Slim Relay
G2RV

The World's First Industrial Slim Relay

- Large plug-in terminals for easy connection.
- LED indicator and mechanical flag to check operation.
- Transparent housing enables checking relay condition.
- Slim outline to save space.
- Push-in terminals and accessories for easy wiring.

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Model Number Structure

■ Model Number Legend

G2RV-SL □ □ □ - □
1 2 3 4 5

1. **Auxiliary Type Designation**
   SL: Slim relay and socket combination
2. **Wire Connection**
   7: Screw terminals
   5: Push-in terminals
3. **Relay LED**
   0: Without LED
   1: LED indicator
4. **Relay Pushbutton**
   0: Without pushbutton
   1: Lockable push-to-test
5. **Input Voltage**

Ordering Information

■ List of Models

Classification		Enclosure rating	Input voltage	Type of connection	Contact form
					SPDT
Plug-in terminals	General-purpose	Unsealed	AC/DC	Screw terminals	G2RV-SL700
				Push-in terminals	G2RV-SL500

Relay and Socket Combinations

Input voltage	Screw terminals	Push-in terminals
12 VDC	G2RV-SL700-12 VDC	G2RV-SL500-12 VDC
24 VDC	G2RV-SL700-24 VDC	G2RV-SL500-24 VDC
24 VAC/DC	G2RV-SL700-24 VAC/DC	G2RV-SL500-24 VAC/DC
48 VAC/DC	G2RV-SL700-48 VAC/DC	G2RV-SL500-48 VAC/DC
110 VAC	G2RV-SL700-110 VAC	G2RV-SL500-110 VAC
230 VAC	G2RV-SL700-230 VAC	G2RV-SL500-230 VAC

Specifications

■ Input Ratings

Rated voltage	Rated current			Operate voltage	Release voltage	Power consumption		Input voltage
	AC		DC	% of rated voltage		AC (VA) Approx.	DC (mW) Approx.	% of rated voltage
	50 Hz	60 Hz						
12 VDC	---	---	27.2	80%	10%	---	300 mW	±10%
24 VDC	---	---	13.3			---	300 mW	
24 VAC/DC	21.1	22.5	13.0			0.5 VA	300 mW	
48 VAC/DC	8.5	9.0	5.2			0.4 VA	250 mW	
110 VAC	7.1	7.5	---			0.8 VA	---	
230 VAC	7.3	7.9	---			1.7 VA	---	

■ Contact Ratings

Number of poles	1 pole
Load	Resistive load (cosϕ = 1)
Rated load	6 A at 250 VAC; 6 A at 30 VDC
Rated carry current	6 A
Max. switching voltage	440 VAC, 125 VDC
Max. switching current	6 A
Max. switching power	1,500 VA, 180 W
Failure rate (reference value)	10 mA at 5 VDC

Note: P level: $\lambda_{60} = 0.1 \times 10^{-6}$/operation

■ Characteristics

Item	1 pole
Contact resistance	100 mΩ max.
Operate (set) time	15 ms max.
Release time	5 ms max.
Max. operating frequency	Mechanical: 18,000 operations/hr Electrical: 1,800 operations/hr (under rated load)
Insulation resistance	1,000 MΩ min. (at 500 VDC)
Dielectric strength	4,000 VAC, 50/60 Hz for 1 min between coil and contacts*; 1,000 VAC, 50/60 Hz for 1 min between contacts of same polarity
Vibration resistance	Destruction: 10 to 55 to 10 Hz, 0.50 mm single amplitude (1.0 mm double amplitude) Malfunction: 10 to 55 to 10 Hz, 0.50 mm single amplitude (1.0 mm double amplitude)
Shock resistance	Destruction: 1,000 m/s^2 Malfunction: 200 m/s^2 when energized; 100 m/s^2 when not energized
Endurance	Mechanical: 5,000,000 operations min. Electrical: 70,000 operations min. (at 1,800 operations/hr under rated load)
Ambient temperature	Operating: –40°C to 55°C (with no icing or condensation)
Ambient humidity	Operating: 5% to 85%
Weight	Approx. 21 to 35 g
Overvoltage category	III
Pollution degree	2

Note: Values in the above table are the initial values.

