

# Control Components

## Master Selection Guide



**RELAYS**

**SWITCHES**

**PHOTOMICROSENSORS**

**LIGHT EMITTING DEVICES**

**MICRO SENSORS**

**CONNECTORS**

*Sensing tomorrow™*



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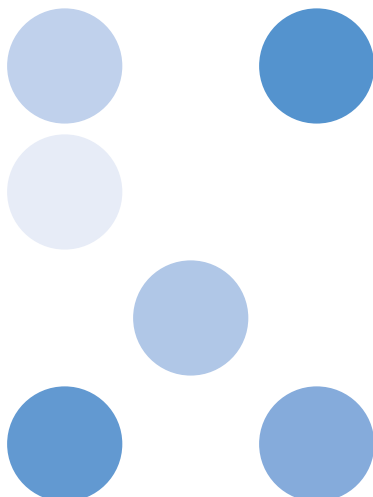
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# Control Components:

## The Quality, Variety and Global Support You Need

For switching, sensing and other control applications, Omron's Electronic & Mechanical Components Division provides quality-driven products and reliable support to satisfy your design needs and time-to-market goals.

### An Experienced Partner

Choose Omron and you are working with one of the world's largest electronics manufacturers. With 70 years of experience and nearly 5 billion US dollars in sales, we continue to invest heavily in R&D and develop products based on the latest technologies to offer you smaller, faster and more efficient products for a wide range of applications. Since Omron manufactures a wide range of relays, switches, sensors and connectors, we can support your efforts to streamline vendor lists and reduce the cost of procurement. Our world-class customer service provides effective coordination of purchases and delivery to your manufacturing locations worldwide. Work with our experienced engineers and customer service staff to find just the right components for your design projects.

### Quality First: Our Commitment, Your Benefit

Few manufacturers make a conscious choice to pursue quality as relentlessly as Omron does. Our commitment to quality shows up in several important ways that benefit you and your end customer. Quality engineers are part of our design and manufacturing team from the start. We design and test at the component level, test and correct during manufacturing, and test every physical, mechanical and electrical aspect of each final product before it leaves the factory. That means you have less rework and replacements, improved manufacturing yield, on-time product launches and a reputation for product reliability that reflects well on your company.

### OMRON STATISTICS

- #410 of Industry Week's Top 1000 Manufacturing Companies (June 2002)
- 78th largest Global Electronics company (2002)
- Approximately \$5 billion sales
- R&D reinvestment at 7% of sales annually
- #1 Global Market Share in Relays and Sensors
- Over 300,000 products
- Manufacture 98% of those products
- 23,300 employees worldwide (2002)
- More than 1500 sales and support locations in 65 countries





## Product Variety

Our broad product lines let you choose the best components for your design without having to source dozens of vendors. The products listed in this catalog represent the diversity in our product lines, but it does not reflect the full range of options in every case:

### RELAYS

General-purpose relays  
Low signal & MOS FET relays  
High-frequency relays  
Power PCB relays  
Automotive relays  
Solid state relays

### SWITCHES

Snap action switches  
Tactile switches  
Dome array switches  
DIP switches  
Thumbwheel switches

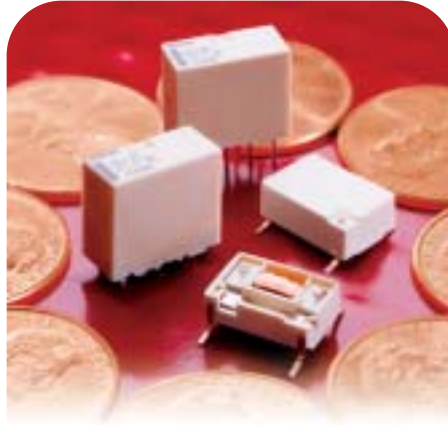
### MICRO SENSORS

Photomicrosensors (non-amplified)  
Pressure sensors  
Tilt sensors  
Air flow sensors  
Shock/vibration sensors

### ADVANCED DESIGNS

LED lighting products  
Flexible printed circuit connectors

Some of these components can be customized for your unique application with special actuators, terminals or wiring. Custom testing, packaging and marking can shorten or eliminate incoming inspection and streamline the inventory processing.



## Technology Leadership

Omron annually invests heavily in R&D to assure a steady stream of innovations and product improvements. Many of these product designs have gone on to become industry standards.

- Relays with an innovative lead frame design and magnetic armature that minimize space and deliver optimum power efficiency
- Micro strip line construction to maximize high frequency relay performance features
- MEMS technology enhances the reliability of micro tilt and pressure sensors
- Double reflection LEDs deliver twice the brightness of conventional LEDs
- Double sealed tactile switches for dusty environments with no compromise on space savings
- Flexible printed circuit connectors with unique locking levers that assure proper cable insertion depth and circuit contact without accidental reopening

Design and performance improvements migrate to successive generations of products to deliver you the latest technology in your application.

## World Recognized Versatility and Support

Omron products represent the best value in products and support. Our product designs meet international safety ratings to speed certification of machinery for commissioning or export. With global sales and support that provides parts and service locally, you can confidently design in Omron components for products shipping all over the globe.



## Reduce Administrative Costs and Time

Let Omron help reduce your cost of parts procurement. Our broad product lines include many of the components you already use to populate printed circuit boards – relays, switches, and connectors. Even if products are designed one place and assembled in another, Omron's customer service provides a single point of contact to coordinate deliveries, expedite parts to match changing manufacturing needs, and manage any import/export issues.





## Industrial Control Products

In addition to our control components, Omron offers a wide range of industrial products and automation systems designed for more robust environments as well as to help you manufacture the products you design. Time delay relays, counters, large-load solid state relays, oil-tight pushbuttons and pilot devices, limit switches, photoelectric and proximity sensors, machine vision, and micro and board level programmable controllers are managed by our Industrial Automation Division. Systems to support your manufacturing operation including automatic identification, motion control, machine vision and systems integration services are offered by Omron's Technical Automation Solutions Division.

## For More Detailed Information...



### Internet

At [www.omron.com/oei](http://www.omron.com/oei), you can browse Omron's full range of products from Electronic and Mechanical Components (EMC), Industrial Automation (IA) and Technical Automation Solutions (TAS) divisions. To find product information, go to the Document Library. Here you can:

- Access our online Cross Reference
- Use our Google®-powered search engine to find a specific type of part by name or part number family.
- Find a specific product using our parametric search; just select a category and fill in your requirements.
- Download PDFs of our product data sheets, brochures, and more.

Another tool under the Sales Contacts header is an interactive, easy-to-use sales and distributor locator. Omron also lets you order samples online through our e-commerce capability.

### Samples and Quotes On-line

Get the gratification of wrapping up your search and sample process in the shortest amount of time by ordering product samples on-line at Omron's website, [www.omron.com/oei](http://www.omron.com/oei), using our e-commerce capability. Simply register to shop at our e-commerce site then use the familiar shopping cart approach to select products. To purchase larger quantities or items that are not standard stock, forward your shopping cart as a Request for Quotation directly to your local Omron distributor.

Omron has selected VeriSign to provide secure transactions using your Visa, MasterCard or American Express credit cards.

### CD Resource

Omron's CD Resource puts complete specifications and detailed drawings for thousands of control components at your fingertips. The powerful browser helps you quickly research, compare and specify products without connecting to the Internet. This self-loading CD-ROM lets you share files with consultants or off-site co-workers by email. Order your CD Resource at [www.solveit.omron.com](http://www.solveit.omron.com)

### Phone

Call us at **1-847-882-2288** Monday through Friday, 7:30 a.m. to 5:00 p.m. Central Standard Time (CST) for more detailed product information, and/or the location of your local sales office or Omron distributor.

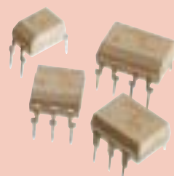






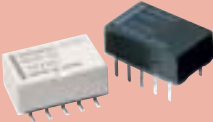




# Relays





Omron is the #1 relay seller worldwide, producing a steady stream of innovative relays that perform in any environment and industry. Our relays do everything from maximize space (G6K & G6J) to setting industry standards (G6S) to giving you multiple mounting options (G2R). We have continuously introduced technical innovations that have increased switching efficiency without compromising competitive pricing. To browse the entire relay product line visit our website at [www.omron.com/oei](http://www.omron.com/oei).











	MOS FET			
				
	<b>G3VM PCB Mount</b>	<b>G3VM SMT</b>	<b>G3VM SOP</b>	<b>G3VM SSOP</b>
<b>Dimensions mm (in)</b>	Please refer to data sheet for all dimension information	Please refer to data sheet for all dimension information	Please refer to data sheet for all dimension information	4 pin: 3.8 L x 2.04 W x 1.8 H (0.15 x 0.08 x 0.07)
<b>Features</b>	<ul style="list-style-type: none"> <li>• Solid-state relay with MOS FET output and photo-LED input</li> <li>• Ideal for communications (telecom and datacom), computer peripheral, office automation, security, and control applications</li> </ul>	<ul style="list-style-type: none"> <li>• Solid-state relay with MOS FET output and photo-LED input</li> <li>• Ideal for communications (telecom and datacom), computer peripheral, office automation, security, and control applications</li> </ul>	<ul style="list-style-type: none"> <li>• Solid-state relay with MOS FET output and photo-LED input</li> <li>• Ideal for communications (telecom and datacom), computer peripheral, office automation, security, and control applications</li> <li>• Low ON resistance and low output capacitance versions ideal for ATE and Instrumentation</li> </ul>	<ul style="list-style-type: none"> <li>• Solid-state relay with MOS FET output and photo-LED input</li> <li>• Ideal for communications (telecom and datacom), computer peripheral, office automation, security, and control applications</li> <li>• Low ON resistance and low output capacitance versions ideal for ATE and Instrumentation</li> </ul>
<b>Load voltage</b>	60 – 600 V	20 – 600 V	20 – 400 V	20 – 40 V
<b>Contact form</b>	1 Form A, 2 Form A, 1 Form B, 2 Form B, 1 Form A+1 Form B	1 Form A, 2 Form A, 1 Form B, 2 Form B, 1 Form A+1 Form B	1 Form A, 2 Form A, 1 Form B, 2 Form B	1 Form A
<b>Load current</b>	100 – 2000 mA	120 – 2000 mA	80 – 1250 mA	80 – 300 mA
<b>Dielectric strength (50/60 Hz for 1 minute)</b>	1500 VAC, 2500 VAC, 5000 VAC	1500 VAC, 2500 VAC, 5000 VAC	1500 VAC	1500 VAC
<b>Surge withstand (50/60 Hz for 1 second)</b>	3,000 VAC, 5,000 VAC, 10,000 VAC	3,000 VAC, 5,000 VAC, 10,000 VAC	3,000 VAC	3,000 VAC
<b>ON resistance</b>	0.12 – 45 Ohm	0.12 – 35 Ohm	0.15 – 35 Ohm	1.5 – 35 Ohm
<b>Output capacitance</b>	30 – 1400 pF	8 – 1400 pF	2.5 – 1000 pF	1.0 – 14 pF
<b>Packaging</b>	Tube	Tube or tape and reel	Tube or tape and reel	Tape and reel
<b>Additional features</b>	Low ON resistance, current limiting, high I/O isolation	Low ON resistance, current limiting, high I/O isolation	Low ON resistance, low output capacitance	Low ON resistance, low output capacitance






