OMRON G3J Simple Solid State Contactors User Guide

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User Guide

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

Solid State Contactors That Can Drive 3phase Motors Frequently, and Achieve Harmonized Protection with Thermal Overload Relays

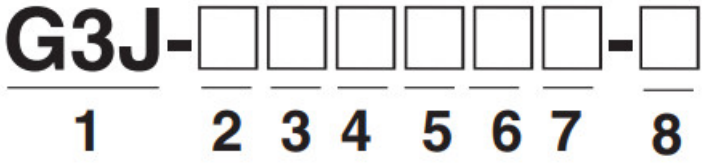
- Certified for UL, CSA, and CCC.
- Mount with screws or to DIN tracks.
- Compact monoblock construction (W: 80 × H: 100 × D: 100 mm) with a heat sink.
- Snubber circuit and varistor are built-in.
- Operation indicator.
- Two-element models added to series.

Refer to Safety Precautions for All Solid State Relays.

Contents

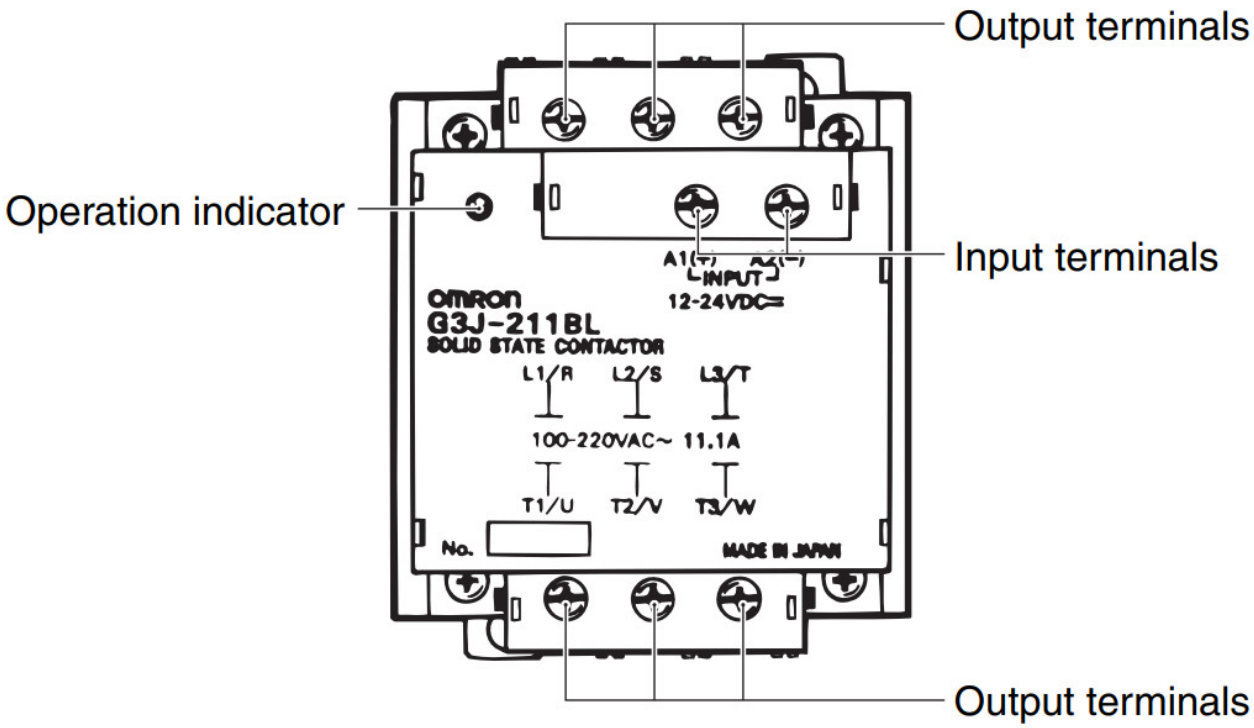
Model Number Structure

Model Number Legend



1. **Basic Model Name**
   G3J: Solid State Contactor
2. **Load Power Supply**
   Blank: AC output
3. **Functions**
   Blank: Simple models
4. **Rated Load Power Supply Voltage**
   2: 200 VAC
5. **Rated Load Current**
   11: 11.1 A (200-V models)
   05: 4.8 A (200-V models)
6. **Terminal Type**
   B: Screw terminals
7. **Zero Cross Function**
   L: Not equipped with zero cross function
8. **Number of Elements**
   Blank: Standard models (3 elements)
   2: 2 elements

