

# Solid State Relay G3R-I/O

## Compact SSRs for I/O Interface with High Dielectric Strength Requirements

- High-speed models with optimum input ratings for a variety of sensors are available.
- Input Modules and Output Modules that have the same form-factor as the G2R.
- Using a coupler approved by VDE 0884 and assuring an I/O dielectric strength of 4 kV.
- Incorporating an easy-to-see monitoring indicator.
- Approved by UL, CSA, and TÜV. ("-UTU" models)



## Ordering Information

To Order: Select the part number and add the desired coil voltage rating, (e.g., G3R-IAZR1SN-DC5)

### Input Module

| Isolation    | Indicator | Response speed     | Logic level    |                | Rated input voltage | Model         |
|--------------|-----------|--------------------|----------------|----------------|---------------------|---------------|
|              |           |                    | Supply voltage | Supply current |                     |               |
| Photocoupler | Yes       | —                  | 4 to 32 VDC    | 0.1 to 100 mA  | 100 to 240 VAC      | G3R-IAZR1SN   |
|              |           | High-speed (1 kHz) |                |                | 5 VDC               | G3R-IDZR1SN   |
|              |           | Low-speed (10 Hz)  |                |                | 12 to 24 VDC        | G3R-IDZR1SN-1 |
|              |           |                    |                |                | 5 VDC               |               |

### Output Module

| Isolation    | Indicator | Zero cross function | Rated output load      | Rated input voltage | Model        |
|--------------|-----------|---------------------|------------------------|---------------------|--------------|
| Phototriac   | Yes       | Yes                 | 2 A at 100 to 240 VAC  | 5 to 24 VDC         | G3R-OA202SZN |
|              |           | No                  |                        |                     | G3R-OA202SLN |
| Photocoupler | —         | —                   | 2 A at 5 to 48 VDC     |                     | G3R-ODX02SN  |
|              |           |                     | 1.5 A at 48 to 200 VDC |                     | G3R-OD201SN  |

**Note:** When ordering a UL, CSA and EN (TÜV) approved model, add "-UTU" to the model number as shown below:  
Example: G3R-OA202SZN-UTU DC5-24.

### I/O Indication

I/O module classification and AC/DC use are indicated on the mark affixed to the top of the product.

| Mark indication | Specification            |
|-----------------|--------------------------|
| AC IN           | Input module, AC input   |
| DC IN           | Input module, DC input   |
| AC OUT          | Output module, AC output |
| DC OUT          | Output module, DC output |



# Specifications

## ■ Ratings (at an Ambient Temperature of 25°C)

### Input Module

#### Input

| Model         | Rated voltage  | Operating voltage | Input current | Must operate voltage | Must release voltage |
|---------------|----------------|-------------------|---------------|----------------------|----------------------|
| G3R-IAZR1SN   | 100 to 240 VAC | 60 to 264 VAC     | 15 mA max.    | 60 VAC max.          | 20 VAC min.          |
| G3R-IDZR1SN   | 5 VDC          | 4 to 6 VDC        | 8 mA max.     | 4 VDC max.           | 1 VDC min.           |
|               | 12 to 24 VDC   | 6.6 to 32 VDC     |               | 6.6 VDC max.         | 3.6 VDC min.         |
| G3R-IDZR1SN-1 | 5 VDC          | 4 to 6 VDC        |               | 4 VDC max.           | 1 VDC min.           |
|               | 12 to 24 VDC   | 6.6 to 32 VDC     |               | 6.6 VDC max.         | 3.6 VDC min.         |

#### Output

| Model         | Logic level supply voltage | Logic level supply current |
|---------------|----------------------------|----------------------------|
| G3R-IAZR1SN   | 4 to 32 VDC                | 0.1 to 100 mA              |
| G3R-IDZR1SN   |                            |                            |
| G3R-IDZR1SN-1 |                            |                            |