■ Approved Standard

UL 508 (File No. E41643)

Model	Contact form	Coil ratings	Contact ratings	Operations
G2RV-SL Series	SPDT	12 to 48 VDC 24 to 230 VAC	250 VAC 6 A (Res.) 30 VDC 6 A (Res.) 440 VAC 2 A (Res.)	6,000

IEC/VDE (EN 61810)

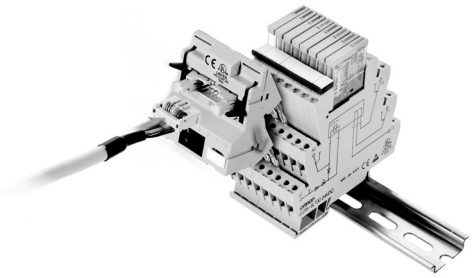
Contact form	Coil ratings	Contact ratings	Operations
1 pole	12 to 48 VDC??? 24 to 230 VAC???	250 VAC 6 A (Res.) 30 VDC 6 A (Res.) 400 VAC 2 A (Res.)	50,000 50,000 6,000

Accessories

■ PLC Interfaces

List of Models

Model number	Description	Connection
P2RV-8-I-D	For input use	D-Sub
P2RV-8-I-F		Flat
P2RV-8-O-D	For output use	D-Sub
P2RV-8-O-F		Flat



Specifications

Input	**Rated voltage**	30 VAC/VDC max.
	Current capacity	0.5 A per channel
		2.0 A total current, power supply terminal
Characteristics	**Ambient temperature**	Operating: 0 to 55°C Storage: –20 to 85°C
	Overvoltage category	III
	Pollution degree	2

■ DeviceNet

List of Models

I/O type	Internal I/O common	Number of I/O points	I/O connections	Internal circuit power	Rated I/O power supply voltage	Model
Inputs	NPN (+ common)	16	MIL connector	Supplied from communications connector.	24 VDC	DRT2-ID16ML
	PNP (– common)					DRT2-ID16ML-1
Out-puts	NPN (– common)					DRT2-OD16ML
	PNP (+ common)					DRT2-OD16ML-1

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Specifications

Models with 16-input/16-output Connector
Models with 16-input Connector

Item	DRT2-ID16ML DRT2-ID16MLX	DRT2-ID16ML-1 DRT2-ID16MLX-1
Internal I/O common	NPN	PNP
I/O points	16 inputs	
ON voltage	17 VDC min. (between each input terminal and V terminal)	17 VDC min. (between each input terminal and G terminal)
OFF voltage	5 VDC max. (between each input terminal and V terminal)	5 VDC max. (between each input terminal and G terminal)
OFF current	1.0 mA max.	
Input current	6.0 mA max./point (at 24 VDC) 3.0 mA max./point (at 17 VDC)	
ON delay time	1.5 ms max.	
OFF delay time	1.5 ms max.	
Maximum number of simultaneously ON inputs	16	
Circuits per common	16/common	

Models with 16-input/16-output Connector
Models with 16-output Connector

Item	DRT2-OD16ML DRT2-OD16MLX	DRT2-OD16ML-1 DRT2-OD16MLX-1
Internal I/O common	NPN	PNP
I/O points	16 outputs	
Rated output current	0.3 A/point, 2 A/ common (See note 1.)	
Residual voltage	1.2 V max. (0.3 A DC between each output terminal and G terminal)	1.2 V max. (0.3 A DC between each output terminal and V terminal)
Leakage current	0.1 mA max.	
ON delay time	0.5 ms max.	
OFF delay time	1.5 ms max.	
Circuits per common	16/common	

Note: Do not allow the total external load current to exceed 2 A. Do not allow the current for the V terminal or G terminal to exceed 1 A.

