	_	207 V max.		

G3RV-SR700/500-D series

Detection	Rated current					Input voltage
voltage	AC		DC	voltage	voltage	Percentage of the
0	50 Hz	60 Hz	50		U	rated voltage
12 VDC	-	-	8 mA	10.8 V max.		
24 VDC	-	-	4.5 mA	21.6 V max.		
24 VAC/VDC	10.7 mA	11.1 mA	4.3 mA	21.6 V max.		
48 VAC/VDC	9.6 mA	10.2 mA	6 mA	43.2 V max.	1 V min	+10%
100 VAC	6.8 mA	7.2 mA	-	90 V max.	I V IIIII.	10%
110 VAC	6.8 mA	7.2 mA	-	99 V max.		
200 VAC	6.8 mA	8.1 mA	-	180 V max.		
230 VAC	6.8 mA	8.1 mA	-	207 V max.		

Output

Item	G3RV-SR700/500-A(L)	G3RV-SR700/500-D
Rated load voltage	100 to 240 VAC (50/60 Hz)	5 to 24 VDC
Load voltage range	75 to 264 VAC (50/60 Hz)	3 to 26.4 VDC
Load current	0.1 to 2 A (Ambient temperature=25°C)	100 µA to 3 A (Ambient temperature=25°C)
Inrush current resistance	30 A (60 Hz, 1 cycle)	30 A (60 Hz, 1 cycle)
Permissible I ² t; Joule integral value (reference value)	15A²s	9 A² s
Applied load capacity	400 W (Output voltage: 200 VAC)	72 W (Output voltage: 24 VDC)

G3RV-SR

Characteristics

Item	G3RV-SR700/500-A	G3RV-SR700/500-AL	G3RV-SR700/500-D		
Operate time	1/2 cycle of load power supply +1 ms max.	3 ms max.	6 ms max.		
Release time	60 ms max.	60 ms max.	60 ms max.		
Output ON voltage drop	1.6 V (RMS) max.		-		
Output ON resistance	_	– 0.3 Ω max. (at			
Leakage 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 V/	AC 50/60 Hz 1 min			
Vibration resistance	Malfunction: 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. 38 g				
Pollution degree	2				
The degree of protection by IEC60529	IP20				
Rated impulse dielectric strength	4.0 kV/III				
Load category	LC-A		DC-12		
Overload current profile	1.5le 1.1Ue 5s ON, 10s OFF, 10 cycles				
Rated insulation voltage	240 V				

Approved standards

UL 508 (file No.E64562)

Model	Input ratings	Contact ratings
G3RV-SR700/500-D series	12, 24 VDC 24, 48 VAC/VDC 100, 110, 200, 230 VAC	24 VDC 3 A (resistive load) at 25°C
G3RV-SR700/500-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 62314

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

Product mounting spacing 10 mm (Separate Mounting)



G3RV-SR700/500-D series

Product mounting spacing 10 mm (Separate Mounting)











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

Inrush Current Resistance: Non-repetitive

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

G3RV-SR700/500-A(L) series



G3RV-SR700/500-D series



G2RV-SR

(unit: mm)

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

Dimensions

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Other voltage



17

Screw terminal G3RV-SR700

18



78 max.

Terminal Arrangement/ Internal Connection Diagram (TOP VIEW)

12 VDC



Solid state relay for maintenance

G3RV-D03SL G3RV-202S(L)





G3RV-202S(L) (input circuit)



Safety Precautions

Be sure to read the Safety Precautions for All Relays in the website at the following URL: www.omron247.com.

Format of Warning Indications

G2RV-S

WARNIN	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.			
	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or in property damage.			
Precaution for Safe Us	 Indicates supplementary comments on what to do or avoid doing, to use the product safety. 			
Precaution 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 Safe				
	Indicates the people lity of electric sheet, under			

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ndicates the possibility of electric shock under pecific conditions. Ised for general CAUTION, WARNING, or

DANGER precautions for which there is no specified symbol. (This symbol is also used as he alerting symbol, but shall not be used in this neaning on the product.)

Indicates the possibility of explosion or rupture under specific conditions.

Indicates the possibility of injuries by high temperature under specific conditions.

