Solid State Relays

SELECTION GUIDE

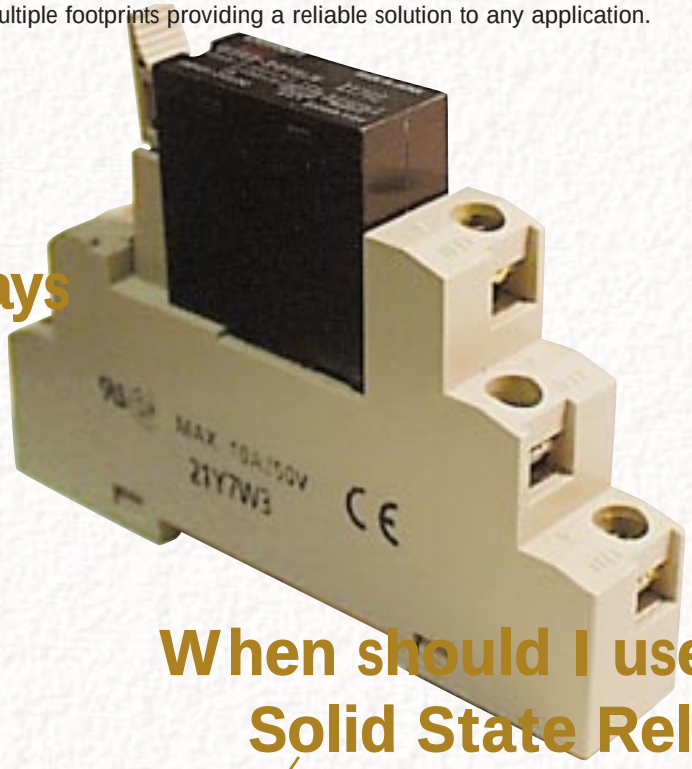
OMRON

Giving you every advantage.

The Solid State Advantage

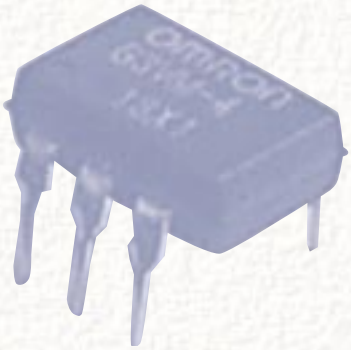
Omron has been leading the world in relay technology for more than 50 years, maintaining the industry's broadest relay product line. Our large, dedicated relay R & D budget allows us to produce a steady stream of innovative relays that perform in different operating environments and industries. Companies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

Our line 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

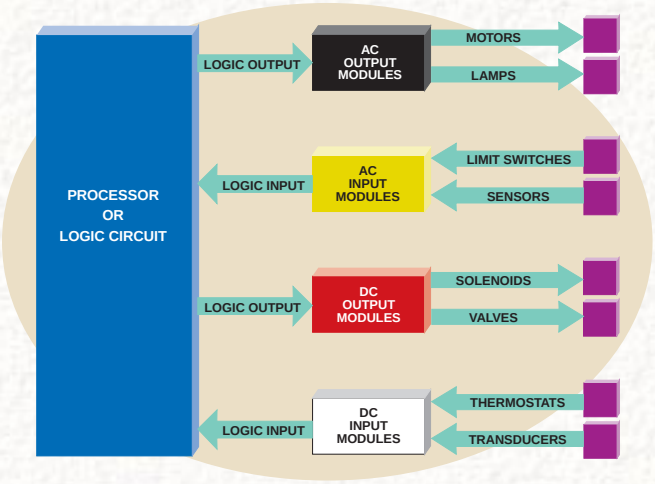
- Have a life expectancy significantly greater than electromechanical relays
- Have no moving parts or contacts to wear out
- Are immune to contact bounce and arcing
- No audible clicking
- Generate very little electromagnetic interference, providing clean switching for virtually any load
- Have up to 10 times the shock resistance of electromagnetic relays
- Have high I/O isolation that is crucial for isolating sensitive equipment from the load
- Can be switched ON with very little input current
- Have internal circuitry that lengthens load life



When should I 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 necessary
- 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 computer controlled applications
- If reduced electromagnetic interference is required
- When the application requires a high number of operations