■ Relay

Model Number Legend

G2RV-□ - □ □ □ - □- □
1 2 3 4 5 6

1. **Number of Poles**
   1: 1 pole
2. **Terminals**
   S: Push-In
3. **Relay LED**
   Blank: Without LED
   N: LED indicator
4. **Relay Pushbutton**
   Blank: Without pushbutton
   I: Lockable push-to-test
5. **Contact Material**
   Blank: AgSnIn
   AP: AgSnIn + Gold plating
6. **Rated Coil Voltage**

List of Models

Model number	Replacement for
G2RV-1-S DC11	G2RV-SL7□□/5□□ DC12
G2RV-1-S DC21	G2RV-SL7□□/5□□ DC24
	G2RV-SL7□□/5□□ AC/DC24
G2RV-1-S DC48	G2RV-SL7□□/5□□ AC/DC48
	G2RV-SL7□□/5□□ AC110
	G2RV-SL7□□/5□□ AC230

Accessories (Order Separately)

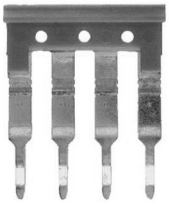
■ Crossbars

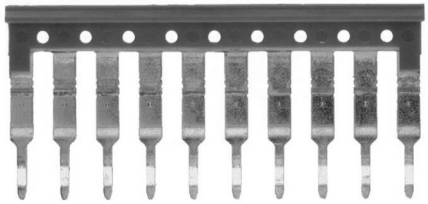
Model Number Legend

P2RVM -□ □
1 2

1. **Number of Poles**
   020: 2 poles
   040: 4 poles
   100: 10 poles
2. **Color**
   R: Red
   B: Blue
   BK: Black

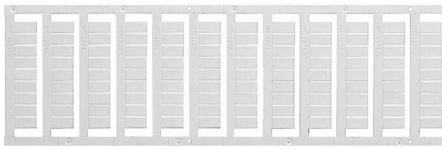
Model number	Poles	Color
P2RVM-020□	2	Red (R)
P2RVM-040□	4	Blue (B)
P2RVM-100□	10	Black (BK)





■ Plastic Labels for G2RV Sockets

Model number	Quantity	Color
R99-15 for G2RV	600 labels (minimum order)	White



■ Labels (Stickers) for G2RV Sockets

Model number	Quantity	Color
R99-16 for G2RV	10 sheets × 448 labels = 4,840 lables (minimum order)	White

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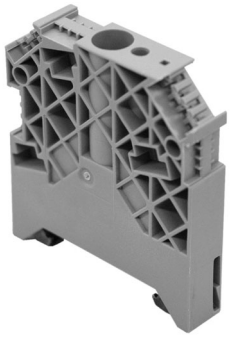
■ Separating Plates

Model number	Quantity	Description
P2RV-S	50 plates (minimum order)	Isolation between adjacent Relays at 440 V



■ 16-point Connector Cable for I/O Relay Terminals Connectors with Cable (1:1)

Model	Applicable cable	Connectable models	Remarks
DRT2-ID16ML	G79-I□C	G7TC-ID16 G7TC-IA16	For I/O Relay Terminal inputs
DRT2-ID16ML-1	---	---	No applicable models.
DRT2-OD16ML	G79-O□C	G7TC-OC16/OC08 G70D-SOC16/VSOC16 G70D-FOM16/VFOM16 G70A-ZOC16-3 G70D-SOC08 G70R-SOC08	For I/O Relay Terminal outputs
DRT2-OD16ML-1	G79-I□C	G7TC-OC16-1	For I/O Relay Terminal outputs
	G79-O□C	G70D-SOC16-1 G70D-FOM16-1 G70A-Z0C16-4	For I/O Relay Terminal outputs