	LOW SIGNAL			
				
	<b>G5V-1</b>	<b>G6H</b>	<b>G6J</b>	<b>G6K</b>
<b>Dimensions mm (in)</b>	10.0 H x 12.50 L x 7.50 W (0.39 x 0.49 x 0.30)	5.08 H x 13.97 L x 8.89 W (0.20 x 0.55 x 0.35)	9.0 H x 10.30 L x 4.80 W (0.35 x 0.41 x 0.19)	5.30 H x 10.20 L x 6.70 W (0.21 x 0.40 x 0.26)
<b>Switching</b>	1 A max., 1 mA min.	1 A max., 10 µA min.	1 A max., 10 µA min.	1 A max., 10 µA min.
<b>Features</b>	<ul style="list-style-type: none"> <li>• 150 mW power consumption</li> <li>• Small size</li> <li>• 1.5 kV surge withstand</li> <li>• Available in PCB</li> </ul>	<ul style="list-style-type: none"> <li>• Low profile (5 mm type)</li> <li>• SMT and PCB versions</li> <li>• 1.5 kV surge withstand</li> </ul>	<ul style="list-style-type: none"> <li>• The slimmest relay in the industry, ideal for high-density applications in telecom, datacom, IT, computer peripheral and office automation</li> <li>• Fully-sealed</li> <li>• Pb-free construction</li> <li>• 2.5 kV surge withstand</li> <li>• PCB and SMT versions</li> </ul>	<ul style="list-style-type: none"> <li>• Extremely small size</li> <li>• 2.5 kV surge withstand</li> <li>• SMT and PCB versions</li> </ul>
<b>Contact Ratings</b>				
<b>Contact form</b>	1 Form C	2 Form C	2 Form C	2 Form C
<b>Contact type</b>	Single crossbar	Bifurcated crossbar	Bifurcated crossbar	Bifurcated crossbar
<b>Contact material</b>	Ag with Au clad	Ag with Au clad	Ag with Au clad	Ag with Au clad
<b>Max. operating current under resistive load</b>	1 A	1 A	1 A	1 A
<b>Max. operating voltage</b>	125 VAC, 60 VDC	125 VAC, 110 VDC	125 VAC, 110 VDC	125 VAC, 60 VDC
<b>Max. switching capacity under resistive load</b>	62.5 VA, 30 W	62.5 VA, 33 W	37.5 VA, 30 W	37.5 VA, 30 W
<b>Minimum permissible load</b>	1 mA, 5 VDC	10 µA, 10 mVDC	10 µA, 10 mVDC	10 µA, 10 mVDC
<b>Rated load (under resistive load)</b>	0.5 A at 125 VAC, 1 A at 24 VDC	0.5 A at 125 VAC, 1 A at 30 VDC	0.3 A at 125 VAC, 1 A at 30 VDC	0.3 A at 125 VAC, 1 A at 30 VDC
<b>Coil Ratings</b>				
<b>Coil voltage</b>	5, 6, 9, 12, 24 VDC	3, 5, 6, 9, 12, 24, 48 VDC	3, 4.5, 5, 12, 24 VDC	3, 4.5, 5, 6, 9, 12, 24 VDC
<b>Power consumption</b>	150 mW	140 mW (standard)	140 mW (standard), 100 mW (single coil latching)	100 mW (standard and latching)
<b>Dielectric strength (50/60 Hz for 1 minute)</b>	1,000 VAC	1,000 VAC	1,500 VAC	1,500 VAC
<b>Surge withstand</b>	1.5 kV (10 x 160 µs)	1.5 kV (10 x 160 µs)	2.5 kV (2 x 10 µs)	2.5 kV (2 x 10 µs)
<b>Electrical service life (operations)</b>	100,000 minimum	100,000 minimum	100,000 minimum	100,000 minimum
<b>Terminal choices</b>	PCB	PCB (G6H), SMT gullwing (G6H-2F)	PCB, SMT gullwing, SMT shortened gullwing	Gullwing, "inside-L," PCB
<b>Packaging</b>	–	–	Tape and reel	Tape and reel
<b>Approved standards</b>	UL, CSA	UL, CSA, (FCC Part 68)	UL, CSA, (FCC Part 68)	UL, CSA, (FCC Part 68)






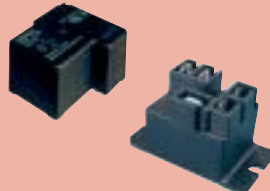
	LOW SIGNAL			
				
	G6L	G5V-2	G6A	G6S
<b>Dimensions mm (in)</b>	4.2 H x 10.6 L x 7.0 W (0.17 x 0.42 x 0.28)	11.43 H x 20.32 L x 9.91 W (0.45 x 0.80 x 0.39)	8.40 H x 20.20 L x 10.10 W (0.33 x 0.80 x 0.40)	9.40 H x 15 L x 7.50 W (0.37 x 0.59 x 0.30)
<b>Switching</b>	1 A max., 1 mA min.	2 A max., 10 µA min.	2 A max., 10 µA min.	2 A max., 10 µA min.
<b>Features</b>	<ul style="list-style-type: none"> <li>• Very low profile</li> <li>• 1.5 kV surge withstand</li> <li>• SMT and PCB versions</li> </ul>	<ul style="list-style-type: none"> <li>• 150 mW, 360 mW, 500 mW versions</li> <li>• Industry standard footprint</li> <li>• 1.5 kV surge withstand</li> </ul>	<ul style="list-style-type: none"> <li>• 200 mW, 400 mW versions</li> <li>• 1.5 kV surge withstand</li> <li>• Latching versions available</li> </ul>	<ul style="list-style-type: none"> <li>• 2.5 kV surge withstand</li> <li>• SMT and PCB versions</li> <li>• European versions available</li> </ul>
<b>Contact Ratings</b>				
<b>Contact form</b>	1 Form A	2 Form C	2 Form C, 4 Form C	2 Form C
<b>Contact type</b>	Single crossbar	Bifurcated crossbar	Bifurcated crossbar	Bifurcated crossbar
<b>Contact material</b>	Ag with Au clad	Ag with Au clad	Ag with Au clad; AgPd with Au clad	Ag with Au clad; AgPd with Au clad
<b>Max. operating current under resistive load</b>	1 A	2 A (1 A ultra-sensitive)	2 A	2 A
<b>Max. operating voltage</b>	125 VAC, 60 VDC	125 VAC, 125 VDC	250 VAC, 220 VDC	250 VAC, 220 VDC
<b>Max. switching capacity under resistive load</b>	37.5 VA, 24 W	62.5 VA, 60 W	125 VA, 60 W	62.5 VA, 60 W
<b>Minimum permissible load</b>	1 mA, 5 VDC	10 µA, 10 mVDC	10 µA, 10 mVDC	10 µA, 10 mVDC
<b>Rated load (under resistive load)</b>	0.3 A at 125 VAC, 1 A at 24 VDC	0.5 A at 125 VAC, 2 A at 30 VDC	0.5 A at 125 VAC, 2 A at 30 VDC; 0.3 at 125 VAC, 1 A at 30 VDC	0.5 at 125 VAC, 2 A at 30 VDC
<b>Coil Ratings</b>				
<b>Coil voltage</b>	3, 4.5, 5, 12, 24 VDC	3, 5, 6, 9, 12, 24, 48 VDC	3, 5, 6, 9, 12, 24, 48 VDC	3, 4.5, 5, 6, 9, 12, 24 VDC
<b>Power consumption</b>	180 mW (standard)	500 mW (standard), 360 mW (high-sensitivity), 150 mW (ultra-sensitive)	200 mW (DPDT standard), 180 mW (DPDT latching), 360 mW (4PDT standard)	140 mW (standard), 140 mW, 200 mW (latching)
<b>Dielectric strength (50/60 Hz for 1 minute)</b>	1,000 VAC	1,000 VAC	1,000 VAC	2,000 VAC standard
<b>Surge withstand</b>	—	1.5 kV (10 x 160 µs)	1.5 kV (10 x 160 µs)	2.5 kV (2 x 10 µs)
<b>Electrical service life (operations)</b>	100,000 minimum	300,000 minimum	500,000 minimum	100,000 minimum
<b>Terminal choices</b>	PCB, SMT Gullwing	PCB	PCB	Gullwing, "inside L," PCB
<b>Packaging</b>	Tape and reel	—	—	Tape and reel
<b>Approved standards</b>	UL/CSA (FCC Part 68)	UL, CSA	UL, CSA, (FCC Part 68)	UL, CSA, (FCC Part 68)


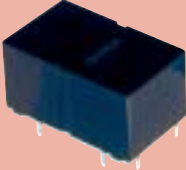


	LOW SIGNAL HF			
				
	G6W	G6Y	G6Z	G6K-RF
<b>Dimensions mm (in)</b>	8.9 H x 20 L x 9.4 W (0.35 x 0.79 x 0.37)	9.20 H x 20.70 L x 11.70 W (0.36 x 0.81 x 0.46)	8.9 H x 20 L x 8.6 W (0.35 x 0.79 x 0.34)	5.4 H x 10.3 L x 6.9 W (0.21 x 0.41 x 0.27)
<b>Switching</b>	0.5 A max.	1 A max., 10 mA min.	0.5 A max.	1 A max.
<b>Features</b>	<ul style="list-style-type: none"> <li>Latching versions available</li> <li>Tri-plate micro strip line technology</li> </ul>	<ul style="list-style-type: none"> <li>Micro strip line technology</li> </ul>	<ul style="list-style-type: none"> <li>75 <math>\Omega</math> and 50 <math>\Omega</math> impedance versions</li> <li>Latching versions available</li> <li>Micro strip line technology</li> </ul>	<ul style="list-style-type: none"> <li>100 mW power consumption</li> </ul>
<b>HF Characteristics</b>				
<b>Isolation</b>	65 dB (2 GHz) 60 dB (2.5 GHz) 40 dB (5.0 GHz)	65 dB (900 MHz)	60 - 65 dB (900 MHz) 30 - 45 dB (2.6 GHz)	20 - 30 dB (1 GHz)
<b>Insertion Loss</b>	0.2 dB (2 GHz) 0.2 dB (2.5 GHz) 0.4 dB (5.0 GHz)	0.5 dB (900 MHz)	0.1 - 0.2 dB (900 MHz) 0.3 - 0.5 dB (2.6 GHz)	0.2 dB (1 GHz)
<b>VSWR</b>	1.2 (2 GHz) 1.2 (2.5 GHz) 1.5 (5.0 GHz)	1.5 (900 MHz)	1.1 - 1.2 (900 MHz) 1.3 - 1.5 (2.6 GHz)	1.2 (1 GHz)
<b>Contact Ratings</b>				
<b>Contact form</b>	1 Form C	1 Form C	1 Form C	2 Form C
<b>Contact type</b>	Twin crossbar	Twin crossbar	Twin crossbar	Bifurcated crossbar
<b>Contact material</b>	Au clad Cu alloy	Au clad Cu alloy	Au clad Cu alloy	Au alloy on Ag base
<b>Max. operating current under resistive load</b>	0.5 A	0.5 A	0.5 A	1 A
<b>Max. operating voltage</b>	30 VDC, 30 VAC	30 VAC, 30 VDC	30 VAC, 30 VDC	60 VDC, 125 VAC
<b>Max. switching capacity under resistive load</b>	10 VA, 10 W	10 VA, 10 W	10 VA, 10 W	37.5 VA, 30 W
<b>Rated load (under resistive load)</b>	10 mA at 30 VAC 10 mA at 30 VDC 2.5 GHz, 10 W	10 mA at 30 VAC; 10 mA at 30 VAC; 900 MHz, 1 W	10 mA at 30 VAC; 10 mA at 30 VDC; 900 MHz, 10 W	0.3 A, 125 VAC; 1 A, 30 VDC
<b>Coil Ratings</b>				
<b>Coil voltage</b>	3, 4.5, 9, 12, 24 VDC	3, 4.5, 5, 6, 9, 12, 24 VDC	3, 4.5, 5, 9, 12, 24 VDC	3, 4.5, 5, 6, 9, 12, 24 VDC
<b>Power consumption</b>	200 mW (standard) 200 mW (single latching) 360 mW (dual latching)	200 mW	200 mW (standard) 200 mW (single latching) 360 mW (dual latching)	100 mW
<b>Dielectric strength (50/60 Hz for 1 minute)</b>	1,000 VAC	1,000 VAC	1,000 VAC	750 VAC
<b>Electrical service life (operations)</b>	1,000,000 minimum	100,000 minimum	1,000,000 minimum	100,000 minimum
<b>Terminal choices</b>	PCB, SMT Gullwing	PCB	PCB, SMT Gullwing	SMT Gullwing
<b>Packaging</b>	—	—	Tape and reel	—