WARNING /!\

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



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

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



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



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

Shock may result due to the electrical charge stored

in the built-in snubber circuit. Note: G3RV-202S(L), G3RV-SR500/700-A(L) series models only

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

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



Precautions for Safe Use

Transport

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

Operating and Storage Environments

- · Do not use or store the product in the following locations. Doing so may result in damage, malfunction, or deterioration of performance characteristics.
 - · Do not store in locations subject to ambient storage temperatures outside the range -40 to 70°C (for G2RV) and outside the range -30 to 100°C (for G3RV).
 - · Locations subject to relative humidity outside the range 5% to 85% (for G2RV) and outside the range 45% to 85% (for G3RV).
 - · Locations subject to high temperature or high humidity.
 - Conditions such as temperature change that causes rapid condensation
 - · Locations where corrosive gases or flammable gases are present
 - Location where rainwater or water droplets gets splashed
 - Location with splashes of water, oil, and chemicals, etc.
 - Locations with much dust, salt, and iron powder
 - Location with blockers
 - Where static electricity or noise occurs
 - · Where strong electromagnetic field is generated
 - · Where there is a risk of exposure to radioactivity
- · Do not use or store Sockets in environments that contain silicone gas, sulfidizing gas (e.g., SO2 or H2S), 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.

20

Common Accessories

Common Precautions

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 with a 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.

Usage

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

<G3RV>

- Install G3RV according to instructions *Mounting* on page 23. If you install in the wrong direction, abnormal heat is generated, and may lead to short-circuiting or burning the output element.
- G3RV is an SSR that generates heat. Please observe the ambient temperature setting range of G3RV. If installing in an enclosed space, set a fan, and ventilate.
- When mounting G3RV to DIN rail, firmly fit it 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, use the wiring materials given in the following table.

	Stripping length		
Recommended Wire	Ferrules When using terminal	Ferrules When not using terminal	
0.5 to 1.5 mm ² /AWG20 to AWG16	10 mm	8 mm	

Note: Use Ferrules with UL certification (R/C).

Disposal

• Do not dispose of the product by burning.

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
 - Do not use the product where the socket could touch a solvent or alkaline agent.
- 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.

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

Insert the ferrule straight into the terminal block until the end strikes the terminal block.



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 respond.

- (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 insertion, pull gently on the wire to make sure that it will not come out (i.e., to confirm that it is held by the terminal block).
- To prevent short circuits, insert the stripped part of a stranded wire or the conductive part of a ferrule until it is hidden inside the terminal insertion hole. (See following diagram.)



G3RV-SF

G3RV-SR

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 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 tools Recommended Ferrules

Applicable wire		Ferrules	Recommended ferrules		
(mm²)	(AWG)	length (mm)	Phoenix Contact product	Weidmuller product	Wago product
0.5	20	8	AI0.5-8	H0.5/14	FE-0.5-8N-WH
0.75	18	8	Al0.75-8	H0.75/14	FE-0.75-8N-GY
1	18	8	Al1-8	H1.0/14	FE-1.0-8N-RD
1.5	16	8	AI1.5-8	H1.5/14	FE-1.5-8N-BK
Recommended crimp tool		CRIMPFOX6 CRIMPFOX6T-F CRIMPFOX10S	PZ6 roto	Variocrimp4	

*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.



Recommended Flat-blade Screwdriver

Use a flat-blade screwdriver to connect and remove wires. Use the following flat-blade screwdriver.

The following table is the manufacturer and format at the time in December 2015.

Common Precautions

Model	Manufacturer
XW4Z-00B	Omron
ESD0.40×2.5	Wera
SZF 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

Screw Terminal

Screw terminal

Wired type	Applicable wire size	Stripping length
Stranded wires, without ferrule	0.5 to 1.5 mm ²	8 mm
Stranded wires, with ferrule and plastic collar	0.5 to 1.5 mm ²	8 mm
Stranded wires with ferrule, without plastic collar	0.5 to 1.5 mm ²	8 mm

Tightening Torque

0.4 N · m

• Electric wiring

Use the electric wire of specified size as shown above. The stripped wire length is 8 mm.



Stripping length

<G2RV>

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

• Applicable flat-blade screwdriver

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

Parallel cutting edge flat-blade screwdriver
Shaft diameter 2.5 mm (3.0 mm max.)
Wide flat-blade screwdriver
Driver with a thick shaft cannot be used.

- Always turn OFF the power supply before operating latching lever.
- Return to its original state after using the latching lever.
- Do not use the latching lever as a switch.
- Operation durability of the latching lever is 100 times or more.
- Do not keep the latching lever ON for a long period of time (24 hours or more) in order to maintain the operation check function.

Method of operation of the latching lever



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

Using the latching lever

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

<G3RV>

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

Mounting

<The SSR Mounting Pitch (Panel Mounting)>



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

<Relationship of SSR and duct (duct depth)>



shallow depth, to provide a sufficient ventilation area.

blocking airflow 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.