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Connections

■ PLC Interfaces

P2RVC-8-I-D

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P2RVC-8-I-F

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P2RVC-8-O-D

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P2RVC-8-O-F

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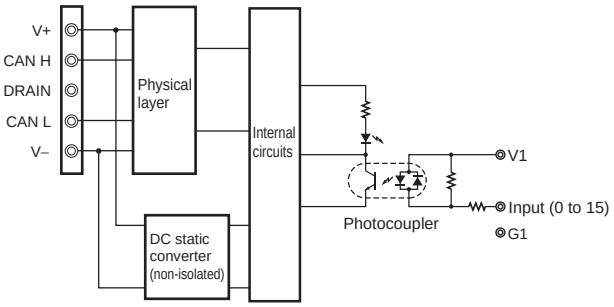
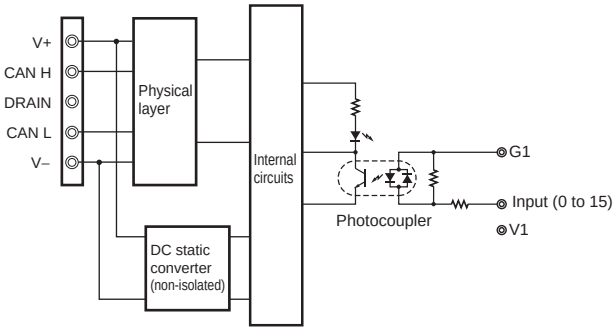
■ DeviceNet

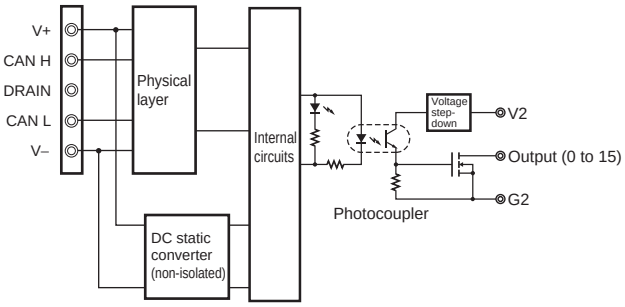
DRT2-ID16ML(X)



DRT2-ID16ML(X)-1



DRT2-OD16ML(X)



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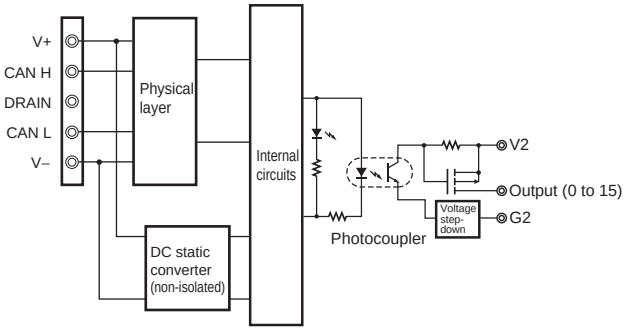

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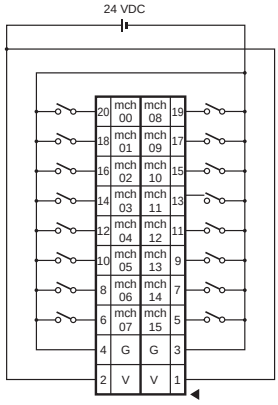

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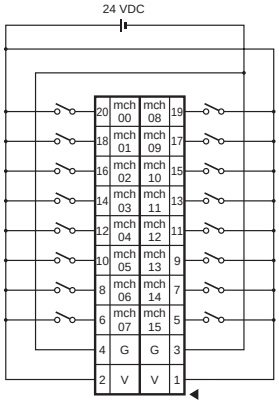

