

Solid State Relay

Selection Guide



Reliable Solutions
for Industrial Control

The Solid State Advantage

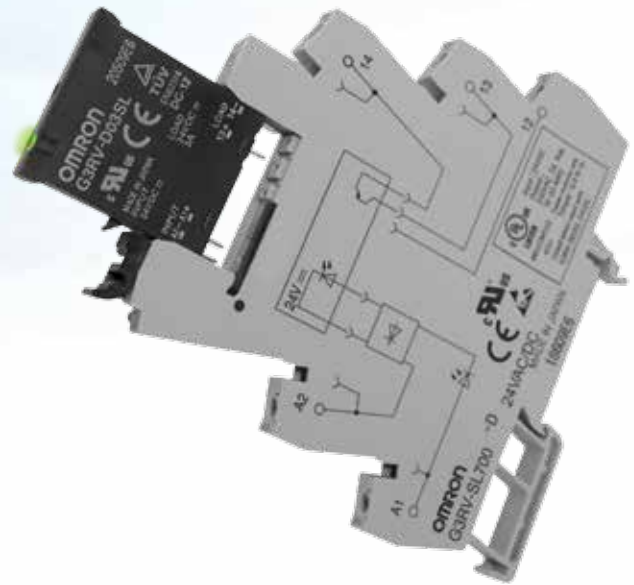
OMRON has been leading the world in relay technology for more than 50 years, maintaining the industry's broadest relay product line. Our large, dedicated relay R & D budget allows us to produce a steady stream of innovative relays that perform in different operating environments and industries. Companies around the world depend on OMRON to provide ingenious

solutions to their most challenging applications, including applications ideal for solid state relay.

Our lines of solid state relays includes more than 20 different models with hundreds of variations and options. These relays have flexible input and output ranges and multiple footprints providing a reliable solution to any application.

Benefits of Solid State Relays

- Life expectancy significantly greater than electromechanical relays
- Contains no moving parts or contacts to wear out
- Immune to contact bounce and arcing
- No audible clicking
- Provides clean switching which generates very little electromagnetic interference
- Solid State Relays provide up to 10 times the shock resistance of electromechanical relay
- High I/O isolation that is crucial for isolating sensitive equipment from the load
- Minimize surge and input noise
- Simplified wiring



When should you use a Solid State Relay?

- When long life is required
- When the relay must operate in a harsh environment (i.e. dust, humidity, or a combustible environment)
- When silent operation is preferred
- When high speed switching is required
- When limited source current is available to drive the input
- When compatibility with digital logic is required, such as with microprocessor or PLC controlled applications

Selection Table



Specifications

	G3RV	G3TA	G3R(D)	G3F(D)
	 Quick Link R427 omron247.com	 Quick Link R435 omron247.com	 Quick Link R428 omron247.com	 Quick Link R444 omron247.com
Features	<ul style="list-style-type: none"> • Same footprint as G2RV • 6.2mm width • LED indicator • Push-in terminal is available 	<ul style="list-style-type: none"> • Same footprint as G7T • LED Indicator • Input/Output type are available 	<ul style="list-style-type: none"> • Same footprint as G2RS • LED Indicator • Input/Output type are available 	<ul style="list-style-type: none"> • Same footprint as MY2 • LED Indicator
Max. Switching Load (resistive)	3A @ 24 VDC 2A @ 240 VAC	Input : 25mA @ 32 VDC Output : 2A @ 60 VDC 1A @ 200 VDC 2A @ 264 VAC	Input : 100mA @ 32 VDC Output : 2A @ 60 VDC 1.5A @ 200 VDC 2A @ 264 VAC	3A @ 48 VDC 2A @ 110 VDC 3A @ 240 VAC
Operating input	12 VDC, 24 VDC 24 VAC/DC, 48 VAC/DC 110 VAC, 230 VAC	Input : 3-32 VDC 80- 264 VAC Output : 12 VDC, 24 VDC	Input : 5 VDC, 12-24 VDC 100-240 VAC Output : 5-24 VDC	5 VDC, 12 VDC, 24 VDC 5-24 VDC, 100/110 VAC, 200/220 VAC
Zero Cross	Yes	No	Yes (optional)	Yes (optional)
Leakage Current (max.)	10µA max. @ 24 VDC 5mA max. @ 200 VAC	Input : 5µA max. Output : 1mA max.(DC) 5mA max.(AC)	Input : 5µA max. Output : 1mA max.(DC) 1.5mA max.(AC)	5mA max. @ 50 VDC 0.1mA max. @ 100 VDC 10mA max. @ 200 VAC
Dielectric Strength (50/60Hz for 1 min)	2.5k VAC	14.0k VAC	4.0k VAC	1.5k VAC * 2.0k VAC (G3F-VD)
Operating Temperature	-30 to +55°C	-30 to +80°C	-30 to +80°C	-30 to +80°C
Mounting	DIN Socket : G3RV	DIN/Panel Socket: P7TF-05	DIN/Panel/PCB Socket : P2RF-05, P2RF-05-E, P2R-05A, P2R-05P, P2R-057P	DIN/Panel/PCB Socket : PYF08A(-E), PY08, PY08-02, PY08QN(2)
Approvals				
Dimension(mm) H x L x W (including socket)	106.3 x 106.7 x 6.2	39 x 33 x 10	29 x 29 x 13	42 x 28 x 21.5