Appearance



List of Models

Number of elements	Insulation method	Rated supply voltage	Applicable motor		Model
3	Photostream	12 to 24 VDC	2.2 kW (11.1 A)	200 to 220 VAC	G3J-211BL
			0.75 kW (4.8 A)		G3J-205BL
	Photocoupler	100 to 240 VAC	2.2 kW (11.1 A)		G3J-211BL
			0.75 kW (4.8 A)		G3J-205BL
2	Photostream	12 to 24 VDC	2.2 kW (11.1 A)		G3J-211BL-2
			0.75 kW (4.8 A)		G3J-205BL-2
	Photocoupler	100 to 240 VAC	2.2 kW (11.1 A)		G3J-211BL-2
			0.75 kW (4.8 A)		G3J-205BL-2

Note: When ordering, specify the rated supply voltage.

Specifications

Ratings (at an Ambient Temperature of 25°C)
Operation Circuit

Item	DC-input models	AC-input models
Rated supply voltage	12 to 24 VDC	100 to 240 VAC (50/60 Hz)
Operating voltage range	9.6 to 26.4 VDC	75 to 264 VAC (50/60 Hz)
Rated input current (impedance)	15 mA max. (at 12 to 24 VDC)	36 ki2 ±20% (100 to 240 VAC)
Must operate voltage	9.6 VDC max.	75 VAC max.
Must release voltage	3.6 VDC min.	20 VAC min.

Main Circuit

Item		G3J-211BL, G3J-211BL-2	I G3J-205BL, G3J-205BL-2
Rated load voltage		100 to 240 VAC (50/60 Hz)	
Load voltage range		75 to 264 VAC (50/60 Hz)	
Rated carry current (See note 3.)		11.1 A (Ta = 40°C)	4.8 A (Ta = 40°C)
Min. load current		0.1 A	
Peak-value current resistivity		350 A, 60 Hz, 1 cycle	150 A, 60 Hz, 1 cycle
Overload resistance		Refer to Safety Precautions for the G3J-T, G3J-S, and G3J.	
Closed current (effective value)	AC3	111 A	48 A
	AC4	133.2 A	57.6 A
Breaking current (effective value)	AC3	88.8 A	38.4 A
	AC4	111 A	48 A
Applicable load	3-phase inductive motor (AC3 AC4 AC53-a)	200 to 220 VAC, 2.2 kW, (11.1 A)	200 to 220 VAC, 0.75 kW, (4.8 A)
		Motors passed the AC3-class, AC4-class, and AC53-a-class switching frequency test (Ta = 40°C) under conditions specified by OMRON. Refer to Safety Precautions for the G3J-T, G3J-S, and G3J.	
	Single-phase motor (AC3) (See note 1.)	100 VAC, 0.4 kW (11.1 A) 200 VAC, 0.75 kW (8.8 A)	100 VAC, 0.1 kW, (5.1 A) 200 VAC, 0.4 kW (5.5 A) (See note 2.)
	Resistive load (AC1)	100 to 240 VAC, 11.1 A	100 to 240 VAC, 4.8 A

Note

1. With 2-element models, L2 and T2 are shorted internally.
2. When using 0.75 kW models with 3 poles ON simultaneously, use either combination at 4.8 A max.
3. The rated carry current varies depending on the ambient temperature. Refer to Load Current vs. Ambient Temperature under Engineering Data in the Information Common to the G3J-T, G3J-S, and G3J for details.

Characteristics

Item	DC-input models	AC-input models
Operate time	1 ms max.	50 ms max.
Release time	5/6 of the load power supply cycle time + 1 ms max.	3/2 of the load power supply cycle time + 1 ms max.
Output ON-voltage dro p	1.6 VRMS max.	
Leakage current (See note.)	10 mA max. (at 200 VAC)	
Insulation resistance	100 Mil min. (at 500 VDC)	
Dielectric strength	2,500 VAC, 50/60 Hz for 1 min	
Vibration resistance	Destruction: 10 to 55 to 10 Hz, 0.75-mm single amplitude	
Shock resistance	Destruction: 294 m/s2	
Ambient temperature	Operating: —20°C to 60°C (with no icing or condensation) Storage: —30°C to 70°C (with no icing or condensation)	
Ambient humidity	Operating: 45% to 85%	
Weight	Approx. 700 g	
Standards	UL (File No.E64562), CSA (File No.LR35535), CCC GB/T 14048.6 No. 2016010304855599, IEC947-4-1	

Note: With 2-element models, the S-phase leakage current will be larger by a factor of √3.

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.

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