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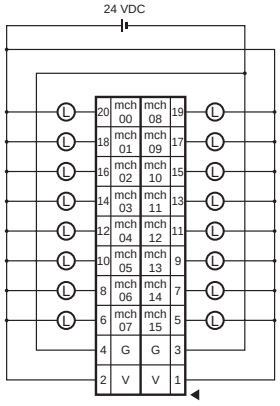
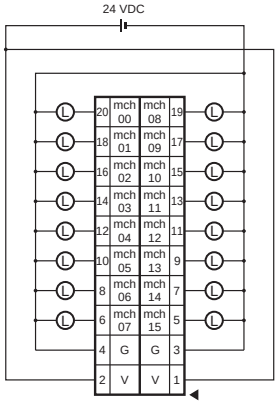


DRT2-OD16ML(X)-1



Dimensions

Note: All units are in millimeters unless otherwise indicated.

Complete Unit

G2RV-SL700

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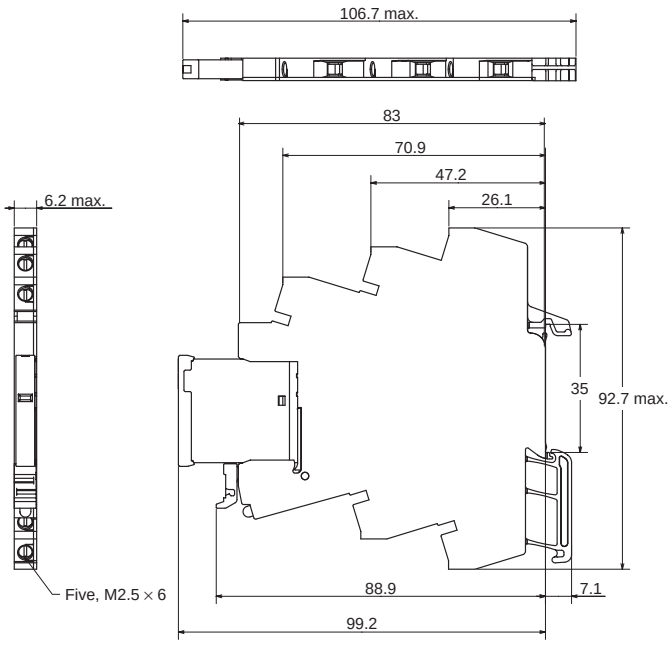
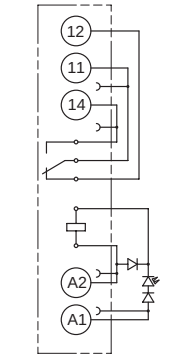
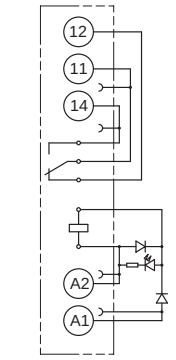


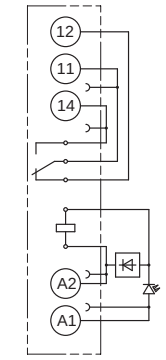
Input circuit



24 V DC
Terminal Arrangement/
Internal Connections
(Top View)



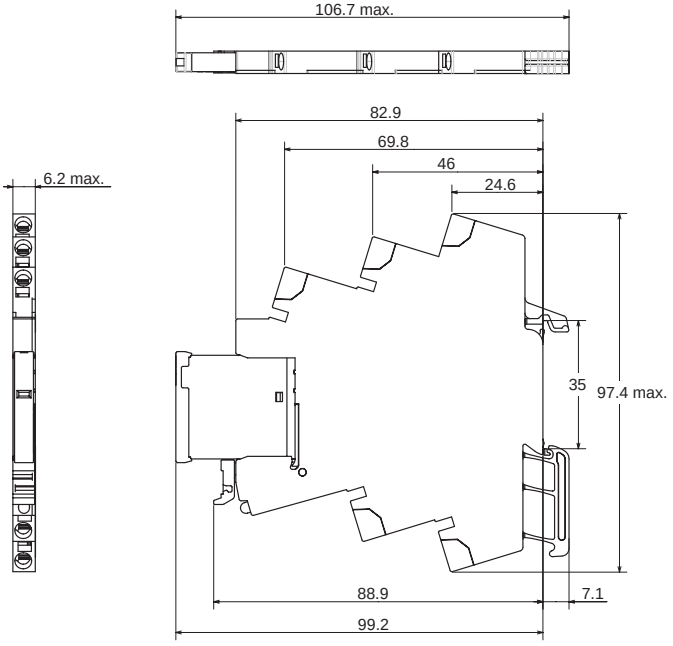
12 V DC
Terminal Arrangement/
Internal Connections
(Top View)