G3RV-SR

G2RV-SR

Airflow

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

Ordering Information

G2RV-SR

G3RV-SR

Appearance	Pitch	No.of poles	Colors	Model *	Minimum order (Quantity)	Maximum energizing current
		2		PYDN-6.2-020		
10 10 10 10 10 10 10 10 10 10 10 10 10 1	6.2 mm	3	Red (R), Blue (S), Yellow (Y)	PYDN-6.2-030	10	32 A
		4		PYDN-6.2-040		
		10		PYDN-6.2-100		
		20		PYDN-6.2-200	+	

Note: Use for wiring to the adjacent socket.

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

Labels

Short Bars

Appearance	Model	Minimum order
	XW5Z-P2.5LB2	5 sheets (1 sheet/72 pieces)

Separate Plate



Model XW5Z-EP12

PLC interface unit

Appearance	I/O classification	Common process	Connection method	Model
		DND	Push-In	P2RVC-8-I-5-1
	For input	FINE	Screw	P2RVC-8-I-7-1
		NPN	Push-In	P2RVC-8-I-5
	For output	DND	Push-In	P2RVC-8-O-5-1
		FINE	Screw	P2RVC-8-0-7-1
		NPN	Push-In	P2RVC-8-O-5

Parts for DIN Track Mounting

Appearance	Туре		Model	Minimum order (Quantity)	
	DIN Tracks	1 m	PFP-100N		
	Din Hacks	0.5 m	PFP-50N	-	
Contraction of the second	End Plate*		PFP-M		
5	Spacer		PFP-S	10	

* When mounting components to DIN rail, prevent sliding using end plates (Model PFP-M). Refer to your OMRON website for details on PFP-D.

• Applicable Cables

,,,	Cable							
Name		Appearance	length L (mm)	Connecting Cables	Applicable Connectors	G2F		
		End A End B	1,000	P2RV-A100C		ې چ		
Cables with Loose	8 I/O	Device PLC interface end unit end	2,000	P2RV-A200C		ļγ.		
P2RV-A□C	points		3,000	P2RV-A300C				
			5,000	P2RV-A500C				
			1,000	P2RV-4-100C				
Cables with	32 output		2,000	P2RV-4-200C	PLC I/O Units with MIL connectors (1:4)			
P2RV-4-□C	points		3,000	P2RV-4-300C	CJ1W-OD232/OD262, etc.			
		L→ = 300 →	5,000	P2RV-4-500C	-	ດ		
				1,000	P2RV-4-100IMC		3RV	
Cables with	32 input		2,000	P2RV-4-200IMC	PLC I/O Units with MIL connectors (1:4)	SR		
P2RV-4-□IMC	points		3,000	P2RV-4-300IMC	CJ1W-ID232/ID262, etc.			
			5,000	P2RV-4-500IMC				
			1,000	P2RV-4-100IFC				
Cables with	32 input		2,000	P2RV-4-200IFC	PLC I/O Units with Fujitsu connectors (1:4)	Con		
P2RV-4-□IFC	points		3,000	P2RV-4-300IFC	CJ1W-ID231/ID261, etc.	nmo		
		/ L→ - 300 →	5,000	P2RV-4-500IFC		n P		
Cables with Connectors (1:1) P2RV-A□C-OMR GRT1	8 output		500	P2RV-A050C-OMR GRT1		l e		
	points		1,000	P2RV-A100C-OMR GRT1	Slice I/O Units (1:1) – For inputs: GBT1-ID8-1	lä		
	8 input		500	P2RV-A050IC-OMR GRT1	For outputs: GRT1-OD8-1	L H		
	points	← L►	1,000	P2RV-A100IC-OMR GRT1		Q		
	8 output		500	P2RV-A050C-OMR NX		SL		
Cables with Connectors (1.1)	points		1,000	P2RV-A100C-OMR NX	PLC I/O Units with MIL connectors (1:1)	L		
P2RV-ACC-OMR NX	8 input		500	P2RV-A050IC-OMR NX	For outputs: NX-OD4256			
	points	points	1,000	P2RV-A100IC-OMR NX				

