

Solid State Relays

G3NE

CSM_G3NE_DS_E_3_1

Compact, Low-cost, SSR Switching 5 to 20 A

- Wide load voltage range: 75 to 264 VAC. Both 100-V and 200-V loads can be handled with the same model.
- Dedicated, compact aluminum PCB and power elements used.
- Built-in varistor effectively absorbs external surges.
- Quick-connect #110 input terminals and #250 output connections. (#187 input terminals and #250 output connections are available.)
- “-US” models certified by UL, CSA, and IEC/EN (TÜV).



Refer to *Safety Precautions for All Solid State Relays*.



Model Number Structure

Model Number Legend

G3NE-□□□□-□-□
1 2 3 4 5 6 7

1. Basic Model Name

G3NE: Solid State Relay

2. Rated Load Power Supply Voltage

2: 200 VAC

3. Rated Load Current

05: 5 A

10: 10 A

20: 20 A

4. Terminal Type

T: Quick-connect terminals

5. Zero Cross Function

Blank: Equipped with zero cross function

L: Not equipped with zero cross function

6. Special Specifications

Blank: Standard models

2: #187 input terminals

7. Certification

US: Certified by UL, CSA, and TÜV

Ordering Information

List of Models

Isolation	Zero cross function	Indicator	Rated output load	Rated input voltage (See note 1.)	Model
Phototriac	Yes	No	5 A at 100 to 240 VAC	5, 12, 24 VDC (See note 2.)	G3NE-205T-US G3NE-205T-2-US
			10 A at 100 to 240 VAC		G3NE-210T-US G3NE-210T-2-US
			20 A at 100 to 240 VAC		G3NE-220T-US G3NE-220T-2-US
	No		5 A at 100 to 240 VAC		G3NE-205TL-US G3NE-205TL-2-US
			10 A at 100 to 240 VAC		G3NE-210TL-US G3NE-210TL-2-US
			20 A at 100 to 240 VAC		G3NE-220TL-US G3NE-220TL-2-US

Note: 1. The rated input voltage depends on the ambient temperature. For details, refer to *Load Current vs. Ambient Temperature* in *Engineering Data* on page 3.

2. When ordering, specify the input voltage.

3. Refer to *List of Certified Models* for a list of products that comply with safety standards. When ordering a UL, CSA, and EN(TÜV) certified model, add “-US” to the model number.

■ Accessories (Order Separately)

Heat Sinks

The following heat sinks are thin and can be DIN-track mounted.
See *Dimensions* for details.

Model	Applicable SSR
Y92B-N50	G3NE-205T(L)(-2)-US/-210T(L)(-2)-US
Y92B-N100	G3NE-220T(L)(-2)-US

Specifications

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

Input

Rated voltage	Operating voltage	Voltage level		Input impedance	
		Must operate	Must release	With zero cross function	Without zero cross function
5 VDC	4 to 6 VDC	4 VDC max.	1 VDC min.	250 Ω ±20%	300 Ω ±20%
12 VDC	9.6 to 14.4 VDC	9.6 VDC max.		600 Ω ±20%	800 Ω ±20%
24 VDC	19.2 to 28.8 VDC	19.2 VDC max.		1.6 k Ω ±20%	

Note: Each model has 5-VDC, 12-VDC, and 24-VDC input versions.

Output

Model	Applicable load				
	Rated load voltage	Load voltage range	Load current (See note 1.)		Inrush current
			With heat sink	Without heat sink	
G3NE-205T(L)(-2)-US	100 to 240 VAC	75 to 264 VAC	0.1 to 5 A at 40°C	0.1 to 5 A at 40°C	60 A (60 Hz, 1 cycle)
G3NE-210T(L)(-2)-US			0.1 to 10 A at 40°C (See note 2.)	0.1 to 5 A at 40°C	150 A (60 Hz, 1 cycle)
G3NE-220T(L)(-2)-US			0.1 to 20 A at 40°C (See note 2.)	0.1 to 5 A at 40°C	220 A (60 Hz, 1 cycle)

Note: 1. The load current varies depending on the ambient temperature. Refer to *Load Current vs. Ambient Temperature* under *Engineering Data* for details on page 3.