I/O Modules

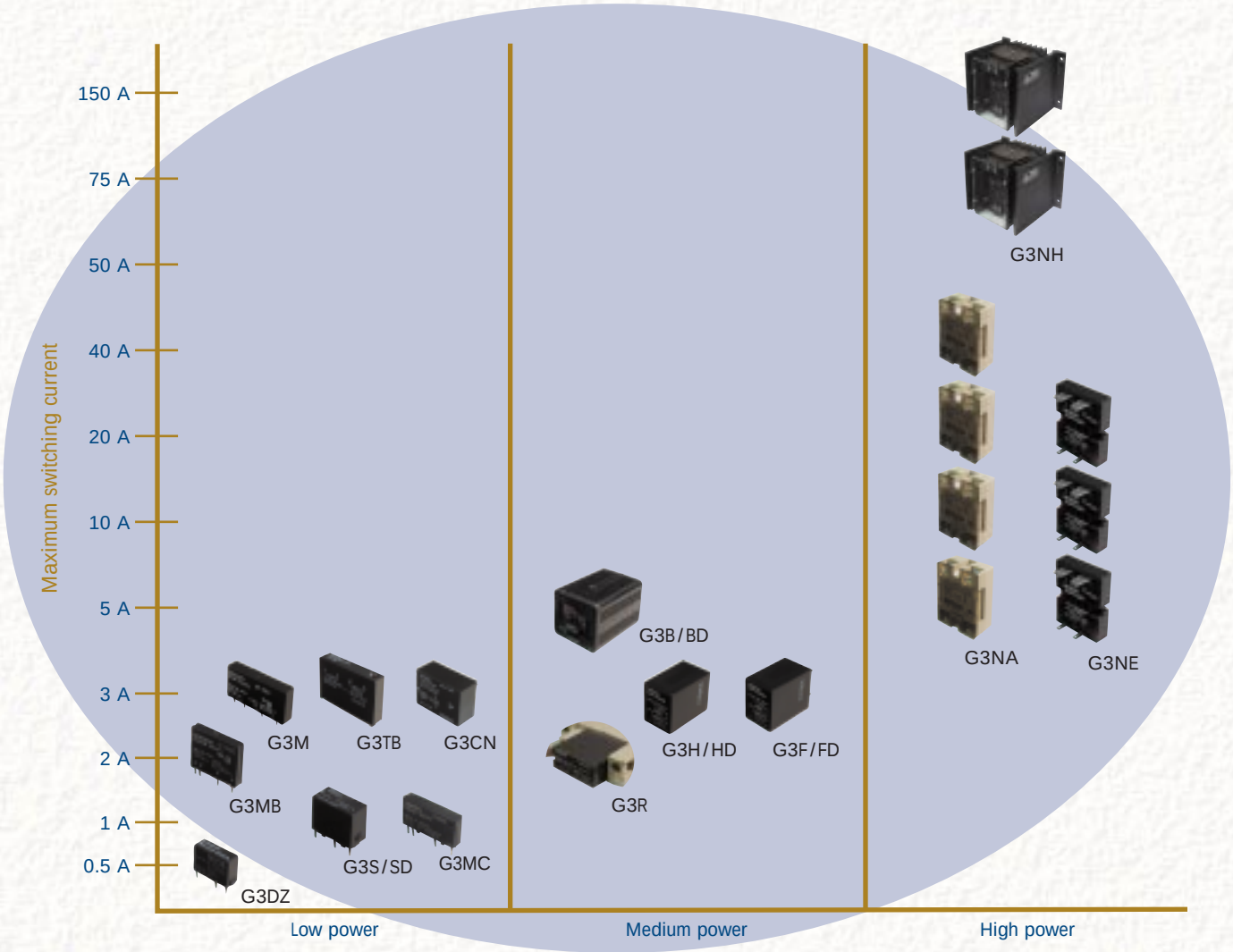


Omron's G3TB's industry standard color-coding system

Omron's Solid State I/O modules are electronic devices providing an interface between a logic circuit and external devices. These devices are compatible with many microprocessors, TTL and MOS type logic systems. Input modules convert AC or DC inputs from external devices like switches or sensors into acceptable DC current and voltage for the logic circuit. Output modules use the output of the processor to switch external AC and DC loads like motors or solenoids on and off.

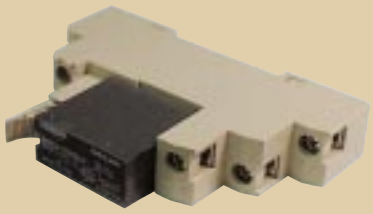
Omron's G3TB uses the industry standard color-coding system, ensuring easy differentiation among inputs and outputs and is perfect for PCB mounting applications. Omron's G3R I/O module is ideal for industrial applications with space constraints. It shares the G2R's footprint, is clearly marked per input/output function and can be mounted side-by-side on a DIN rail or panel using the P2RF socket.