ດ 	Name		Appearance	Cable length L (mm)	Connecting Cables	Applicable Connectors
2				500	P2RV-050C-SCH-A	
2		20 input	Device PLC interface	1,000	P2RV-100C-SCH-A	_
່ ທີ		points	end unit end	2,000	P2RV-200C-SCH-A	
ד				3,000	P2RV-300C-SCH-A	- Schneider Electric PI Cs with 32-point
				5,000	P2RV-500C-SCH-A	connectors (1:4)
				500	P2RV-050C-SCH-B	For inputs: 140 DDI 353 00
				1,000	P2RV-100C-SCH-B	
]		32 output points		2,000	P2RV-200C-SCH-B	
	Schneider Electric			3,000	P2RV-300C-SCH-B	
	PLC Connecting		I≪ L →I≪ 300 →I	5,000	P2RV-500C-SCH-B	
				500	P2RV-050C-SCH-C	
				1,000	P2RV-100C-SCH-C	
_		16 input points		2,000	P2RV-200C-SCH-C	_
ר ה		P		3,000	P2RV-300C-SCH-C	Cohnoider Flootric PL Co with
π				5,000	P2RV-500C-SCH-C	16-point connectors (1:2)
Ŝ.				500	P2RV-050C-SCH-D	For inputs: BMX DDI 1602
S				1,000	P2RV-100C-SCH-D	- For outputs: BMX DDO 1602
υ		16 output		2,000	P2RV-200C-SCH-D	
		points	← L →	3,000	P2RV-300C-SCH-D	-
				5,000	P2RV-500C-SCH-D	
				500	P2RV-050C-SIM-A	
				1,000	P2RV-100C-SIM-A	
		32 input		2,000	P2RV-200C-SIM-A	
0		points		3,000	P2RV-300C-SIM-A	
<u>ŏ</u>				5,000	P2RV-500C-SIM-A	 Siemens PLCs with 32-point connectors (1:4)
3				500	P2RV-050C-SIM-B	For inputs: 6ES7 321-1BL00-0AA0
ן ע				1,000	P2RV-100C-SIM-B	For outputs: 6ES7 322-1BL00-0AA0
й		32 output		2,000	P2RV-200C-SIM-B	-
D		points	← L → I ← 300 →	3,000	P2RV-300C-SIM-B	-
			-	5,000	P2RV-500C-SIM-B	-
				500	P2RV-050C-SIM-C	
Itio				1,000	P2RV-100C-SIM-C	
ns	Connecting Cables	16 input points		2,000	P2RV-200C-SIM-C	 Stemens PLCs with 16-point connectors (1:2) For inputs: 6ES7 321-1BH02-0AA0
				3,000	P2RV-300C-SIM-C	_
C C			L - 1 - 300	5,000	P2RV-500C-SIM-C	
			-	500	P2RV-050C-SIM-D	_
		32 input		1,000	P2RV-100C-SIM-D	_
б		points		2,000	P2RV-200C-SIM-D	_
2				3,000	P2RV-300C-SIM-D	Siemens PLCs with
\mathbf{P}				5,000	P2RV-500C-SIM-D	32-point connectors (1:4)
ຕູ້				500	P2RV-050C-SIM-E	For inputs: 6ES7 421-1BL-0AA0
S		00		1,000	P2RV-100C-SIM-E	
SO		3≥ output points		2,000	P2RV-200C-SIM-E	
r.		.	I ← L → I ← 300 → I	3,000	P2RV-300C-SIM-E	
P				5,000	P2RV-500C-SIM-E	

PLC interface unit

Ratings / characteristics

-	
Rated voltage	30 VAC/DC
Rated current	0.5 A/poles, 2 A/unit
Ambient operating temperature	-40 to 55°C

Electrical schematic Input P2RVC-8-I-□-1 (PNP)



Output P2RVC-8-O-□-1 (PNP)



P2RVC-8-I-5 (NPN)



P2RVC-8-O-5 (NPN)



Dimensions

PLC interface unit



29



G3RV-SR

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



-29

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V	V	V			7>	√6.2	20

Common Accessories

28

(unit: mm)

(Except for PLC interface unit) Common Accessories

Dimensions

Short Bars

PYDN-6.2-00 (6.2 mm)



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

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

Separate Plate XW5Z-EP12



Parts for DIN Track Mounting

Refer to your OMRON website for details on the PFP-

G3RV-SR

G2RV-SR

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 12. Claims. Any claim by Buyer against Omron for shortage or damage to the Products occurring before delivery to the carrier must be presented in writing to Omron within 30 days of receipt of shipment and include the original transportation bill signed by the carrier received the Products
- portation bill signed by the carrier noting that the carrier received the Products from Omron in the condition claimed.
- <u>Warranties</u>. (a) <u>Exclusive Warranty</u>. 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 13 (b) <u>Limitations</u>. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABIL-

Certain Precautions on Specifications and Use

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