### Output Module

#### Input

| Model        | Rated voltage | Operating voltage | Input current           | Must operate voltage | Must release voltage |
|--------------|---------------|-------------------|-------------------------|----------------------|----------------------|
| G3R-OA202SZN | 5 to 24 VDC   | 4 to 32 VDC       | 15 mA max.<br>(at 25°C) | 4 VDC max.           | 1 VDC min.           |
| G3R-OA202SLN |               |                   | 8 mA max.               |                      |                      |
| G3R-ODX02SN  |               |                   |                         |                      |                      |
| G3R-OD201SN  |               |                   |                         |                      |                      |

#### Output

| Model        | Rated load voltage | Load voltage range | Load current (see note) | Inrush current        |
|--------------|--------------------|--------------------|-------------------------|-----------------------|
| G3R-OA202SZN | 100 to 240 VAC     | 75 to 264 VAC      | 0.05 to 2 A             | 30 A (60 Hz, 1 cycle) |
| G3R-OA202SLN |                    |                    |                         |                       |
| G3R-ODX02SN  | 5 to 48 VDC        | 4 to 60 VDC        | 0.01 to 2 A             | 8 A (10 ms)           |
| G3R-OD201SN  | 48 to 200 VDC      | 40 to 200 VDC      | 0.01 to 1.5 A           | 8 A (10 ms)           |

Note: The minimum current value is measured at 10°C min.

# Characteristics

## ■ Input Module

| Item                   | G3R-IAZR1SN   | G3R-IDZR1SN | G3R-IDZR1SN-1 |
|------------------------|---|-------------|---------------|
| Operate time           | 20 ms max.  | 0.1 ms max. | 15 ms max.    |
| Release time           | 20 ms max.  | 0.1 ms max. | 15 ms max.    |
| Response frequency     | 10 Hz   | 1 kHz       | 10 Hz         |
| Output ON voltage drop | 1.6 V max.  |             |               |
| Leakage current        | 5 $\mu$ A max.  |             |               |
| Insulation resistance  | 100 M $\Omega$ min. between input and output  |             |               |
| Dielectric strength    | 4,000 VAC, 50/60 Hz for 1 min. between input and output                             |             |               |
| Vibration resistance   | 10 to 55 Hz, 1.5-mm double amplitude  |             |               |
| Shock resistance       | 1,000 m/s <sup>2</sup> {approx. 100G}   |             |               |
| Ambient temperature    | Operating: -30°C to 80°C (with no icing)<br>Storage: -30°C to 100°C (with no icing) |             |               |
| Approved standards     | UL File No. E64562<br>CSA File No. LR35535<br>TÜV File No. R9650094 (EN60950)       |             |               |
| Ambient humidity       | Operating: 45% to 85%   |             |               |
| Weight                 | Approx. 18 g  |             |               |

## ■ Output Module

| Item                   | G3R-OA202SZN  | G3R-OA202SLN | G3R-ODX02SN | G3R-OA201SN |
|------------------------|---|--------------|-------------|-------------|
| Operate time           | 1/2 of load power source cycle + 1 ms max.  |              | 1 ms max.   |             |
| Release time           | 1/2 of load power source cycle + 1 ms max.  |              | 2 ms max.   |             |
| Response frequency     | 20 Hz   |              | 100 Hz      |             |
| Output ON voltage drop | 1.6 V max.  |              |             | 2.5 V max.  |
| Leakage current        | 1.5 mA max.   |              | 1 mA max.   |             |
| Insulation resistance  | 100 M $\Omega$ min. between input and output  |              |             |             |
| Dielectric strength    | 4,000 VAC, 50/60 Hz for 1 min. between input and output                             |              |             |             |
| Vibration resistance   | 10 to 55 Hz, 1.5-mm double amplitude  |              |             |             |
| Shock resistance       | 1,000 m/s <sup>2</sup> {approx. 100G}   |              |             |             |
| Ambient temperature    | Operating: -30°C to 80°C (with no icing)<br>Storage: -30°C to 100°C (with no icing) |              |             |             |
| Approved standards     | UL File No. E64562<br>CSA File No. LR35535<br>TÜV File No. R9650094 (EN60950)       |              |             |             |
| Ambient humidity       | Operating: 45% to 85%   |              |             |             |
| Weight                 | Approx. 18 g  |              |             |             |

# Engineering Data

## Load Current vs. Ambient Temperature

G3R-OA202SZN(-UTU)/OA202SLN(-UTU)    G3R-ODX02SN(-UTU) (4 to 60 VDC)    G3R-OD201SN(-UTU) (40 to 200 VAC)



**Note:** 1. When G730-Z0M04-B is mounted.  
2. When G70A-Z0C16 is mounted.

## Inrush Current Resistivity

Non-repetitive (Keep the inrush current to half the rated value if it occurs repetitively.)