Maximum Load



				
	G3NH	**G3NA**	**G3NE**	**G3B/BD**
Dimensions (L x W x H) mm	186 x 156 x 156 mm 7.3 x 6.1 x 6.1 in	58 x 43 x 27 mm 2.3 x 1.7 x 1.1 in	47 x 37.5 x 11.5 mm 1.9 x 1.5 x 0.45 in	35 x 35 x 52.5 mm 1.4 x 1.4 x 2.1 in
Features	Controls high power loads. Replaceable power cartridge. Integrated heatsink.	Hockey puck design. Ideal for industrial controls. Standard operation indicator.	Ideal for panel mount applications. Compact aluminum PCB and power elements used.	Operation indicator provided. Compatible with Omron's MK footprint.
Operating input	4-30 VDC 75-264 VAC	4-32 VDC 75-132 VAC 150-264 VAC	5, 12, 24 VDC	4-30 VDC
Output ranges				
voltage	75-264 VAC 150-484 VAC	19-528 VAC 4-220 VDC	75-264 VAC	75-264 VAC 3-125 VDC
load (max.)	**75-150 A**	**5-40 A**	**5-20 A**	**5 A**
Isolation	Photocoupler	Phototriac, Photocoupler	Phototriac	Photocoupler
Dielectric	2500 VAC	2500 VAC	2000 VAC	1500 VAC
Zero crossing	Yes	Yes	Yes	Yes
Snubber circuit	Yes	Yes	Yes	Yes
Life (MTTF)	100,000 hours	100,000 hours	100,000 hours	100,000 hours
Mounting	Panel mount	Panel mount	Panel mount	Plug-in/Socket
Terminal	Screw	Screw	Quick connect	Plug-in
Approvals	—	UL, CSA, TUV	UL, CSA, TUV	—
Equivalent Omron EMR footprint	N/A	N/A	N/A	MK
Optional heat sink	Built-in	Y92B-A100, -A150, -A250	Y92B-N50, -N100	N/A
Socket	N/A	N/A	N/A	PF083A; PL08; PL08-Q; PLE08-O
Control fax number	13504	13502	13503	13512

				
G3H/HD	**G3F/FD**	**G3CN**	**G3M**	**G3MB**
21.5 x 28 x 36.5 mm 0.85 x 1.1 x 1.4 in	28 x 21.5 x 36.5 mm 1.1 x 0.85 x 1.4 in	33 x 25 x 14.5 mm 1.3 x 0.98 x 0.57 in	40 x 9 x 20 mm 1.57 x 0.35 x 0.79 in	24.5 x 5.5 x 20.5 mm 0.86 x 0.19 x 72 in
Operation indicator available. Compatible with Omron's LY footprint.	Standard footprint. Snubber circuit absorbs external surges. Compatible with Omron's MY footprint.	Operation indicator available. Flat and vertical models for a variety of applications.	Multi-input solid state relay. Space-saving SIP design. Ideal for high density PCB applications.	Space-saving SIP design. Ideal for high density PCB applications.
3-28.8 VDC 5, 12, 24 VDC	75-125 VAC 150-250 VAC 3-28 VDC	3-28.8 VDC 5, 12, 24 VDC	5, 12, 24 VDC	5, 12, 24 VDC
75-264 VAC 3-52.8 VDC	75-264 VAC 3-125 VDC	75-264 VAC 3-52.8 VDC	75-132 VAC 100-240 VAC	75-132 VAC 75-264 VAC
3 A	**3 A**	**3 A**	**3 A**	**2 A**
Phototriac, Photocoupler	Phototriac, Photocoupler,	Phototriac, Photocoupler	Phototriac	Phototriac
1500 VAC	1500 VAC	2500 VAC	2500 VAC	2500 VAC
Yes	Yes	Yes	Yes	Yes
Yes	Yes	Yes	Yes	Yes
100,000 hours	100,000 hours	100,000 hours	100,000 hours	100,000 hours
Plug-in/Socket	Plug-in/Socket	PCB	PCB	PCB
Plug-in	Plug-in	PCB	PCB	PCB
—	—	UL, CSA	UL, CSA	UL, CSA, TUV
LY	MY	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A
PTF08A; PT08; PT08-O	PYF08; PY08; PY08-02	N/A	N/A	N/A
13518	13511	13508	13500	13501