Selection Table



	G3H(D)	G3B(D)	G9H	G3NE

Specifications

Features	<ul style="list-style-type: none"> Same footprint as LY1, LY2 LED Indicator 	<ul style="list-style-type: none"> Octal 8-pin terminal Same footprint as MKS LED Indicator 	<ul style="list-style-type: none"> Hybrid of EMR and SSR achieves 10A switching for 10 Million operation LED Indicator Same footprint as LY1, LY2 	<ul style="list-style-type: none"> Low profile(11.5mm) Different size Quick-connect terminal(#110 input, #250 output) prevent miss wiring Built-in varistor
Max. Switching Load (resistive)	3A @ 48 VDC 2.5A @ 240 VDC 3A @ 240 VAC	5A @ 240 VAC	10A @ 240 VAC	20A @ 100-240 VAC
Operating input	5 VDC, 12 VDC, 24 VDC 5-24 VDC	5-24 VDC	5 VDC, 12 VDC, 24 VDC	5 VDC, 12 VDC, 24 VDC
Zero Cross	Yes (optional)	Yes (optional)	No	Yes (optional)
Leakage Current (max.)	5mA max. @ 50 VDC 0.1mA max. @ 200 VDC 10mA max. @ 200 VAC	5mA max. @ 125 VDC 5mA max. @ 100 VAC 10mA max. @ 200 VAC	5mA max. @ 250 VAC	2mA max. @ 100 VAC 5mA max. @ 200 VAC
Dielectric Strength (50/60Hz for 1 min)	2.0k VAC (G3H) 1.5k VAC (G3HD)	2.0k VAC (G3B) 1.5k VAC (G3BD)	2.0k VAC	2.0k VAC
Operating Temperature	-30 to +80°C	-30 to +80°C	-25 to +60°C	-30 to +80°C
Mounting	DIN/Panel Socket: PTF08A-E	DIN/Panel Socket : PF083A-E, PF083A-D, PF083A	DIN/Panel Socket: PTF08A-E	DIN/Panel Heat sink : Y92B-N50, Y92B-N100
Approvals				
Dimension (mm) H x L x W	42 x 28 x 21.5 (including socket)	52.5 x 36 x 36 (including socket)	42 x 28 x 21.5 (including socket)	11.5 x 47.5 x 37.5