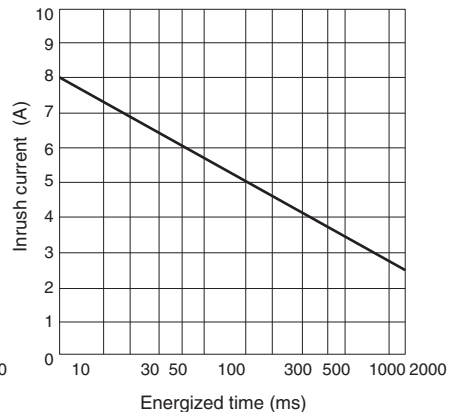
G3R-OA202SZN(-UTU)/OA202SLN(-UTU)



G3R-ODX02SN(-UTU)



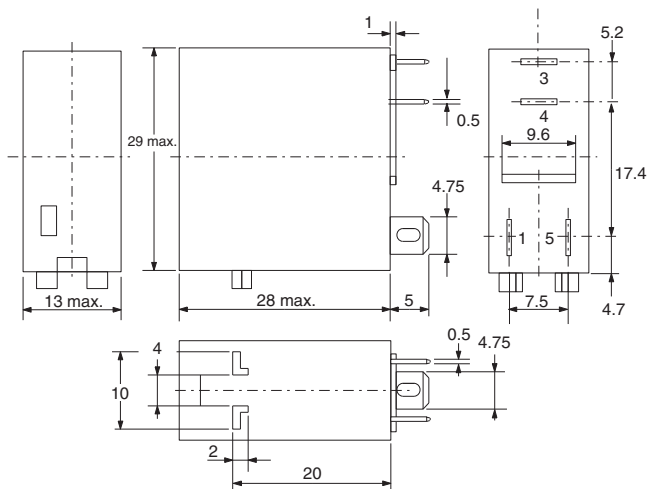
G3R-OD201SN(-UTU)



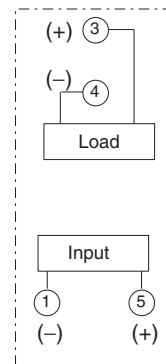
# Dimensions

Unit: mm (inch)

## ■ G3R

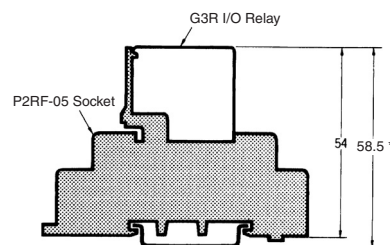


Terminal Arrangement/  
Internal Connections  
(Bottom View)



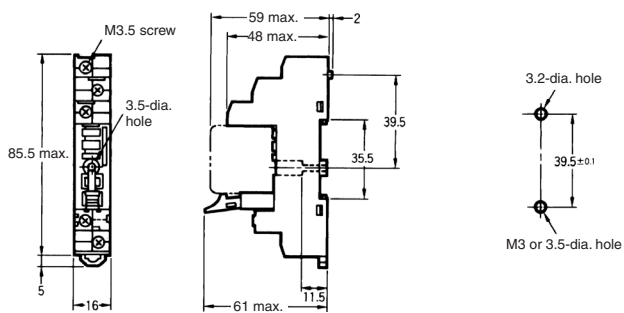
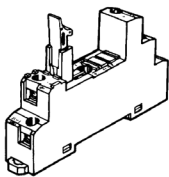
## ■ Connecting Sockets

### P2RF-05



\* Indicates a value when using the PFP-□N Supporting Rail. The value is 67.5 when using the PFP-□N2.