						
	G3S/SD	**G3DZ**	**input** **G3TB**	**output**	**input** **G3R**	**output**
	20 x 10 x 16.5 mm 0.79 x 0.39 x 0.65 in	17.5 x 6.5 x 12.5 mm 0.69 x 0.26 x 0.49 in	43.5 x 10 x 20.5/30.5 (in/out) mm 1.7 x 0.39 x 0.81/1.2 (in/out) in		29 x 13 x 28 mm 1.02 x 0.46 x 0.99 in	
	Miniature dual in-line package dip relay. Compatible with Omron's G6B footprint.	Maximum 10 µA current leakage max. between open output terminals. Input resistor and varistor incorporated. Compatible with Omron's G6D footprint.	Noise free interface between processor based control systems and external equipment. Color-coded modules. Industry standard footprint. Compact relay with operation indicator.		I/O module with 4 KV isolation. Operation indicator standard. Ideal for DIN rail mount I/O applications. Interchangeable with G2R electromechanical relay.	
	5, 12, 24 VDC	5, 12, 24 VDC	80-264 VAC 3-32 VDC	3-32 VDC	5 VDC 6.6-32 VDC 60-264 VAC	4-32 VDC
	75-264 VAC 3-26 VDC	3-264 VAC	4-32 VDC	75-264 VAC 4-200 VDC	4-32 VDC	75-264 VAC 4-200 VDC
	1.2 A	**0.6 A**	**25 mA**	**3A**	**100 mA**	**2A**
	Phototriac, Photocoupler,	Photodiode	Photocoupler		Phototriac, Photocoupler	
	2500 VAC	2500 VAC	4000 VAC		4000 VAC	
	No	No	No	Yes	Yes	
	Yes	—	No	Yes	Yes	
	100,000 hours	100,000 hours	100,000 hours		100,000 hours	
	Socket	PCB	PCB		Socket/DIN rail	
	Plug-in	PCB	PCB		Plug-in	
	UL, CSA	—	UL, CSA, TUV		UL, CSA	
	G6B	G6D	N/A		G2R	
	Y92B-S08N	N/A	N/A		N/A	
	PP6BF-4B; PP6BF-4BN; P6B-04P	P6D-04P	N/A		P2RF-05E	
	13506	13514	13507		13509	

Precise, Enduring Switching Control

G3J

The G3J is ideal for applications requiring soft starts and stops (i.e., conveyor belts). This solid state relay contactor controls each phase of 3-phase motors independently.

G3TA

Simplify wiring using these color-coded I/O modules. These models have an optional LED indicator and are compatible with P7TF I/O blocks.

G3PB

The G3PB is CE marked and DIN or panel mountable. It features an innovative compact radiator design and robust construction with slim models available. The G3PB is available as a single or three-phase power solid state relay.

G3MC

This miniature PCB mount SIP style solid state relay is ideal for space constrained applications. Its 1A load switching (2A version is available) abilities are compacted into a small footprint with a low profile.

G3VM

This model's high-speed operation is ideal for high frequency switching applications typically found in telecommunications, data communications and office automation. It has a cost-effective photocoupled MOSFET construction and a DIP style package.

G3PA

The slim profile, replaceable power cartridge and integrated heat sink make the G3PA solid state relay series ideal for dense mounting on DIN rails or panels. Use them to link terminals, control industrial heaters or control single or 3-phase loads.

Omron makes it easy to integrate solid state performance into your machines by producing a wide variety or solid state relays that share the same footprints as select SPST electromechanical relays.

Omron EMR Series	Equivalent SSR Model	Max Load	Socket
G2R	G3R/G3RD	2A	P2RF-05, P2R-05A, P2R-05P
MK	G3B/G3BD	5A	PF083A, PL08, PLE08-0
MY	G3F/G3FD/G3FM	3A	PYF08A, PY08, PY08-02
LY	G3H/G3HD	3A	PTF08A, PT08, PT08-0
G6D	G3DZ	0.6A	P6D-04P
G6B	G3S/G3SD	1.2A	P6B-04P, P6BF-4BN, P6BF-4B
G7T	G3TA	2A	P7TF-IS16, P7TF-OS16, P7TF-05

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Source: The World Electromechanical and Solid State Relay Industry. 4th edition by Venture Development Corp.

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