2. These values apply when using a dedicated heat sink or a radiation plate of specified size.

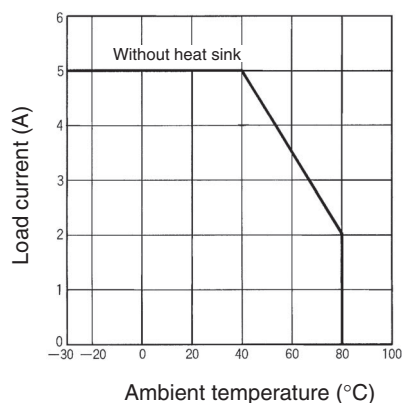
■ Characteristics

Item	G3NE-2□□T(-2)-US	G3NE-2□□TL(-2)-US
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.	
Output ON voltage drop	1.6 V (RMS) max.	
Leakage current	2 mA max. (at 100 VAC) 5 mA max. (at 200 VAC)	
Insulation resistance	100 M Ω min. (at 500 VDC)	
Dielectric strength	2,000 VAC, 50/60 Hz for 1 min	
Vibration resistance	Destruction: 10 to 55 to 10 Hz, 0.75-mm single amplitude	
Shock resistance	Destruction: 1,000 m/s ²	
Ambient temperature	Operating: -30°C to 80°C (with no icing or condensation) Storage: -30°C to 100°C (with no icing or condensation)	
Ambient humidity	Operating: 45% to 85%	
Certified standards	UL508 File No.E64562/CSA C22.2 (No.0, No.14) File No. LR35535 TUV R9051064 (VDE0435) (EN60950)	
EMC	Emission: EN55011 Group 1 Class B Immunity: EN61000-6-2	
Weight	Approx. 37 g	

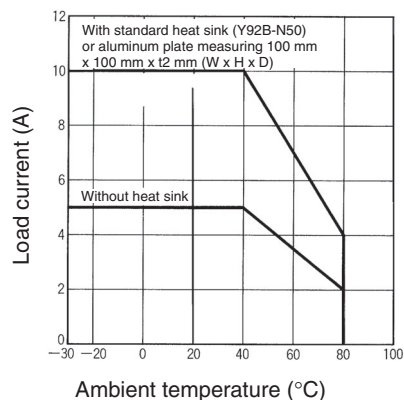
Engineering Data

Load Current vs. Ambient Temperature

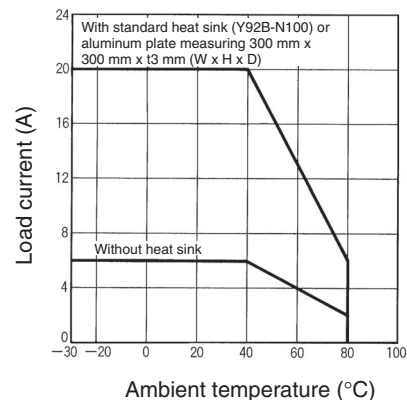
G3NE-205T(L)(-2)-US



G3NE-210T(L)(-2)-US



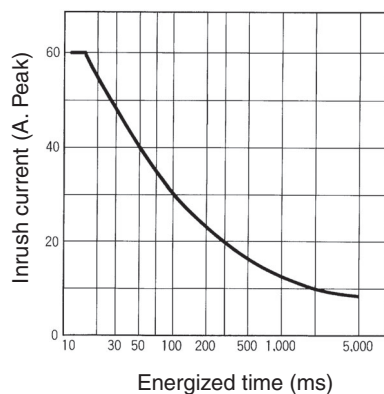
G3NE-220T(L)(-2)-US



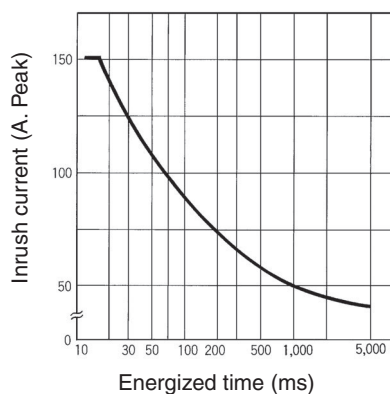
One Cycle Surge Current: Non-repetitive

Note: Keep the inrush current to half the rated value if it occurs repetitively.

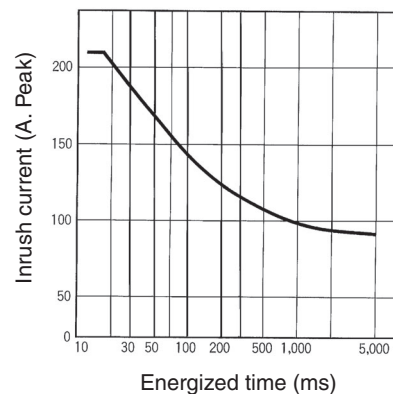
G3NE-205T(L)(-2)-US



G3NE-210T(L)(-2)-US



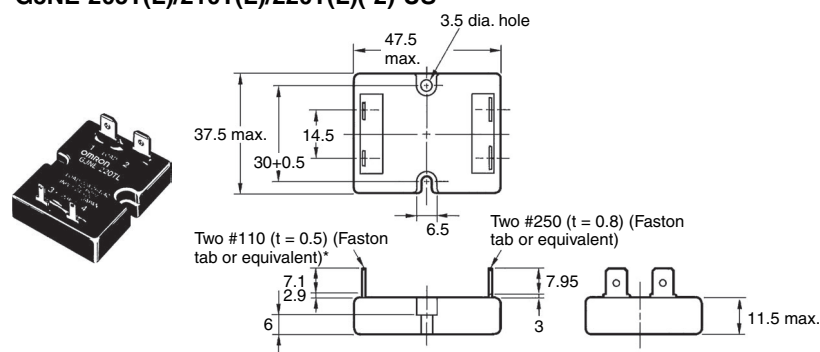
G3NE-220T(L)(-2)-US



Dimensions

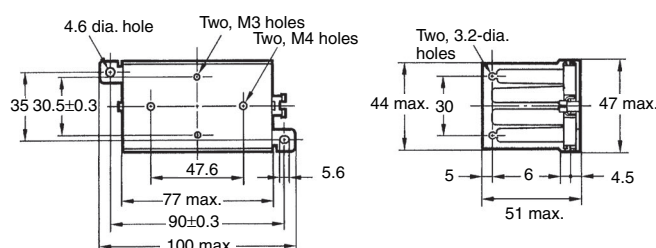
Note: All units are in millimeters unless otherwise indicated.

