

Soft-start Function Starts Motors Smoothly and Economically

- The soft-start function allows a smooth startup of motors by holding down the starting current, and functions like an inverter.
- Harmonized protection with thermal overload relays conforming to IEC 947-4-2 (Class 10A/10) and is like a standard contactor.
- Thermal Overload Relays can be mounted directly.
- Conforms to AC Class 3 (IEC947).
- Meets UL, CSA, IEC, and JEM requirements.
- Mounts with screws or to DIN tracks.
- Compact monoblock construction (80 (W) x 100 (H) x 100 (D)) with a heat sink.
- Snubber circuit and varistor are built-in.
- With an operation indicator.



Ordering Information

G3J-S

Number of elements	Insulation method	Rated supply voltage	Input method	Applicable motor		Model
3	Phototriac	12 to 24 VDC	No-voltage input (open and short-circuit input)	2.2 kW (5.5 A)	380 to 400 VAC	G3J-S405BL
				0.75 kW (2.4 A)		G3J-S403BL
				2.2 kW (11.1 A)	200 to 220 VAC	G3J-S211BL
				0.75 kW (4.8 A)		G3J-S205BL

Thermal Overload Relay

Model	Current setting range
J7TY-K063	0.4 to 0.63 A
J7TY-K100	0.63 to 1.0 A
J7TY-K160	1.0 to 1.6 A
J7TY-K200	1.25 to 2.0 A
J7TY-K250	1.6 to 2.5 A
J7TY-K400	2.5 to 4.0 A
J7TY-K600	4.0 to 6.0 A
J7TY-K800	5.5 to 8.0 A
J7TY-K101	7.0 to 10.0 A
J7TY-K131	9.0 to 13.0 A

Specifications

■ Ratings (Ambient Temperature: 25°C)

Power Supply

Rated supply voltage	12 to 24 VDC
Operating voltage range	10.2 to 26.4 VDC
Current consumption	50 mA max. (at 12 to 24 VDC)

Operation Circuit

Input current	10 mA max. (at 12 to 24 VDC)
Input method No-voltage input (short-circuiting and opening inputs) (see note)	Short-circuiting or opening terminals 1 and COM or 2 (+) and 1 SSR input turned ON: A maximum residual voltage of 2 V between short-circuited terminals SSR input turned OFF: A maximum leakage current of 0.15 mA Relay input: For minute signals

Note: Refer to page 105 for wiring examples.

Main Circuit

Item		G3J-S405BL	G3J-S403BL	G3J-S211BL	G3J-S205BL
Rated load voltage		200 to 400 VAC (50/60 Hz)		200 to 240 VAC (50/60 Hz)	
Load voltage range		180 to 440 VAC (50/60 Hz)		180 to 264 VAC (50/60 Hz)	
Rated carry current		5.5 A (Ta = 40°C)	2.4 A (Ta = 40°C)	11.1 A (Ta = 40°C)	4.8 A (Ta = 40°C)
Min. load current		0.5 A			
Peak-value current resistivity		220 A, 60 Hz, 1 cycle	96 A, 60 Hz, 1 cycle	350 A, 60 Hz, 1 cycle	150 A, 60 Hz, 1 cycle
Overload resistance		Refer to <i>Engineering Data</i> on page 96.			
Closed current (effective value)	AC3	55 A	24 A	111 A	48 A
	AC4	66 A	28.8 A	133.2 A	57.6 A
Breaking current (effective value)	AC3	44 A	19.2 A	88.8 A	38.4 A
	AC4	55 A	24 A	111 A	48 A
Applicable load	3-phase inductive motor (AC3 AC4 AC53-a)	380 to 400 VAC, 2.2 kW, 5.5 A	380 to 400 VAC, 0.75 kW, 2.4 A	200 to 220 VAC, 2.2 kW, 11.1 A	200 to 220 VAC, 0.75 kW, 4.8 A
		Motors passing the AC3-class, AC4-class, and AC53-a-class switching frequency test (Ta = 40°C) under conditions specified by OMRON. Refer to <i>Switching Frequency Test Conditions</i> on page 97.			
	Resistive load (AC1) (see note)	200 to 400 VAC, 5.5 A	200 to 400 VAC, 2.4 A	200 to 240 VAC, 11.1 A	200 to 240 VAC, 4.8 A

Note: No single-phase load can be connected.

■ Characteristics

Item	G3J-S405BL	G3J-S403BL	G3J-S211BL	G3J-S205BL
Ramp-up time	Set within a range from 1 to 25 s.			
Reset time	5/6 cycles of load power supply + 1 ms max.			
Starting torque	Set within a range from 200% to 450% In.			
Output ON-voltage drop	1.8 V _{RMS} max.		1.6 V _{RMS} max.	
Leakage current	20 mA max. (at 400 VAC)		10 mA max. (at 200 VAC)	
Insulation resistance	100 MΩ min. (at 500 VDC)			
Dielectric strength	2,500 VAC, 50/60 Hz for 1 min			
Vibration resistance	Destruction: 10 to 55 Hz, 0.75-mm single amplitude Malfunction: 10 to 55 Hz, 0.75-mm single amplitude			
Shock resistance	Destruction: 294 m/s ² Malfunction: 147 m/s ²			
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	730 g max.			
Approved Standards	UL508 File No. E64562 CSA 22.2 No. 14 File No. LR35535 IEC947-4-2 File No. 96.2597.02			
EMC	Emission	AC mains	IEC947-4-2, CISPR 11 Class A	
	Emission	Electromagnetic	IEC947-4-2, CISPR 11 Class A	
	Immunity	ESD	IEC947-4-2, IEC801-2: 4 kV contact discharge 8 kV air discharge	
	Immunity	Electromagnetic	IEC947-4-2, IEC1000-4-3 10 V/m (80 MHz to 1 GHz)	
	Immunity	EFT	IEC947-4-2, IEC801-4: 2 kV AC power-signal line	
	Immunity	Surge transient	IEC947-4-2, IEC1000-4-5 1 kV differential mode 2 kV common mode	
	Immunity	RF disturbance	IEC947-4-2, IEC/DIS1000-4-6 10 V (0.15 to 80 MHz)	

Thermal Overload Relay

Number of heater elements		3		
Contact rating	Contact configuration		SPST-NO, SPST-NC	
	Rated insulation voltage		660 V	
	Insulation resistance (initial value)		100 MΩ min. (500 VDC)	
	Dielectric strength (initial value)	Between main circuit poles		2,500 VAC, 1 min.
		Contact circuit		2,200 VAC, 1 min.
	Rated thermal current I _{th}	AC15		4 A
		DC13		1 A
	Rated operating current	AC15	125 V	3 A
			220 V	2 A
			500 V	0.5 A
660 V			0.3 A	
DC13		24 V	1 A	
		60 V	0.5 A	
		110 V	0.25 A	
	220 V	0.1 A		