	POWER PCB			
				
	G5PA	G6D	G5B	G6B
<b>Dimensions mm (in)</b>	25 H x 24 L x 10 W (0.98 x 0.94 x 0.39) max.	12.5 H x 17.5 L x 6.5 W (0.49 x 0.69 x 0.26)	14 H x 22.1 L x 11.43 W (0.55 x 0.87 x 0.45)	9.91 H x 20.07 L x 9.91 W (0.39 x 0.79 x 0.39)
<b>Switching</b>	5 A max.	5 A max.	8 A max.	8 A max.
<b>Features</b>	<ul style="list-style-type: none"> <li>• TV5 rated</li> <li>• Slim style</li> <li>• Semi-sealed, SPST-NO</li> </ul>	<ul style="list-style-type: none"> <li>• Subminiature, slim lightweight design</li> <li>• Low power consumption</li> <li>• Sealed construction</li> </ul>	<ul style="list-style-type: none"> <li>• Low profile</li> <li>• Low power consumption</li> <li>• High surge withstand</li> </ul>	<ul style="list-style-type: none"> <li>• Subminiature and low power</li> <li>• Sealed construction</li> <li>• Latching types available</li> </ul>
<b>Contact Ratings</b>				
<b>Contact form</b>	1 Form A	1 Form A	1 Form A	1 Form A, 2 Form A, 1 Form A + 1 Form B
<b>Standard contact type</b>	Single button	Single button	Single button	Single button
<b>Standard contact material</b>	AgSnO <sub>2</sub>	Ag alloy	Ag, AgCdO	AgCdO
<b>Max. operating current under resistive load</b>	5 A	5 A	3 A; 8 A (high capacity)	5 A
<b>Max. operating voltage</b>	250 VAC, 30 VDC	250 VAC, 30 VDC	250 VAC, 30 VDC	380 VAC, 125 VDC
<b>Max. switching capacity under resistive load</b>	1,250 VA, 150 W	1,250 VA, 150 W	750 VA, 90 W; 2,000 VA, 240 W	1,250 VA, 150 W
<b>Minimum permissible load</b>	100 mA, 5 VDC	10 mA, 5 VDC	10 mA, 5 VDC	10 mA, 5 VDC
<b>Rated load (under resistive load)</b>	5 A at 250 VAC, 30 VDC	5 A at 250 VAC, 5 A at 30 VDC	3 A at 125 VAC, 30 VDC; 8 A at 125 VAC, 30 VDC	5 A at 250 VAC, 5A at 30 VDC
<b>Coil Ratings</b>				
<b>Coil voltage</b>	6, 12, 24 VDC	5, 12, 24 VDC	5, 12, 24 VDC	5, 6, 12, 24 VDC
<b>Power consumption</b>	530 mW, 250 mW (high sensitivity)	200 mW	360 mW	200 mW (standard and latching)
<b>Dielectric strength (50/60 Hz for 1 minute)</b>	4,000 VAC	3,000 VAC	4,000 VAC	3,000 VAC
<b>Electrical service life (operations)</b>	100,000 minimum	100,000 minimum	100,000 minimum	100,000 minimum
<b>Terminal choices</b>	PCB	PCB	PCB	PCB
<b>Accessories</b>	N/A	Socket for back connecting sockets with PCB terminals	N/A	Sockets and clips for back connecting sockets with PCB terminals
<b>Approved standards</b>	UL, CSA, SEV, SEMKO, TUV	UL, CSA, TUV, SEV	UL, CSA, TUV	UL, CSA, (FCC Part 68)

	POWER PCB				
					
	<b>G6RN</b>	<b>G5LE</b>	<b>G5Q</b>	<b>G6C</b>	<b>G4W</b>
<b>Dimensions mm (in)</b>	15 H x 17.5 L x 6.5 W (0.59 x 0.69 x 0.26)	19 H x 22.5 L x 16.5 W (0.75 x 0.89 x 0.65)	15.8 H x 20.3 L x 10.3 W (0.62 x 0.80 x 0.41) max.	9.91 H x 20.07 L x 14.99 W (0.39 x 0.79 x 0.59)	31 H x 45 L x 20 W (1.22 x 1.77 x 0.79)
<b>Switching</b>	8 A max.	10 A max.	10 A max. (NO contacts)	10 A max.	15 A max.
<b>Features</b>	<ul style="list-style-type: none"> <li>• 8 mm coil/contact spacing</li> <li>• Low profile</li> <li>• Sealed construction</li> <li>• Ideal for switching contactors, solenoids and motors</li> </ul>	<ul style="list-style-type: none"> <li>• Small 'ice cube' size</li> <li>• UL Class B insulation</li> <li>• VDE, Class F options</li> </ul>	<ul style="list-style-type: none"> <li>• Compact PCB relay with high insulation</li> <li>• Withstands impulse of 8 kV coil to contacts</li> <li>• Class F coil insulation</li> <li>• Low coil power consumption</li> </ul>	<ul style="list-style-type: none"> <li>• Low power consumption</li> <li>• Low profile</li> <li>• Latching types available</li> </ul>	<ul style="list-style-type: none"> <li>• High surge withstand</li> <li>• 10 mm creepage distance</li> <li>• QC load/coil terminals</li> </ul>
<b>Contact Ratings</b>					
<b>Contact form</b>	1 Form A, 1 Form C	1 Form A, 1 Form C	1 Form A, 1 Form C	1 Form A + 1 Form B, 1 Form A	1 Form A, 2 Form A
<b>Standard contact type</b>	Single button	Single button	Single button	Single button	Single button
<b>Standard contact material</b>	AgNi + gold plating	AgSnO <sub>2</sub>	Ag Alloy	AgCdO	AgCdO
<b>Max. operating current under resistive load</b>	8 A	10 A	10 A (SPDT-NO), 3 A (SPDT-NC), 10 A (SPST-NO)	10 A (SPST-NO); 8 A (SPST-NO+SPST-NC)	15 A
<b>Max. operating voltage</b>	250 VAC, 125 VDC	250 VAC, 125 VDC	277 VAC, 30 VDC	380 VAC, 125 VDC	250 VAC, 125 VDC
<b>Max. switching capacity under resistive load</b>	2,000 VA, 150 W	1,200 VA, 240 W	1250 VA, 150 W (NO) 375 VA, 90 W (NC)	2,500 VA, 300 W; 2,000 VA, 240 W (SPST-NO+SPST-NC)	3,750 VA
<b>Minimum permissible load</b>	10 mA, 5 VDC	100 mA, 5 VDC	10 mA at 5 VDC	10 mA, 5 VDC	100 mA, 5 VDC
<b>Rated load (under resistive load)</b>	8 A at 250 VAC; 5 A at 30 VDC	10 A at 120 VAC, 8 A at 30 VDC	10 A at 125 VAC (SPDT-NO) 3 A at 250 VAC (SPDT-NO) 5 A at 30 VDC (SPDT-NO) 3 A at 125 VAC (SPDT-NC) 3 A at 30 VDC (SPDT-NC) 10 A at 125 VAC (SPST-NO) 3 A at 250 VAC (SPST-NO) 5 A at 30 VDC (SPST-NO)	10 A at 250 VAC, 10 A at 30 VDC; 8 A at 250 VAC, 8 A at 30 VDC	15 A at 250 VAC, 15 A at 24 VDC
<b>Coil Ratings</b>					
<b>Coil voltage</b>	5, 6, 12, 24 VDC	5, 6, 12, 24, 48 VDC	5, 12, 24 VDC	5, 6, 12, 24 VDC	12, 24 VDC
<b>Power consumption</b>	220 mW	400 mW	400 mW (SPDT); 200 mW (SPST-NO)	200 mW (standard and single coil latching)	800 mW
<b>Dielectric strength (50/60 Hz for 1 minute)</b>	4,000 VAC	2,000 VAC	4,000 VAC, 50/60 Hz for 1 min. (coil to contacts); 1,000 VAC 50/60 Hz for 1 min. (between contacts)	2,000 VAC	4,000 VAC
<b>Electrical service life (operations)</b>	100,000 approx.	100,000 minimum	200,000: 3 A(NO)/3 A (NC) at 125 VAC resistive; 100,000: 3 A (NO)/3 A (NC) at 250 VAC; 5 A (NO)/3 A (NC) at 30 VDC resistive; 50,000: 10 A (NO) at 125 VAC (900 ops. per hour)	100,000 minimum	100,000 minimum
<b>Terminal choices</b>	PCB	PCB	PCB	PCB	PCB, quick-connect, solder
<b>Accessories</b>	N/A	N/A	N/A	Socket for back connecting sockets with PCB terminals	—
<b>Approved standards</b>	UL, CSA, TUV, VDE, IEC	UL, CSA, TUV, (VDE available)	UL, CSA, VDE	UL, CSA, VDE, SEV	UL, CSA, VDE, SEMKO, TUV