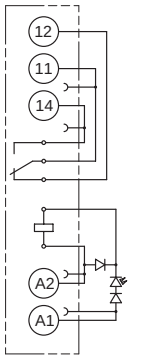


Other Coil Voltage
Terminal Arrangement/
Internal Connections
(Top View)

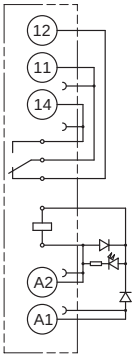
G2RV-SL500

Input circuit

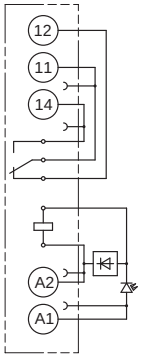




24 V DC
Terminal Arrangement/
Internal Connections
(Top View)



12 V DC
Terminal Arrangement/
Internal Connections



Other Coil Voltage
Terminal Arrangement/
Internal Connections
(Top View)

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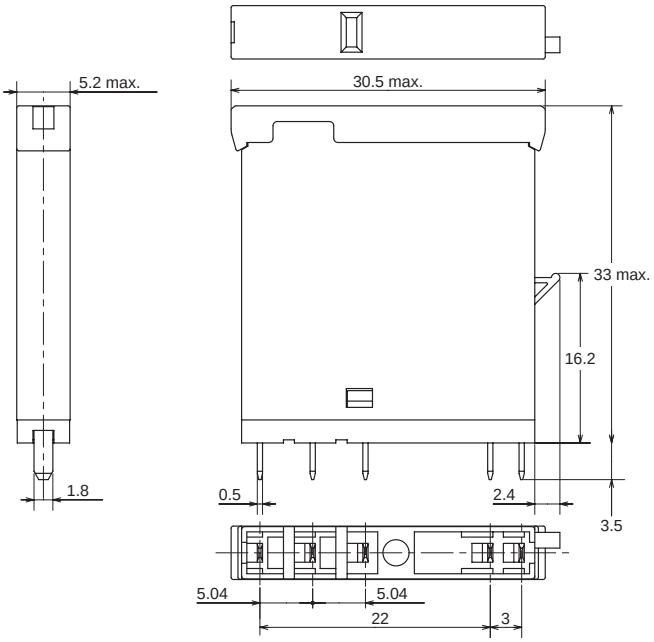
Single Relay

G2RV-I-S



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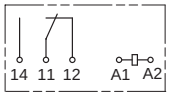
Input circuit



Terminal Arrangement/
Internal Connections
(Bottom View)

Installation

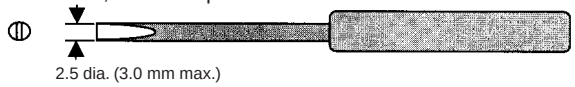
■ Tools

A flat-blade screwdriver should be used to mount the cables.

Applicable Screwdriver

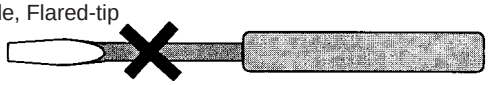
● Flat-blade, Parallel-tip, 2.5 mm diameter (3.0 mm max.)