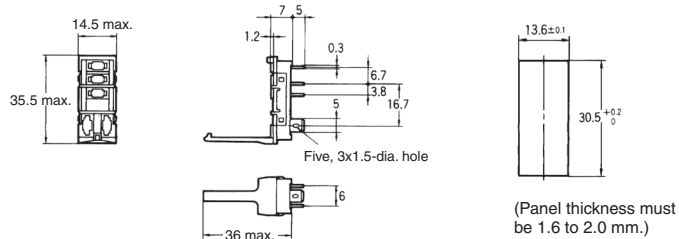
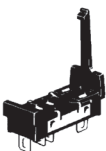
### P2RF-05-E



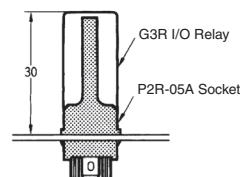
\*\* Indicates a value when using the PFP-□N Supporting Rail with the P2RF-05-E. The value is 71.5 when using the PFP-□N2.

\*\*\* Indicates a value when using the PFP-□N Supporting Rail with the P2RF-08-E. The value is 75.5 when using the PFP-□N2.

### P2R-05A

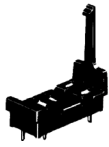


(Panel thickness must be 1.6 to 2.0 mm.)

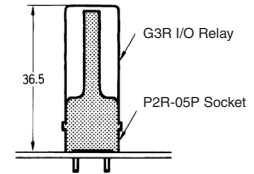


(For use when mounting in a panel or in the P2R-P mounting plate)

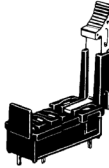
**P2R-05P**



Dimensional tolerance is  $\pm 0.1$ .



**P2R-057P**



**Socket Mounting Plate**

Use the P2R-P Socket Mounting Plate when arranging several P2R-05A Sockets in a row.

**P2R-P**



**Approvals**

UL Recognized (File No. E64562) / CSA Certified (File No. LR35535)

| Model G3R- | Module type | Rating              |
|------------|-------------|---------------------|
| IAZR1SN    | Input       | 100 to 240 VAC      |
| IDZR1SN    | Input       | 5 VDC, 12 to 24 VDC |
| IDZR1SN-1  | Input       | 5 VDC, 12 to 24 VDC |
| OA202SZN   | Output      | 5 to 24 VDC         |
| OA202SLN   | Output      | 5 to 24 VDC         |
| ODX02SN    | Output      | 5 to 24 VDC         |
| OD201SN    | Output      | 5 to 24 VDC         |

| Model G3R- | Module type | Output rating                    |
|------------|-------------|----------------------------------|
| IAZR1SN    | Input       | 32 VDC, 100 mA (General Purpose) |
| IDZR1SN    | Input       | 32 VDC, 100 mA (General Purpose) |
| IDZR1SN-1  | Input       | 32 VDC, 100 mA (General Purpose) |
| OA202SZN   | Output      | 264 VAC, 2 A (General Purpose)   |
|            |             | 264 VAC, 1 A (Tungsten)          |
|            |             | 264 VAC, 1 A FLA, 6 A LRA        |
| OA202SLN   | Output      | 264 VAC, 2 A (General Purpose)   |
|            |             | 264 VAC, 1 A (Tungsten)          |
|            |             | 264 VAC, 1 A FLA, 6 A LRA        |
| ODX02SN    | Output      | 60 VDC, 2 A (General Purpose)    |
|            |             | 60 VDC, 1 A (Tungsten)           |
| OD201SN    | Output      | 200 VDC, 1.5 A (General Purpose) |
|            |             | 200 VDC, 0.75 A (Tungsten)       |

# Precautions

## ■ Connection

With the SSR for DC switching, the load can be connected to either positive or negative output terminal of the SSR.

## ■ Protective element

Since the SSR does not incorporate an overvoltage absorption component, be sure to connect an overvoltage absorption component when using the SSR under an inductive load.

## ■ Precaution of Mounting Output Modules

With up to four G3R SSRs mounted closely and side by side, 2-A loads can be switched.



With a G3R SSRs mounted every other slot, 2-A loads can be switched.



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

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