	POWER PCB			
				
	<b>G2R</b>	<b>G2RL</b>	<b>G4A</b>	<b>G8PT</b>
<b>Dimensions mm (in)</b>	25.5 H x 29 L x 13 W (1 x 1.14 x 0.51)	15.5 H x 29 L x 12.7 W (0.61 x 1.14 x 0.50)	32.5 H x 30.5 L x 16 W (1.28 x 1.20 x 0.63)	Varies by type
<b>Switching</b>	16 A max.	16 A max.	20 A max.	30 A max. (SPST) 20 A/10 A max. (SPDT)
<b>Features</b>	<ul style="list-style-type: none"> <li>• High dielectric withstand</li> <li>• 8 mm coil/contact spacing</li> <li>• 1 and 2 pole models</li> <li>• Class B insulation</li> <li>• 3 mm contact gap version available</li> </ul>	<ul style="list-style-type: none"> <li>• Low profile</li> <li>• High isolation</li> <li>• Class F insulation</li> <li>• Low power consumption</li> </ul>	<ul style="list-style-type: none"> <li>• Small size</li> <li>• High switching capacity</li> <li>• QC load terminals</li> <li>• Standard semi-sealed construction</li> </ul>	<ul style="list-style-type: none"> <li>• High switching capacity</li> <li>• UL Class F insulation standard</li> <li>• Wide range of coil ratings</li> <li>• Sealed and Open frame models</li> <li>• UL508/UL873 spacing Column A</li> <li>• High impulse withstand of 6kV coil to contacts including the 6kV 100kHz ring wave (per IEC 1000-4-12)</li> </ul>
<b>Contact Ratings</b>				
<b>Contact form</b>	1 Form A, 1 Form C, 2 Form A, 2 Form C	1 Form A, 1 Form C, 2 Form A, 2 Form C	1 Form A	1 Form A, 1 Form C
<b>Standard contact type</b>	Single button	Single button	Single button	Single button
<b>Standard contact material</b>	AgCdO	AgSnO <sub>2</sub> (1 pole); AgNi (2 pole)	AgCdO	AgCdO
<b>Max. operating current under resistive load</b>	16 A (high capacity, 1-pole); 10 A (general purpose, 1-pole); 5 A (general purpose, 2-pole); 5 A (latching, 1-pole); 5 A (high sensitivity, 1-pole); 3 A (high sensitivity, 2-pole); 3 A (latching, 2-pole)	16 A (high capacity, 1-pole); 12 A (general purpose, 1-pole); 8 A (2-pole)	20 A	AC 30 A, DC 20 A (SPST-NO); AC 20/10 A, DC 20/10 A* (SPDT) *NO contact/NC contact
<b>Max. operating voltage</b>	380 VAC, 125 VDC	440 VAC	250 VAC	250 VAC, 28 VDC
<b>Max. switching capacity under resistive load</b>	4,000 VA, 480 W (1 pole); 1,250 VA, 150 W (2 pole)	4,000 VA, 384 W (high capacity, 1-pole); 3,000 VA, 288 W (general purpose 1-pole); 2,000 VA, 240 W (2 pole)	5,000 VA	7,500 VA, 560 W (SPST-NO); 5,000/2,500 VA, 560/280 W* (SPDT) *NO contact/NC contact
<b>Minimum permissible load</b>	1 pole: 100 mA, 5 VDC; 2 pole: 10 mA, 5 VDC	10 mA, 5 VDC	100 mA, 5 VDC	DC 5 V, 500 mA
<b>Rated load (under resistive load)</b>	16 A at 250 VAC, 30 VDC (high capacity); 10 A at 250 VAC, 30 VDC, General purpose (1 pole); 5 A at 250 VAC, 30 VDC, General purpose (2 pole)	16 A at 250 VAC, 24 VDC (high capacity 1 pole); 12 A at 250 VAC, 24 VDC, General purpose (1 pole); 8 A at 250 VAC, 30 VDC, (2 pole)	20 A at 250 VAC	30 A at 250 VAC, 20 A at 28 VDC (SPST-NO); 20/10 A* at 250 VAC, 20/10 A at 28 VDC *NO contact/NC contact
<b>Coil Ratings</b>				
<b>Coil voltage</b>	12, 24, 120, 240 VAC; 5, 6, 12, 24, 48 VDC	5, 12, 24, 48 VDC	5, 12, 24 VDC	5, 9, 12, 24, 48, 110 VDC
<b>Power consumption</b>	0.9 VA, 530 mW, 360 mW (high sensitivity); 850 mW (set), 600 mW (reset) latching	400 mW (430 mW for 48 VDC)	0.9 W	Approx. 900 mW
<b>Dielectric strength (50/60 Hz for 1 minute)</b>	5,000 VAC	5,000 VAC	4,500 VAC	2,500 VAC, 50/60 Hz for 1 minute (coil to contacts); 1,500 VAC, 50/60 Hz for 1 minute (between contacts)
<b>Electrical service life (operations)</b>	100,000 minimum	Consult catalog page	100,000 minimum	100,000 minimum
<b>Terminal choices</b>	PCB terminal, plug in and quick-connect	PCB	PCB (coil and load), quick-connect (load) or PCB (coil and load)	PCB, PCB, and quick-connect load terminals, flange mount quick-connect terminals
<b>Accessories</b>	Sockets for track mounted sockets with screw terminals and back connecting sockets with solder and PCB terminals Note: P2RF-S series screwless clamp terminal socket available	—	—	N/A
<b>Approved standards</b>	UL, CSA, SEV SEMKO, VDE, TUV	UL, CSA, VDE	UL, CSA, TUV	UL/CSA, VDE

	AUTOMOTIVE			
				
	G8QN	G8QW	G8JN	G8W
<b>Dimensions mm (in)</b>	14.4 H x 12.5 L x 16 W (0.56 x 0.49 x 0.63)	14.4 H x 25.5 L x 16 W (0.56 x 1.00 x 0.63)	25 H x 28 L x 28 W (0.98 x 1.10 x 1.10)	25.4 H x 28.5 L x 28.5 W (1.00 x 1.12 x 1.12)
<b>Switching</b>	30 A max.	30 A max.	35 A max.	35 A max.
<b>Features</b>	<ul style="list-style-type: none"> <li>• Miniature automotive high performance single PCB relay</li> <li>• Fully sealed construction</li> <li>• Fully automated assembly</li> <li>• Suitable for reverse motor applications (2 relays)</li> <li>• Made in USA</li> </ul>	<ul style="list-style-type: none"> <li>• Miniature automotive high performance dual PCB relay</li> <li>• Fully sealed construction</li> <li>• Fully automated assembly</li> <li>• Perfect for reverse motor applications</li> <li>• Made in USA</li> </ul>	<ul style="list-style-type: none"> <li>• General purpose automotive power relay</li> <li>• Mini ISO footprint</li> <li>• Handles heavy automotive load</li> <li>• High current path fully welded; reduces heat buildup at full load</li> <li>• Wide temperature range: -40°C to + 125°C</li> <li>• Made in North America</li> </ul>	<ul style="list-style-type: none"> <li>• General purpose automotive power relay</li> <li>• Mini 280 footprint</li> <li>• Handles heavy automotive load</li> <li>• High current path fully welded; reduces heat buildup at full load</li> <li>• Wide temperature range: -40°C to + 125°C</li> <li>• Made in North America</li> </ul>
<b>Contact Ratings</b>				
<b>Contact form</b>	1 Form C	2 Form C	1 Form C	1 Form A, 1 Form C
<b>Standard contact type</b>	Single button	Single button	Single Button	Single Button
<b>Standard contact material</b>	AgSnO	AgSnO	AgSnIn	—
<b>Max. operating current</b>	30 A (at 20°C for 1 hour)	30 A (at 20°C for 1 hour)	35 A (NO) / 20 A (NC)	35 A (NO) / 20 A (NC)
<b>Max. operating voltage</b>	16 VDC	16 VDC	16 VDC	16 VDC
<b>Minimum permissible load</b>	100 mA	100 mA	—	—
<b>Rated load</b>	10 A carry current at 85°C 30 A inrush current at 16 VDC	10 A carry current at 85°C 30 A inrush current at 16 VDC	35 A (NO) / 20 A (NC) carry current 100 A (NO) / 40 A (NC) inrush current	35 A (NO) / 20 A (NC) carry current 100 A (NO) / 20 A break (NO)
<b>Coil Ratings</b>				
<b>Coil voltage</b>	12 VDC	12 VDC	12 VDC	12 VDC
<b>Power consumption</b>	685 mW	685 mW	1.85 W	—
<b>Dielectric strength (50/60 Hz for 1 minute)</b>	1.0 mA max. leakage at 440 VAC, 60 Hz for 1 minute between coil and contacts and between N.O and N.C. contacts	1.0 mA max. leakage at 440 VAC, 60 Hz for 1 minute between coil and contacts and between N.O and N.C. contacts	800 VDC for 1 minute	—
<b>Electrical service life (operations)</b>	100,000 operations min. (load dependant)	100,000 operations min. (load dependant)	100,000 operations min. (14 V / 35 A)	100,000 operations min. (14 V / 35 A)
<b>Terminal choices</b>	PCB	PCB	Plug-in	Plug-in
<b>Accessories</b>	N/A	N/A	N/A	N/A
<b>Approved standards</b>	N/A	N/A	N/A	N/A

## AUTOMOTIVE



G8H



G8HN





<b>Dimensions mm (in)</b>	26 H x 15.5 L x 23 W (1.02 x 0.61 x 0.91)	SPST: 26.0 H x 15.3 L x 22.8 W (1.02 x 0.60 x 0.88) SPDT: 26.8 H x 15.5 L x 23 W (1.06 x 0.61 x 0.91)
<b>Max. switching current</b>	60 A max.	60 A max.
<b>Features</b>	<ul style="list-style-type: none"> <li>• Micro ISO automotive relay</li> <li>• Choice of PCB or plug-in types</li> <li>• Fully automated assembly</li> <li>• Wide temperature range: -40°C to +125°C</li> <li>• Environment-friendly</li> <li>• Light weight</li> <li>• Made in USA</li> </ul>	<ul style="list-style-type: none"> <li>• Micro ISO automotive relay</li> <li>• Lower power consumption than G8H</li> <li>• Plug-in types</li> <li>• Fully automated assembly</li> <li>• Wide temperature range: -40°C to +125°C</li> <li>• Environment-friendly</li> <li>• Light weight</li> <li>• Made in USA</li> </ul>
<b>Contact Ratings</b>		
<b>Contact form</b>	1 Form A, 1 Form C	1 Form A, 1 Form C
<b>Standard contact type</b>	Single button	Single button
<b>Standard contact material</b>	AgSnO	AgSnO
<b>Max. operating current</b>	20 A (NO) / 10 A (NC)	20A (NO) / 10 A (NC)
<b>Max. operating voltage</b>	16 VDC	16 VDC
<b>Minimum permissible load</b>	1 A	1 A
<b>Rated load</b>	20 A (NO) / 10 A (NC) steady 60 A (NO) / 30 A (NC) inrush	20 A (NO) / 10 A (NC) steady 60 A (NO) / 30 A (NC) inrush
<b>Coil Ratings</b>		
<b>Coil voltage</b>	12 VDC	12 VDC
<b>Power consumption</b>	1440 mW	1309 mW
<b>Dielectric strength (50/60 Hz for 1 minute)</b>	1.0 mA max. leakage at 500 VAC, 50-60 Hz for 1 minute between coil and contacts and between contacts	1.0 mA max. leakage at 440 VAC, 50-60 Hz for 1 minute between coil and contacts and between contacts (10 MOhm min. for SPST)
<b>Electrical service life (operations)</b>	100,000 operations min. (load dependant)	100,000 operations min. (load dependant)
<b>Terminal choices</b>	Plug-in or PCB	Plug-in
<b>Accessories</b>	N/A	N/A
<b>Approved standards</b>	N/A	N/A