● Flat-blade, Parallel-tip



2.5 dia. (3.0 mm max.)

● Flat-blade, Flared-tip



Cannot be used.

Examples: FACOM AEF.2.5×75E (AEF. 3×75E)
VESSEL No. 9900-(-)2.5×75 (No. 9900-(-)3×100)
WAGO 210-119
WIHA 260/2.5×40 (260/3×50)

*Chamfering the tip of the driver improves insertion when used as an exclusive tool.

■ Applicable Wires

Applicable Wire Sizes

G2RV-SL700 Series

Property	Requirements
Cross-section with clamping yoke technology	0.5 to 2.5 mm^2: Standard/solid (without ferrules) 0.5 to 2.5 mm^2: Standard wires with ferrules with plastic collar 0.5 to 2.5 mm^2: Standard wires with ferrules without plastic collar 4 mm^2: Solid Stripping length: 7 mm

G2RV-SL500 Series

Property	Requirements
Cross-section with push-in technology	0.5 to 2.5 mm^2: Standard/solid (without ferrules) 0.5 to 1.5 mm^2: Standard wires with ferrules with plastic collar 0.5 to 2.5 mm^2: Standard wires with ferrules without plastic collar 4 mm^2: Solid Stripping length: 12 mm

■ Wiring

Use wires of the applicable sizes specified above. The length of the exposed conductor should be 7 mm for a G2RV-SL700 series Relay, 12 mm for a G2RV-SL500 series Relay.

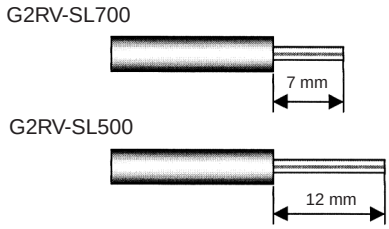


Fig. 1 Exposed Conductor Length

Wiring Procedure

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Remove wire.

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Remove screwdriver.

● **Wiring**

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Insert the exposed conductor into the connection hole.

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No other tools are required.

● **Remove**

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Insert the specified screwdriver into the release hole.

Precautions

Precautions for Connection

- Do not move the screwdriver up, down, or from side to side while it is inserted in the hole. Doing so may cause damage to internal components (e.g., deformation of the clamp spring or cracks in the housing) or cause deterioration of insulation.
- Do not insert the screwdriver at an angle. Doing so may break the side of socket and result in a sort-circuit.

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- Do not insert two or more wires in the hole. Wires may come in contact with the spring causing a temperature rise or be subject to sparks. (There are two wiring holes for each terminal.)

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- Insert the screwdriver along the hole wall as shown below.

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- If lubricating liquid, such as oil, is present on the tip of screwdriver, the screwdriver may fall out resulting in injury to the operator.
- Insert the screwdriver into the bottom of the hole. It may not be possible to connect cables properly if the screwdriver is inserted incorrectly.

General Precautions

- Use the clip to prevent relays floating or falling out of the socket.
- Do not use the product if it has been dropped on the ground. Dropping the product may adversely affect performance.
- Confirm that the socket is securely attached to the mounting track before wiring. If the socket is mounted insecurely it may fall and injure the operator.
- Ensure that the socket is not charged during wiring and maintenance. Not doing so may result in electric shock.
- Do not pour water or cleansing agents on the product. Doing so may result in electric shock.
- Do not use the socket in locations subject to solvents or alkaline chemicals.
- Do not use the socket in locations subject to ultraviolet light (e.g., direct sunlight). Doing so may result in markings fading, rust, corrosion, or resin deterioration.
- Do not dispose of the product in fire.

Removing from Mounting Rail

To remove the socket from the mounting rail, insert the tip of screwdriver in the fixture rail, and move it in the direction shown below.

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OMRON

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.
To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

Cat. No. XXX-XX-XX **In the interest of product improvement, specifications are subject to change without notice.**

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