G3NA	G3PF	G3PE	G3PA	G3PH
Quick Link R422 omron247.com	Quick Link R447 omron247.com	Quick Link R425 omron247.com	Quick Link R423 omron247.com	Quick Link R438 omron247.com
<ul style="list-style-type: none"> • “Hockey Puck” Industrial standard size • AC/DC model available • Protective cover standard for safety • LED Indicator 	<ul style="list-style-type: none"> • Built in Current Transformer • SSR short-circuit failure detection • Heater burn out detection 	<ul style="list-style-type: none"> • With/without Heat sink types are available • Single phase/Three phase are available • Protective cover standard for safety 	<ul style="list-style-type: none"> • Come equipped with heat sink • Close mounting possible for linking terminals • Replaceable cartridges 	<ul style="list-style-type: none"> • High power (max. 150A @ 480 VAC) switching • Replaceable cartridges
10A @ 200 VDC 50A @ 600 VAC 90A @ 480 VAC	35A @ 480 VAC	45A @ 480 VAC	60A @ 240 VAC 50A @ 480 VAC	150A @ 480 VAC
5-24 VDC, 100-120 VAC 100-240 VAC 200-240 VAC	12-24 VDC	12-24 VDC	5-24 VDC 12-24 VDC 24 VAC	5-24 VDC 100-240 VAC
Yes	Yes (optional)	Yes (optional)	Yes (optional)	Yes (optional)
5mA max. @ 200 VDC 20mA max. @ 400 VAC 20mA max. @ 600 VAC	10mA max. @ 200 VAC 20mA max. @ 480 VAC Alarm output:1mA max.	10mA max. @ 200 VAC 20mA max. @ 480 VAC	10mA max. @ 100 VAC 20mA max. @ 200 VAC 20mA max. @ 480 VAC	30mA max. @ 240 VAC 60mA max. @ 480 VAC
2.5k VAC 4.0k VAC (-UTU type)	2.5k VAC	2.0k VAC	4.0k VAC	2.5k VAC
-30 to +80°C	-20 to +60°C	-30 to +80°C	-30 to +80°C	-30 to +80°C
DIN/Panel Heat sink : Y92B-N50, Y92B-N100, Y92B-N150, etc.	DIN/Panel	DIN/Panel For G3PE-***-2H/3H Heat sink : Y92B-P50, Y92B-P100, etc.	DIN/Panel	Panel
30 x 58 x 43	137 x 100 x 55	Single Phase 100 x 100 x 44.5 3-phase 100 x 120 x 80	100 x 110 x 100	186 x 156 x 156

Required Heat Sink

For Single-phase Load

G3NE (DIN rail mount & direct mount)

		Admissible Load Voltage	
		19 to 264 VAC	
Load Current	~ 5A	Y92B-N50	
	~ 10A		
	~ 20A	Y92B-N100	

G3NA (DIN rail mount & direct mount)

		Admissible Load Voltage			
		19 to 264 VAC	180 to 528 VAC	360 to 660 VAC	4 to 220 VAC
Load Current	~ 5A	Y92B-N50	-	-	-
	~ 10A				
	~ 20A	Y92B-N100			
	~ 25A	Y92B-N150		-	
	~ 40A			-	
	~ 50A	Y92B-P250			
	~ 75A	Y92B-P250NF		-	
	~ 90A			-	

For 3-phase Load

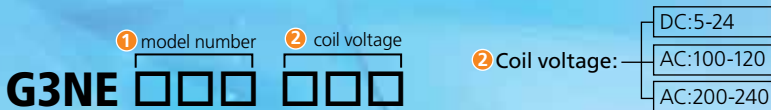
G3PE-□-2H (DIN rail mount & direct mount)

		Admissible Load Voltage	
		75 to 264 VAC	180 to 528 VAC
Load Current	~ 15A	Y92B-P50	
	~ 25A	Y92B-P100	
	~ 35A	Y92B-P150	
	~ 45A	Y92B-P200	

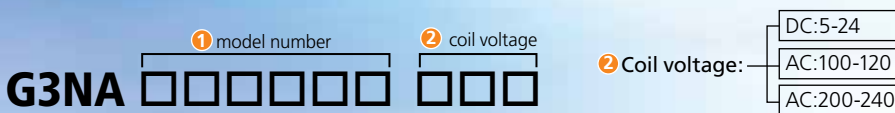
G3PE-□-3H (DIN rail mount & direct mount)