## FLASHERS











G8QFL





<b>Dimensions mm (in)</b>	23.6 H x 26.3 L x 26.3 W (0.93 x 1.04 x 1.04) (G8QFL-3); 43 H x 32.3 L x 32 W (1.69 x 1.27 x 1.26) (G8QFL-3-HD, G8QFL-5)
<b>Max. load</b>	120 W (G8QFL-3, G8QFL-5); 190 W (G8QFL-3-HD)
<b>Features</b>	<ul style="list-style-type: none"> <li>• 6 lamp flasher, models G8QFL-3 and G8QFL-5;</li> <li>• 8 lamp flasher, model G8QFL-3-HD</li> <li>• Heavy duty, high temperature enclosure</li> <li>• Unique design senses lamp outage</li> <li>• Handles high inrush of incandescent bulbs</li> </ul>
<b>Flash rate</b>	85 cpm
<b>Voltage drop</b>	0.8 VDC at 120 W (G8QFL-3, G8QFL-5); 0.8 VDC at 190 W (G8QFL-3-HD)
<b>Supply voltage</b>	12 VDC
<b>Activation/supply voltage (min.)</b>	9.0 VDC
<b>Activation/supply voltage (max.)</b>	24 V up to 1 minute
<b>Operating temperature</b>	-40°C to +85°C
<b>Electrical service life (operations)</b>	1,000,000 operations min.
<b>Terminal choices</b>	JIS/JASO 3 Terminal Relay (G8QFL-3); ISO 3 Terminal Relay (G8QFL-3-HD); ISO 5 Terminal Relay (G8QFL-5)
<b>Accessories</b>	N/A
<b>Approved standards</b>	FMVSS 108

	GENERAL PURPOSE			
				
	MK	MY	LY	G7J
<b>Dimensions mm (in)</b>	52.58 H x 34.54 L x 34.54 W (2.07 x 1.36 x 1.36)	36 H x 28 L x 21.5 W (1.42 x 1.10 x 0.85)	35.56 H x 27.94 L x 21.59 W (1.40 x 1.10 x 0.85)	64 H x 53.5 L x 34.5 W (2.52 x 2.11 x 1.36)
<b>Switching</b>	10 A max.	10 A max. (2 pole); 5 A max. (4 pole)	15 A max.	25 A max.
<b>Features</b>	<ul style="list-style-type: none"> <li>• Octal base plug-in</li> <li>• Exceptional reliability</li> <li>• Push-to-test button standard</li> </ul>	<ul style="list-style-type: none"> <li>• Ideal for sequence control and power switching applications</li> <li>• Name plate and mechanical indicator standard</li> <li>• Variations include push-to-test, LED and bifurcated contacts</li> <li>• Hermetic version available (MY4H)</li> </ul>	<ul style="list-style-type: none"> <li>• Compact power relay</li> <li>• LED, Push-to-test button, bifurcated contacts and other features available</li> </ul>	<ul style="list-style-type: none"> <li>• Ideal for 3 phase motor control</li> <li>• 4 pole mini contactor</li> <li>• DIN rail mountable</li> </ul>
<b>Contact Ratings</b>				
<b>Contact form</b>	2 Form C, 3 Form C	2 Form C, 4 Form C	1 Form C, 2 Form C, 3 Form C, 4 Form C	4 Form A, 3 Form A/1 Form B, 2 Form A/2 Form B
<b>Contact type</b>	Single button	Single button, bifurcated button	Single button	Single button
<b>Contact material</b>	Ag	AgNi	AgCdO	AgCdO
<b>Max. operating current under resistive load</b>	10 A	10 A (DPDT); 5 A (4PDT)	15 A (SPDT); 10 A (DPDT, 3PDT, 4PDT)	25 A (NO contacts), 8 A (NC contacts)
<b>Max. operating voltage</b>	250 VAC, 250 VDC	250 VAC, 125 VDC	250 VAC, 125 VDC	250 VAC, 125 VDC
<b>Max. switching capacity under resistive load</b>	2 pole: 2,500 VA, 280 W; 3 pole: 2,500 VA/1,250 VA 280 W	2 pole: 2,500 VA, 300 W; 4 pole: 1,250 VA, 150 W	1 pole: 1,700 VA, 360 W; 2, 3, 4 poles: 1,100 VA, 240 W	5,500 VA (NO contacts), 1,760 VA (NC contacts)
<b>Minimum permissible load</b>	100 mA, 1 VDC	2 pole: 1 mA, 5 VDC; 4 pole: 1 mA, 1 VDC	100 mA, 5 VDC	100 mA, 24 VDC
<b>Rated load (under resistive load)</b>	2 pole: 10 A at 250 VAC, 28 VDC; 3 pole: 10 A at 250 VAC, 28 VDC	2 pole: 5 A at 250 VAC, 30 VDC; 4 pole: 3 A at 250 VAC, 30 VDC	1 pole: 15 A at 110 VAC, 24 VDC; 2, 3, 4 pole: 10 A at 110 VAC, 24 VDC	25 A at 220 VAC (NO contacts); 8 A at 220 VAC (NC contacts)
<b>Coil Ratings</b>				
<b>Coil voltage</b>	12, 24, 110/120, 220/240 VAC; 12, 24, 48, 100 VDC	6, 12, 24, 48, 110/120, 220/240 VAC; 6, 12, 24, 48, 100/110 VDC	12, 24, 110/120, 220/240 VAC, 12, 24, 48, 100 VDC	12, 24, 100/120, 200/240 VAC; 12, 24, 48, 100 VDC
<b>Power consumption</b>	2.7 VA, 1.5 W	Approx. 1.1 VA, 0.9 W	1.1 VA, 0.9 W (1 pole); 1.1 VA, 0.9 W (DPDT); 1.6 VA, 1.4 W (3PDT); 1.95 VA, 1.5 W (4PDT)	1.8 to 2.6 VA, 2.0 W
<b>Dielectric strength (50/60 Hz for 1 minute)</b>	2,000 VAC	2,000 VAC	2,000 VAC	4,000 VAC
<b>Electrical service life (operations)</b>	100,000 minimum	2P 500,000 at 5 A, 100,000 at 10 A; 4P 500,000 at 3 A, 100,000 at 5 A	200,000 minimum, 500,000 minimum (2P)	100,000 minimum
<b>Terminal choices</b>	Plug-in	PCB terminal, plug-in	Track mounted sockets PCB terminal, plug-in	Quick-connect, screw, PCB
<b>Accessories</b>	Sockets and clips for track mounted sockets with screw terminals and back connecting sockets with solder and PCB terminals	Sockets and clips for track mounted sockets with screw terminals and back connecting sockets with solder and PCB terminals Note: PYF-S series screwless clamp terminal socket available	Sockets and clips for track mounted sockets with screw terminals and back connecting sockets with solder and PCB terminals	R99-04 for G5F
<b>Approved standards</b>	UL, CSA, TUV, VDE	UL, CSA, SEV, CE, VDE	UL, CSA, SEV, VDE, CE	UL, CSA, TUV, CE



	GENERAL PURPOSE		
			
	G7L	MGN	MJN
<b>Dimensions mm (in)</b>	49.02 H x 68.58 L x 34.54 W (1.93 x 2.70 x 1.36)	Short Base: 55.88 H x 63.50 L x 63.50 W (2.20 x 2.50 x 2.50) Long Base: 60.45 H x 84.33 L x 63.50 W (2.38 x 3.32 x 2.50)	48.38 H x 35.56 L x 38.73 W (1.91 x 1.40 x 1.53)
<b>Switching</b>	30 A max.	30 A max.	30 A max.
<b>Features</b>	<ul style="list-style-type: none"> <li>• Low cost, high power relay</li> <li>• 3 mm contact gap</li> <li>• Conforms to IEC 950/UL 1950</li> <li>• Class B insulation standard</li> </ul>	<ul style="list-style-type: none"> <li>• 30 Amp heavy duty power relay</li> <li>• Class F coil insulation system for 155°C (311°F) total temperature</li> <li>• Coil molded in DuPont Rynite® for environmental protection</li> <li>• Rugged construction rivets terminals to base</li> </ul>	<ul style="list-style-type: none"> <li>• Rugged power driver offers superior 3/16" through-air and 3/8" over-surface spacing</li> <li>• Interlocked frame and contact block prevent contact misalignment during plug-in</li> <li>• Open or dust covered available with indicator lamps and push-to-operate buttons</li> </ul>
<b>Contact Ratings</b>			
<b>Contact form</b>	1 Form A-DM, 2 Form A-DM	—	1 Form C, 2 Form C, 3 Form C (non-latching); 1 Form C, 2 Form C (latching/unlatching)
<b>Contact type</b>	Single button	Single button	Single button
<b>Contact material</b>	AgCdO	5/16" diameter AgCdO	3/16" diameter AgCdO
<b>Max. operating current under resistive load</b>	30 A (SPST-NO), 25 A (DPST-NO)	—	—
<b>Max. operating voltage</b>	250 VAC	—	—
<b>Max. switching capacity under resistive load</b>	1 pole : 6,600 VAC; 2 pole: 5,500 VAC	—	—
<b>Minimum permissible load</b>	100 mA, 5VDC	—	—
<b>Rated load (under resistive load)</b>	1 pole: 30 A at 250 VAC; 2 pole: 25 A at 220 VAC	30 A or 1-1/2 HP at 120 or 240 VAC; 2 HP at 240 VAC; 3,600 W at 120 or 240 VAC (ballast); 30 A at 240 VAC, 100,000 cycle (resistive), 20 A at 600 VAC; 30 A at 28 VDC	10 A at 28 VDC and 120/240 VAC at 80% pf; 1/3 HP at 120 VAC; 1/2 HP at 277/240/480/600 VAC 36 LRA-8.5FLA at 18 VDC; 3 A at 480/600 VAC at 80% pf; 10 A at 277 VAC resistive; 20 A at 28 VDC and 120/240/277 VAC; 10 A at 480/600 VAC; 3/4 HP at 120 VAC; 1-1/2 HP at 240 VAC, 17 FLA, 65 LRA, 300 VDC; 30 A at 28 VDC; 15 A at 480/600 VAC; 1 HP at 120 VAC; 1-1/2 at 240 VAC
<b>Coil Ratings</b>			
<b>Coil voltage</b>	12, 24, 100/120, 200/240 VAC; 12, 24, 48, 100 VDC	6, 12, 24, 120, 240, 480 VAC; 6, 12, 24, 48, 110 VDC	6, 12, 24, 120, 240 VAC; 5, 6, 24, 48, 110 VDC
<b>Power consumption</b>	1.7 to 2.5 VA, 1.9 W	9.5 VA nominal (AC); 2 W nominal (DC)	Latching/Non-latching AC 1.7 VA nominal (1, 2PDT); 2.0 VA (3PDT) Non-latching DC 1.2 W nominal
<b>Dielectric strength (50/60 Hz for 1 minute)</b>	4,000 VAC	2200 VRMS, 60 Hz between contacts; 2200 VRMS, 60 Hz between other elements	Greater than 750 VAC, RMS 60 Hz across open contacts; greater than 2500 VAC, RMS 60 Hz all other mutually insulated elements
<b>Electrical service life (operations)</b>	100,000 minimum	100,000 minimum	100,000 minimum
<b>Terminal choices</b>	Quick-connect, screw, PCB	Screw type	Quick-connect
<b>Accessories</b>	R99-07G5D E bracket; P7LF-D adapter; P7LF-06 front connecting socket	Dust Cover - sealed knock-out holes for standard conduit fittings. Relay mounts on pre-drilled base. Constructed of aluminum. Snap action cover release 127 W x 76.20 H x 101.60 D (5 x 3 x 4)	PTF11PC Socket; PTF11QDC Socket; PTF21PC Socket; PTFPCB Socket; PYMJN-PCB Hold Down Springs; PYMJN-S Hold Down Springs
<b>Approved standards</b>	UL, CSA, VDE, CE	UL recognized	UL, CSA