G3NE-205T(L)/210T(L)/220T(L)(-2)-US

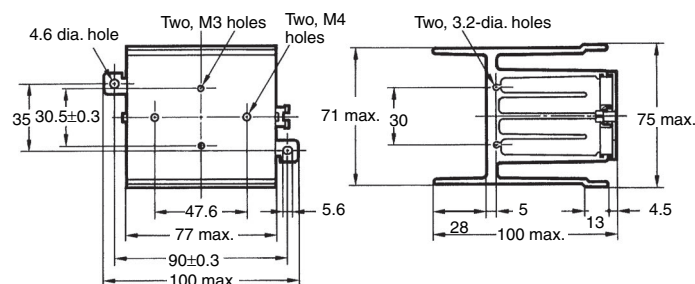


* G3NE-2□□T(L)-2-US: Two, #187 (t=0.5) (Faston tab or equivalent)

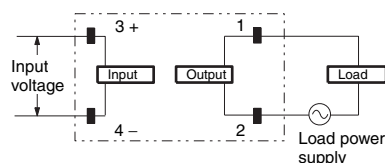
Heat Sink Y92B-N50



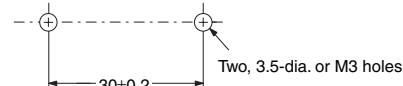
Y92B-N100



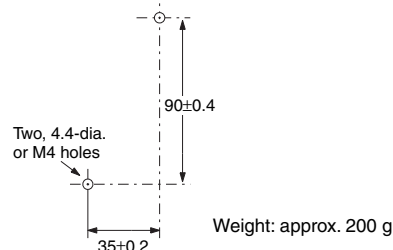
Terminal Arrangement/ Internal Connections (Top View)



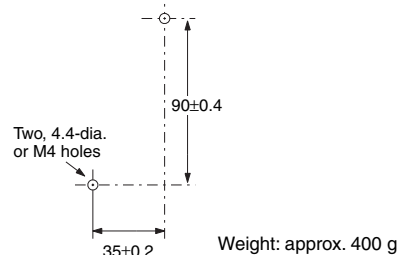
Mounting Holes



Mounting Holes



Mounting Holes



Safety Precautions

Refer to *Safety Precautions for All Solid State Relays*.

■ Precautions for Correct Use

Please observe the following precautions to prevent failure to operate, malfunction, or undesirable effect on product performance.

Do not apply excessive force to the terminals. Be careful when pulling or inserting the terminal clips for the Quick Connector (QC).

When attaching a heat sink to the G3NE, in order to facilitate heat dissipation, apply heat-conductive grease on the heat sink.

For DIN Track mounting, use a separately sold Heat Sink. Refer to information on the G3NA.

G3NE-210T(L): Y92B-N50

G3NE-220T(L): Y92B-N100

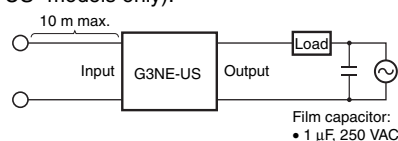
Tighten the mounting screws of the heat sink with a torque of 0.59 to 0.98 N·m.

■ Thermal Resistance Rth (Back of Junction SSR)

Model	Thermal resistance (°C/W)
G3NE-205T (L)	2.72
G3NE-210T (L)	2.12
G3NE-220T (L)	2.22

■ EMC Directive Compliance

The G3NE complies with EMC Directives under the following conditions ("US" models only).



- Connect a film capacitor to the load power supply.
- The input cable must be less than 10 m.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

In the interest of product improvement, specifications are subject to change without notice.

Read and Understand This Catalog

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The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

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- Systems, machines, and equipment that could present a risk to life or property.

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Disclaimers

CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons.

It is our practice to change model numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the products may be changed without any notice. When in doubt, special model numbers may be assigned to fix or establish key specifications for your application on your request. Please consult with your OMRON representative at any time to confirm actual specifications of purchased products.

DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

PERFORMANCE DATA

Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of OMRON's test conditions, and the users must correlate it to actual application requirements. Actual performance is subject to the OMRON Warranty and Limitations of Liability.

ERRORS AND OMISSIONS

The information in this document has been carefully checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical, or proofreading errors, or omissions.

2009.2

In the interest of product improvement, specifications are subject to change without notice.

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[G3NE-210T-US-DC24](#) [G3NE-205TL-US DC5](#) [G3NE-205T-US DC12](#) [G3NE-205T-US DC24](#) [G3NE-210TL-US DC24](#)
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