		Admissible Load Voltage	
		75 to 264 VAC	180 to 528 VAC
Load Current	~ 15A	Y92B-P100	
	~ 25A	Y92B-P150	
	~ 35A	Y92B-P200	
	~ 45A	Y92B-P250	

For Motor Applications



Model Number	Without Heatsink		With Heatsink (+)	
	General Use / Tungsten	Motor (Definite Purpose)	General Use / Tungsten	Motor (Definite Purpose)
205	3 A, 240 VAC	3.2 FLA, 19.2 LRA, 240 VAC	-	-
210	5 A, 240 VAC	3.0 FLA, 18.0 LRA, 240 VAC	7.5 A, 240 VAC	4.8 FLA, 28.8 LRA, 240 VAC
220	6 A, 240 VAC	3.3 FLA, 19.8 LRA, 240 VAC	11 A, 240 VAC	11.1 FLA, 66.6 LRA, 240 VAC



Model Number	Without Heatsink		With Heatsink (+)	
	General Use / Tungsten	Motor (Definite Purpose)	General Use / Tungsten	Motor (Definite Purpose)
205B	3 A, 240 VAC	2.5 FLA, 15 LRA, 240 VAC	5 A, 240 VAC	2.5 FLA, 15 LRA, 240 VAC
210B	4 A, 240 VAC	2.5 FLA, 15 LRA, 240 VAC	10 A, 240 VAC	5 FLA, 30 LRA, 240 VAC
220B	4 A, 240 VAC	2.5 FLA, 15 LRA, 240 VAC	20 A, 240 VAC	10 FLA, 60 LRA, 240 VAC
225B	4 A, 240 VAC	2.5 FLA, 15 LRA, 240 VAC	25 A, 240 VAC	12 FLA, 72 LRA, 240 VAC
240B	6 A, 240 VAC	5 FLA, 30 LRA, 240 VAC	40 A, 240 VAC	20 FLA, 120 LRA, 240 VAC
250B	6 A, 240 VAC	5 FLA, 30 LRA, 240 VAC	50 A, 240 VAC	20 FLA, 120 LRA, 240 VAC
275B -2	7 A, 240 VAC	6 FLA, 36 LRA, 240 VAC	75 A, 240 VAC	25 FLA, 150 LRA, 240 VAC
290B -2	7 A, 240 VAC	6 FLA, 36 LRA, 240 VAC	90 A, 240 VAC	25 FLA, 150 LRA, 240 VAC
410B	4 A, 480 VAC	2.5 FLA, 15 LRA, 480 VAC	10 A, 480 VAC	5 FLA, 30 LRA, 480 VAC
420B	4 A, 480 VAC	2.5 FLA, 15 LRA, 480 VAC	20 A, 480 VAC	10 FLA, 60 LRA, 480 VAC
425B -2	4 A, 480 VAC	2.5 FLA, 15 LRA, 480 VAC	25 A, 480 VAC	10 FLA, 60 LRA, 480 VAC
440B -2	6 A, 480 VAC	5 FLA, 30 LRA, 480 VAC	40 A, 480 VAC	12 FLA, 72 LRA, 480 VAC
450B -2	6 A, 480 VAC	5 FLA, 30 LRA, 480 VAC	50 A, 480 VAC	15 FLA, 90 LRA, 480 VAC
475B -2	7 A, 480 VAC	6 FLA, 36 LRA, 480 VAC	75 A, 480 VAC	25 FLA, 150 LRA, 480 VAC
490B -2	7 A, 480 VAC	6 FLA, 36 LRA, 480 VAC	90 A, 480 VAC	25 FLA, 150 LRA, 480 VAC
610B	4 A, 600 VAC	2 FLA, 12 LRA, 600 VAC	10 A, 600 VAC	4 FLA, 24 LRA, 600 VAC
625B	4 A, 600 VAC	2 FLA, 12 LRA, 600 VAC	25 A, 600 VAC	10 FLA, 60 LRA, 600 VAC
650B	6 A, 600 VAC	3 FLA, 18 LRA, 600 VAC	50 A, 600 VAC	15 FLA, 90 LRA, 600 VAC
D210B	4 A, 200 VDC	-	10 A, 200 VDC	-

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