	SOLID STATE				
					
	<b>G3MB</b>	<b>G3MC</b>	<b>G3R I/O</b>	<b>G3M</b>	<b>G3TB</b>
<b>Dimensions mm (in)</b>	20.5 H x 24.5 L x 5.5 W (0.81 x 0.96 x 0.22)	13.5 H x 24.5 L x 4.5 W (0.53 x 0.96 x 0.18)	Input & Output modules: 28 H x 29 L x 13 W (1.10 x 1.14 x 0.51)	20 H x 40 L x 9 W (0.79 x 1.58 x 0.35)	Input module: 20.5 H x 43.5 L x 10 W (0.81 x 1.70 x 0.39) Output module: 30.5 H x 43.5 L x 10 W (1.20 x 1.70 x 0.39)
<b>Max. switching</b>	2 A	2 A	Input module: 100 mA; Output module: 2A	3 A	Input module: 25 mA; Output module: 3 A
<b>Features</b>	<ul style="list-style-type: none"> <li>• Space-saving SIP design</li> <li>• Industry standard footprint</li> <li>• Ideal for high density PCB applications</li> </ul>	<ul style="list-style-type: none"> <li>• Fail safe technology</li> <li>• Thin profile</li> <li>• Ideal for close PCB mounting</li> </ul>	<ul style="list-style-type: none"> <li>• 4 kV insulation</li> <li>• Operation indicator standard</li> <li>• Interchangeable with G2R electromechanical relay</li> <li>• Ideal for DIN rail mount I/O operations</li> </ul>	<ul style="list-style-type: none"> <li>• Multi-input SSR</li> <li>• Space-saving SIP design</li> <li>• Ideal for high density Power PCB applications</li> </ul>	<ul style="list-style-type: none"> <li>• Color-coded modules</li> <li>• Industry standard footprint</li> <li>• 4 kV dielectric strength</li> </ul>
<b>Operating input</b>	5, 12, 24 VDC	5, 12, 24 VDC	Input module: 5 VDC; 6.6-32 VDC; 60-264 VAC; Output module: 4-32 VDC	5, 12, 24 VDC	Input module: 80-264 VAC, 3-32 VDC; Output module: 3-32 VDC
<b>Output voltage</b>	75-264 VAC	75-264 VAC	Input module: 4-32 VDC; Output module: 75-264 VAC, 4-200 VDC	75-264 VAC	Input module: 4-32 VDC; Output module: 75-264 VAC, 4-200 VDC
<b>Isolation</b>	Phototriac	Phototriac	Photocoupler, Phototriac	Phototriac	Photocoupler
<b>Dielectric</b>	2,500 VAC	2,500 VAC	4,000 VAC	2,500 VAC	4,000 VAC
<b>Zero crossing</b>	Yes	Yes	Input module: No; Output module: Yes	Yes	Input module: No; Output module: Yes
<b>Snubber circuit</b>	Yes	Yes	Input module: No; Output module: Yes	Yes	Input module: No; Output module: Yes
<b>Life (MTTF)</b>	100,000 hours	100,000 hours	100,000 hours	100,000 hours	100,000 hours
<b>Mounting</b>	PCB	PCB	Socket	PCB	PCB
<b>Terminal</b>	PCB	PCB	Plug-in	PCB	PCB
<b>Approvals</b>	UL, CSA, TUV	UL, CSA	UL, CSA, TUV	UL, CSA, TUV	UL, CSA
<b>Equivalent Omron EMR footprint</b>	N/A	N/A	G2R	N/A	N/A
<b>Optional heat sink</b>	N/A	N/A	N/A	N/A	N/A
<b>Socket</b>	N/A	N/A	P2RF-05E	N/A	N/A

	SOLID STATE			
				
	G3TC	G3NE	G3NA	G3PB
<b>Dimensions mm (in)</b>	31.8 H x 43.2 L x 15.2 W (1.25 x 1.7 x 0.6)	11.5 H x 47 L x 37.5 W (0.45 x 1.90 x 1.50)	27 H x 58 L x 43 W (1.06 x 2.28 x 1.69)	Consult Omron for specific model
<b>Switching</b>	Input Module: 12 mA, 15 mA, or 18 mA (depending on model) Output Module: 3 A (1 A on DC output models rated up to 200 VDC)	20 A max.	40 A max.	45 A max.
<b>Features</b>	<ul style="list-style-type: none"> <li>• Color-coded modules</li> <li>• Industry standard footprint</li> <li>• Built-in hold down screw</li> <li>• Optical isolation – Dielectric strength of 4 kV</li> <li>• Zero cross on AC output modules</li> </ul>	<ul style="list-style-type: none"> <li>• High capacity</li> <li>• Panel mount</li> <li>• Quick-connect terminals</li> </ul>	<ul style="list-style-type: none"> <li>• Ideal for industrial controls</li> <li>• Hockey puck design</li> <li>• Operation indicator standard</li> </ul>	<ul style="list-style-type: none"> <li>• Available with or without built-in heat sink</li> <li>• 3-phase or single phase models</li> <li>• DIN rail mountable</li> </ul>
<b>Operating input</b>	Input Module: 90-140 VDC/AC, 180-280 VDC/AC, 10-32 VDC/AC (depending on model) Output Module: 5-24 VDC (depending on model)	5, 12, 24 VDC	4-32 VDC; 75-264 VAC	10 mA max
<b>Output voltage</b>	Input Module: 4.5-6 VDC, 12-18 VDC, 20-30 VDC (depending on model) Output Module: 75-140 VAC, 75-280 VAC, 5-60 VDC, 5-200 VDC (Depending on model)	75-264 VAC	19-528 VAC; 5-200 VDC	12-24 VDC
<b>Isolation</b>	AC Input, DC Input, DC Output: Photocoupler AC Output: Phototriac	Phototriac	Phototriac, Photocoupler	Phototriac
<b>Dielectric</b>	4,000 VAC	2,000 VAC	2,500 VAC	2,500 VAC, 50/60 Hz
<b>Zero crossing</b>	Yes (AC output modules only)	Yes	Yes	Yes
<b>Snubber circuit</b>	Yes (AC output modules only)	Yes	Yes	Yes
<b>Life (MTTF)</b>	100,000 hours	100,000 hours	100,000 hours	100,000 hours
<b>Mounting</b>	PCB	Plug-in	Panel	DIN rail
<b>Terminal</b>	PCB	Quick connect	Screw	Screw
<b>Approvals</b>	UL, CSA, TUV, CE	UL, CSA, TUV	UL, CSA, TUV	UL, UL508, CSA, CE
<b>Equivalent Omron EMR footprint</b>	N/A	N/A	N/A	N/A
<b>Optional heat sink</b>	N/A	Y92B-N50, -N100	Y92B-A100, -A150N, -A250	Y92B-P50 (depending on model)
<b>Socket</b>	N/A	N/A	N/A	N/A









# Switches




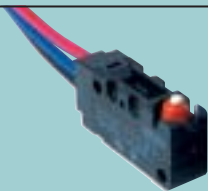
For consistent switching performance under all conditions, including excessive dust and humidity, trust an Omron switch. Our broad switch product line includes snap action, DIP, thumbwheels and tactile. All are available with a wide variety of actuators, mounting styles, and switching capacities. The following pages list the most popular models in each of our switch families. To browse the entire switch product line visit our website at [www.omron.com/oei](http://www.omron.com/oei).












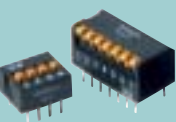
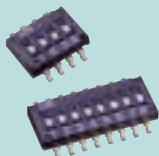
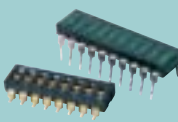
	UNSEALED SNAP ACTION		
			
	<b>D2F</b> (D2F-01, D2F, D2F-F)	<b>SS</b> (SS-01, SS-5, SS-10)	<b>V</b> (V-15G, V-10G)
<b>Dimensions mm (in)</b>	6.5 H x 5.8 D x 12.8 W (0.26 x 0.23 x 0.50)	10.2 H x 6.4 D x 19.8 W (0.40 x 0.25 x 0.78)	15.9 H x 10.3 D x 27.8 W (0.63 x 0.41 x 1.09)
<b>Features</b>	<ul style="list-style-type: none"> <li>• Subminiature Snap Action Switch</li> <li>• Switches microvoltage / microcurrent loads</li> <li>• Long lifespan assured by high-precision dual spring reverse-action mechanism</li> </ul>	<ul style="list-style-type: none"> <li>• Subminiature Snap Action Switch</li> <li>• SS-01: Switches microcurrent/ microvoltage load</li> <li>• SS-5: Split double spring mechanism for a long life of up to 30 million operations</li> <li>• SS-10: Split double spring mechanism for a long life of up to 10 million operations</li> </ul>	<ul style="list-style-type: none"> <li>• Miniature Snap Action Switch</li> <li>• Industry standard design with 15 A (V-15G) or 10 A (V-10G) rating</li> <li>• Cadmium-free contacts</li> </ul>
<b>Contact Ratings</b>			
<b>Resistive load</b>	0.1 A, 30 VDC (D2F-01) 3 A, 125 VAC (D2F) 1 A, 125 VAC (D2F-F)	0.1 A, 125 VAC (SS-01) 5 A, 125 VAC (SS-5) 10.1 A, 125/250 VAC (SS-10)	15 A, 250 VAC (V-15G) 10 A, 250 VAC (V-10G)
<b>Contact form</b>	SPDT	SPDT (SPST-NC, SPST-NO per request)	SPDT, SPST-NC, SPST-N
<b>Operating force (OF)*</b>	75 g (D2F-01) 150 g (D2F) 75 g (D2F-F)	25 g, 50 g, or 150 g (SS-01) 50 g or 150 g (SS-5) 150 g (SS-10)	100 g, 200 g, or 400 g (V-15G) 100 g or 200 g (V-10G)
<b>Mechanical service life</b>	1,000,000 operations min.	30,000,000 ops. min. (SS-01, SS-5)* 10,000,000 ops. min. (SS-10)*	50,000,000 operations min.
<b>Electrical service life</b>	30,000 operations min. (OT: full stroke)	200,000 operations min. (SS-01, SS-5)** 50,000 operations min. (SS-10)**	100,000 operations min. (V-15G) 300,000 operations min. (V-10G)
<b>Mounting pitch mm (in)</b>	6.5 (0.26)	9.5 (0.37)	10.3 x 22.2 (0.41 x 0.87)
<b>Actuator types</b>	Pin plunger, Hinge lever, Simulated roller lever, Roller lever	Pin plunger, Hinge lever, Simulated roller lever, Formed hinge lever, Hinge roller lever	Pin plunger, Short hinge lever, Hinge lever, Long hinge lever, Simulated roller lever, Short hinge roller lever, Hinge roller lever
<b>Terminal choices</b>	PCB (straight, self-supporting, right and left angle), Solder	SS-01, SS-5: PCB (straight, parallel left, parallel right), SS-10: PCB (straight), Solder, Quick connect (#110)	Solder/Quick connect (#187) Quick connect (#187), Quick connect (#250), Short solder, Screw
<b>Approved standards</b>	UL, CSA	UL, CSA, VDE, SEMKO, SEV	UL, CSA, SEV, VDE, SEMKO, DENMARK
*Values are for pin plunger type only		*at rated OT value **at rated load	




	UNSEALED SNAP ACTION		
			
	<b>D3V</b>	<b>A</b>	<b>Z-15G</b>
<b>Dimensions mm (in)</b>	15.9 H x 10.3 D x 27.8 W (0.63 x 0.41 x 1.09)	24.2 H x 17.45 D x 49.2 W (0.95 x 0.69 x 1.93)	24.2 H x 17.45 D x 49.2 W (0.95 x 0.69 x 1.93)
<b>Features</b>	<ul style="list-style-type: none"> <li>• Miniature Snap Action Switch</li> <li>• Environmentally friendly-free of beryllium copper</li> <li>• Maximum operating temperature of 105°C</li> <li>• Internally or externally fitted levers</li> </ul>	<ul style="list-style-type: none"> <li>• General Purpose Snap Action Switch</li> <li>• High capacity switch handles loads with large inrush currents</li> </ul>	<ul style="list-style-type: none"> <li>• General Purpose Snap Action Switch</li> <li>• High precision 15 A switch available in a variety of styles</li> </ul>
<b>Contact Ratings</b>			
<b>Resistive load</b>	16/11/6 A, 125/250 VAC	20 A, 250 VAC	15 A, 125/250 VAC*
<b>Contact form</b>	SPDT, SPST-NC, SPST-NO	SPDT	SPDT
<b>Operating force (OF)*</b>	100 g or 200 g	400 g to 625 g	250 to 350 g
<b>Mechanical service life</b>	10,000,000 operations min.	1,000,000 ops.min. (at rated OT load)	Refer to "SPECIFICATIONS" section of data sheet for detailed service life information
<b>Electrical service life</b>	100,000 operations min. (D3V-16) 200,000 operations min. (D3V-11) 500,000 operations min. (D3V-6)	500,000 ops. min. (at rated OT load)	Refer to "SPECIFICATIONS" section of data sheet for detailed service life information
<b>Mounting pitch mm (in)</b>	—	25.4 (1.0)	25.4 (1)
<b>Actuator types</b>	Pin plunger, Short hinge lever, Hinge lever, Long hinge lever, Simulated roller lever, Short hinge roller lever, Hinge roller lever	Pin plunger, Short spring plunger, Panel mount plunger, Panel mount roller plunger, Panel mount cross roller, Short hinge lever, Hinge lever, Short hinge roller lever, Hinge roller lever	Pin plunger, Slim spring plunger, Short spring plunger, Panel mount plunger, Panel mount roller plunger, Panel mount cross roller plunger, Hinge lever, Low force hinge lever, Short hinge roller lever, Hinge roller lever, Unidirectional short hinge roller lever, Spring plunger, Flexible rod
<b>Terminal choices</b>	Solder/Quick connect (#187) Quick connect (#187) Quick connect (#250)	Solder, Screw, or Quick connect (#250)	Solder, Screw
<b>Approved standards</b>	UL, CSA, VDE, SEMKO	UL, CSA, SEV	UL, CSA, SEV
<b>*Values are for pin plunger type only</b>			*NOTE: For 10A, 125 VDC X Series Magnetic Blow-out type for DC circuits, consult Omron.


	SEALED SNAP ACTION			
				
	<b>D2FW-G</b>	<b>D2HW</b>	<b>D2SW</b>	<b>D2VW</b>
<b>Dimensions mm (in)</b>	13.5 H x 8.0 D x 23.5 W (0.53 x 0.31 x 0.93)	7 H x 5.3 D x 13.3/18.5 W (0.28 x 0.21 x 0.52/0.73)	10.1 H x 6.4 D x 19.8 W (0.40 x 0.25 x 0.78)	15.9 H x 10.3 D x 33 W (0.63 x 0.41 x 1.29)
<b>Features</b>	<ul style="list-style-type: none"> <li>• Subminiature Snap Action Switch</li> <li>• Small sealed switch with lead wires</li> <li>• Conforms to IP67</li> </ul>	<ul style="list-style-type: none"> <li>• Subminiature Snap Action Switch</li> <li>• Small sealed switch with long stroke for reliable ON/OFF action</li> <li>• Conforms to IP67 (lead wire type) and IP50 (terminal type)</li> </ul>	<ul style="list-style-type: none"> <li>• Subminiature Snap Action Switch</li> <li>• Small sealed switch conforms to IP67 (lead wire type) and IP50 (terminal type)</li> </ul>	<ul style="list-style-type: none"> <li>• Miniature Snap Action Switch</li> <li>• Sealed water-tight switch conforms to IP67 (lead wire type) and IP50 (terminal type)</li> </ul>
<b>Contact Rating</b>				
<b>Resistive load</b>	0.5 A, 30 VDC or 50 mA, 30 VDC	2A, 12 VDC/ 1A, 24 VDC/ 0.5A, 42 VDC	0.1 A, 125 VAC or 3 A, 125 VAC	0.1 A, 125 VAC or 5 A, 125/250 VAC
<b>Contact form</b>	SPDT, SPST-NC, SPST-NO	SPDT, SPST-NC, SPST-NO	SPDT (SPST-NC, SPST-NO per request)	SPDT (SPST-NC, SPST-NO per request)
<b>Operating force (OF)*</b>	120 g	76 g	180 g	200 g
<b>Mechanical service life</b>	300,000 operations min.	1,000,000 operations min.	5,000,000 operations min.	10,000,000 operations min.
<b>Electrical service life</b>	100,000 operations min.	100,000 operations min.	200,000 operations min. (0.1 or 3 A, 125 VAC) 100,000 operations min. (2A, 250 VAC)	1,000,000 operations min. (0.1 A, 125 VAC) 100,000 operations min. (3 A, 125/250 VAC)
<b>Mounting pitch mm (in)</b>	16 (0.63)	8 (0.32) posts, 13 (0.51 ) screw	9.5 (0.37)	10.3 x 22.2 (0.41 x 0.87)
<b>Actuator types</b>	Leaf lever, Long leaf lever	Pin plunger, Hinge lever, Long hinge lever, Simulated roller lever, Leaf lever, Simulated leaf lever, Long leaf lever	Pin plunger, Hinge lever, Simulated roller lever, Hinge roller lever	Pin plunger, Short hinge lever, Hinge lever, Long hinge lever, Simulated roller lever, Short hinge roller lever, Hinge roller lever
<b>Terminal choices</b>	Lead wires	PCB (straight, angled), Solder, Lead wire (bottom, right side, left side)	Solder, Quick connect (#110), PCB, Lead wires	Solder/Quick connect (#187 tab terminals) Lead wires
<b>Approved standards</b>	–	–	UL, CSA	UL, CSA (refer to "Ratings" section of data sheet)
*Values are for pin plunger				

	TACTILE			
				
	B3F	B3FS	B3SN	B6J
Dimensions mm (in)	Varies by type	Varies by type	3.1 H x 6.5 D x 7.0 W (0.12 x 0.26 x 0.28)	11.45 H x 3.7 D x 12.4 W (0.45 x 0.15 x 0.49)
Features	<ul style="list-style-type: none"><li>• Tactile 6 mm/12 mm Square Switch</li><li>• Space saving switch with extended mechanical/electrical service life</li><li>• Taped radial packaging available*</li></ul>	<ul style="list-style-type: none"><li>• Tape &amp; Reel Surface Mount Switches</li><li>• Tactile switch that incorporates a snap action contact mechanism which ensures sharp switching operations</li></ul>	<ul style="list-style-type: none"><li>• Surface Mount Tactile Switch</li><li>• Low profile sealed construction for dust or humid environments</li><li>• Available in bulk or tape packaging</li></ul>	<ul style="list-style-type: none"><li>• Three-way jog lever switch (scroll up, scroll down, select)</li><li>• Tactile feedback in all directions</li></ul>
Contact form	SPST-NO	SPST-NO	SPST-NO	–
Switching capacity	50 mA 24 VDC (resistive load)	50 mA, 24 VDC (resistive load)	1 to 30 mA, 5 to 24 VDC (resistive load)	10 mA, 5 VDC (resistive load)
Action	Momentary	Momentary	Momentary	Momentary
Ground terminal	Models available with or without ground terminal	None	Models available with or without ground terminal	None
Immersion cleaning	No immersion cleaning after soldering	No immersion cleaning after soldering	Immersion cleaning after soldering	No immersion cleaning after soldering
Keycap (optional)	Refer to "ACCESSORIES" section of data sheet for Keycap information	None	None	None (customer-provided)
Operating force (OF)	Refer to "OPERATING CHARACTERISTICS" section of datasheet	100 gf (General purpose) 150 gf (High force)	160 ±50 g max.	3.3 ±0.6 N (select), 1.2 ±0.4 N (scroll up/down)
Service life (Mechanical/Electrical)	B3F-1□□□/3□□□: 1,000,000 ops. min. (High force: 300,000 ops. min.) B3F-4□□□: 3,000,000 ops. min. (High force: 300,000 ops. min.) B3F-5□□□: 10,000,000 ops. min. B3F-6□□□: 1,000,000 ops. min. (High force: 300,000 ops. min.)	1,000,000 ops. min. (General purpose) 300,000 operations min. (High force)	50,000 operations min.	100,000 operations min.
Actuator type	Plunger	Plunger	Plunger	Jog lever
Terminal choices	PCB	Surface mount	Surface mount	Surface mount
	*NOTE: For immersion cleaning type B3W consult Omron.			
IMPORTANT NOTE: None of the Tactile switch models listed within this catalog are water-washable.				



DIP						
						
	A6A	A6C	A6R/A6RV	A6E/A6ER	A6H	A6T/A6S
<b>Dimensions mm (in)</b>	Varies by type	Varies by type	Varies by type	Varies by type	Varies by type	Varies by type
<b>Features</b>	<ul style="list-style-type: none"> <li>• Subminiature Rotary DIP Switch</li> <li>• Small housing for high-density mounting and sealed construction for immersion cleaning</li> </ul>	<ul style="list-style-type: none"> <li>• Subminiature Rotary DIP Switch</li> <li>• Internal sealed construction eliminates the need for tape sealing, and automatic, high-density mounting is possible</li> </ul>	<ul style="list-style-type: none"> <li>• Economical rotary DIP switch</li> <li>• Top, side and extended shaft models</li> <li>• O-ring sealed construction to prevent ingress of dust and dirt</li> </ul>	<ul style="list-style-type: none"> <li>• Available in a variety of model types: A6E: Flat/Raised actuator A6ER: Side actuator</li> </ul>	<ul style="list-style-type: none"> <li>• Half-pitch Surface Mount DIP Switch</li> <li>• Low profile of 1.55 mm</li> <li>• Seal tape models available</li> </ul>	<ul style="list-style-type: none"> <li>• Straight PCB/ Surface Mount DIP Switch</li> <li>• Flat actuated types with or without seal tape, and tape seal versions in embossed tape packaging</li> <li>• Raised actuator types also available</li> </ul>
<b>Contact Rating</b>						
<b>Resistive load</b>	1 to 100 mA, 5 to 28 VDC	100 mA at 30 VDC	25 mA at 24 VDC	25 mA at 24 VDC	25 mA at 24 VDC	25 mA at 24 VDC
<b>Switching positions</b>	10-BCD 16-Hexadecimal	10-BCD 16-Hexadecimal	10-BCD 16-Hexadecimal	—	—	—
<b>Number of poles</b>	—	—	—	2, 3, 4, 5, 6, 7, 8, 9, 10	4, 8	A6T: 1, 2, 4, 6, 8, 10 A6S: 2, 3, 4, 5, 6, 7, 8, 9, 10 A6S (embossed tape): 4, 6, 8
<b>Operating force (OF)</b>	120 to 250 g-cm	15 to 100 g-cm	200 g-cm max.	30 gf	30 gf	30 gf
<b>Mechanical service life</b>	10,000 detent ops. min.	10,000 operations min.	5000 detent operations min.	1,000 operations min.	1,000 operations min.	1,000 operations min.
<b>Electrical service life</b>	2,000 detent ops. min.	2,000 operations min.	5000 detent operations min.	1,000 operations min.	1,000 operations min.	1,000 operations min.
<b>Actuator types</b>	Rotary	Rotary	Rotary	Top, raised, side	Top	Top, raised
<b>Terminal choices</b>	PCB terminal	PCB terminal	PCB terminal	PCB terminal	Surface mount	PCB terminal; Surface mount
<b>Immersion cleaning</b>	Immersion cleaning after soldering	Immersion cleaning after soldering	No immersion cleaning after soldering; Absolutely non-washable	No Immersion cleaning after soldering; Absolutely non-washable	No immersion cleaning after soldering	No immersion cleaning after soldering
<p>IMPORTANT NOTE: None of the DIP switch models listed within this catalog are water-washable.</p>						

	THUMBWHEEL		
			
	<b>A7CN</b>	<b>A7D</b>	<b>A7F</b>
<b>Dimensions mm (in)</b>	18 H x 6 W x 15.5 D (0.71 x 0.24 x 0.61)	16 H x 5.08 W x 17.5 D (0.63 x 0.20 x 0.69)	16 H x 7 W x 17 D (0.63 x 0.28 x 0.67)
<b>Features</b>	<ul style="list-style-type: none"> <li>Designed specially for printed circuit</li> <li>Ideal for built-in use in small devices</li> </ul>	<ul style="list-style-type: none"> <li>Economical thumbwheel switch for use in DC circuits</li> <li>Space saving</li> <li>Can be fabricated with stopper</li> </ul>	<ul style="list-style-type: none"> <li>Compact, thin, pen-push type</li> <li>Ideal for SCSI applications which require a compact switch</li> </ul>
<b>Configuration</b>	Pushwheel	Pushwheel	Pen-push
<b>Mounting</b>	Snap in (front mounting); Screw mounted (back mounting)	Snap in (front mounting); Screw mounted (back mounting)	Vertical/horizontal front mounting
<b>Terminal types</b>	PCB terminal	PCB terminal	Amp Press Fit MT connector/solderless connector
<b>Dustproofing</b>	Provided	Provided	Provided (IP50)
<b>Color</b>	Black, light gray	Black, light gray	Black
<b>Switching capacity</b>	1 mA to 0.1 A, 50 VAC/28 VDC (resistive load)	1 mA to 0.1 A, 5 to 30 VDC (resistive load)	1 mA to 0.1 A, 5 VDC (resistive load)
<b>Switching positions/ Output code</b>	10 (binary)	10 (binary)	8 (binary)
<b>Mechanical service life</b>	30,000 ops. (steps) min.	30,000 ops. (steps) min.	2,000 ops. (steps) min.
<b>Electrical service life</b>	20,000 ops. (steps) min.	20,000 ops. (steps) min.	2,000 ops. (steps) min.
<b>Spacers</b>	A7C-2P□-1; A7C-1P□-1	A7D-2P□-1; A7D-1P□-1	—

	SPECIAL PURPOSE
	
	<b>A8L</b>
<b>Dimensions mm (in)</b>	16.5 H x 12.5 D x 19 W (0.65 x 0.49 x 0.75)
<b>Features</b>	<ul style="list-style-type: none"> <li>Miniature Rocker Switch</li> <li>Withstands inrush currents up to 100 A</li> <li>Contact gap of 3 mm minimum</li> </ul>
<b>Contact Ratings</b>	
<b>Resistive load</b>	10 A, 125 VAC or 250 VAC
<b>Contact form</b>	SPST, DPST
<b>Operating force (OF)*</b>	SPST: 220 ±120 gf DPST: 400 ±250 gf
<b>Mechanical service life</b>	50,000 operations min.
<b>Electrical service life</b>	10,000 operations min.
<b>Actuator type</b>	Rocker
<b>Terminal choices</b>	Quick connect/Solder, PCB (straight, right angled, left angled)
<b>Approved standards</b>	UL, cUL


\*Values are for pin plunger type only

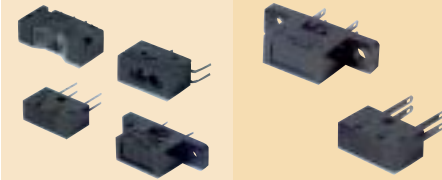


The background of the entire page is a collage of various Omron photomicrosensors and connectors. These components are shown in different sizes and orientations, some with labels like 'Omron' and 'G1M-202P-05-4-940'. The collage is overlaid with a semi-transparent orange filter. In the bottom left corner, there are five solid orange circles of varying sizes arranged in a cluster.

# Photomicrosensors


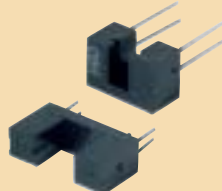


Omron has an optical switch that is suitable for your most challenging application, whether it calls for a microphotonic or non-amplified photomicrosensor. Choose among different slot widths, sensing distances, configurations, mounting styles, etc. Our product families and their vital characteristics are listed in the following pages. For more detailed descriptions of our photomicrosensors visit our website at [www.omron.com/oei](http://www.omron.com/oei).

	PHOTO IC	
		
	Non-Amplified	Non-Amplified
Sub-category	Slotted Photo IC with connector	Slotted Photo IC
Models	EE-SX4235A-P2	EE-SX398, EE-SX3070, EE-SX3081, EE-SX3088, EE-SX498, EE-SX4070, EE-SX4081, EE-SX4088
Connection type	Connector*	PCB mount
Features	<ul style="list-style-type: none"> <li>Unique snap-in mounting mechanism eliminates screws and nuts</li> <li>Compatible with 1.0, 1.2, and 1.6 mm PCBs</li> </ul>	<ul style="list-style-type: none"> <li>Built-in Schmitt trigger circuit</li> <li>Directly compatible with TTL and CMOS</li> </ul>
Slot width mm (in)	5 (0.2)	3 to 8 (0.12 to 0.315)
Output logic	Light-ON	Light-ON or Dark-ON
Max. forward current mA	–	50 mA
Supply voltage (VDC)	7 VDC	4.5 to 16 VDC
Operating temperature	–25° to 75°C	–40° to 75°C
Output low voltage (V)	0.35 V max.	0.4 V max.
Output high voltage (V)	(V <sub>cc</sub> x 0.9) V min.	15 V min.
Response frequency (Hz)	3,000 Hz	3,000 Hz
Output permissible dissipation (mW)	250 mW	250 mW
Forward voltage (V)	–	1.2 V – typ.
Hysteresis	–	15%
Rising time (low to high)	–	3 µS – typ.
Falling time (high to low)	–	20 µS – typ.
Current consumption (mA)	30 mA max.	10 mA max.
	*Applicable Mating Connector AMP 175778-3 AMP 173977-3	

	REFLECTIVE	
		
	Non-Amplified	Non-Amplified
Sub-category	Reflective PCB mount phototransistor	Reflective solder terminal phototransistor
Model numbers	EE-SY169, EE-SY169A, EE-SY169B, EE-SB5-B, EE-SF5-B	EE-SB5, EE-SF5
Connection type	PCB mount	Solder terminals
Features	<ul style="list-style-type: none"> <li>Ideal for office automation and computer peripheral equipment</li> <li>Infrared LED and photo-transistor assure long life</li> </ul>	<ul style="list-style-type: none"> <li>Sensor housing reduces external light's influence</li> <li>High resolution sensing</li> </ul>
Sensing distance mm(in)	5 (0.2)	5 (0.2)
Max. forward current (mA)	50 mA (40 mA: EE-SY169, EE-SY169B)	50 mA
Supply voltage (VDC)	5 to 30 V	5 to 30 V
Light current (mA)	EE-SY169(A)(B): 160 µA to 2000 µA; EE-SB5/EE-SF5-B: 200 µA to 2000 µA	200 µA to 2000 µA
Response frequency (Hz)	15 kHz	15 kHz
Ambient operating temperature (°C)	0° to 70°C	–25° to 85°C

NOTE: The above specifications do not apply to all models listed.  
For specific model information, visit [www.omron.com/oei](http://www.omron.com/oei) or contact your Omron representative.



PHOTOTRANSISTORS				
				
	Non-Amplified	Non-Amplified	Non-Amplified	Non-Amplified
Sub-category	Slotted phototransistor with connector	Miniature PCB mount transmissive	Slotted surface mount phototransistor output	Slotted actuator adaptable phototransistor output
Models	EE-SX1235A-P2	EE-SX198, EE-SX1018, EE-SX1035, EE-SX1041, EE-SX1042, EE-SX1046, EE-SX1055, EE-SX1070, EE-SX1071, EE-SX1081, EE-SX1088, EE-SX1096, EE-SX1103, EE-SX1105, EE-SX1106	EE-SX1107, EE-SX1108, EE-SX1109, EE-SX1131 (dual channel)	EE-SA107-P2
Connection type	Connector*	PCB mount	Surface mount	Connector*
Features	<ul style="list-style-type: none"> <li>Electrical connections using AMP connector</li> <li>Compact and high-resolution</li> </ul>	<ul style="list-style-type: none"> <li>00Infrared LED and phototransistor for long life</li> <li>Narrow aperture slit for high resolution sensing</li> <li>Compact size</li> </ul>	<ul style="list-style-type: none"> <li>Ultra-compact</li> <li>High-resolution sensing with phototransistor output</li> <li>Ideal for restricted space applications</li> </ul>	<ul style="list-style-type: none"> <li>High resolution sensing</li> <li>Non-contact, noiseless sensing</li> </ul>
Slot width mm(in)	5 (0.2)	2 to 8 (0.08 to 0.32)	1 to 3 (0.04 to 0.12)	3.6 (0.14)
Max. forward current (mA)	50 mA	50 mA	25 mA	50 mA
Max. collector dissipation (mW)	100 mW	100 mW	75 mW	100 mW
Operating temperature (°C)	–25° to 95°C	–25° to 85°C	–30° to 85°C	–25° to 85°C
Forward voltage (V)	1.2 V – typ.	1.2 to 1.3 V	1.1 V – typ.	1.2 V – typ.
Light current (mA)	0.6 mA to 14mA max.	0.03 to 14 mA max.	0.05 to 0.50 mA	0.5 to 14 mA
Collector-emitter saturated voltage (V)	0.4 V max.	0.4 V max.	0.1 V – typ.	0.4 V max.
Rising time (low to high)	8 μS – typ.	4 μS – typ. (10 μS – typ.: EE-SX1103, EE-SX1105, EE-SX1106)	10 μS – typ.	8 μS – typ.
Falling time (high to low)	8 μS – typ.	4 μS – typ. (10 μS – typ.: EE-SX1103, EE-SX1105, EE-SX1106)	10 μS – typ.	8 μS – typ.
	*Applicable Mating Connector AMP 175778-3 AMP 173977-3			*Applicable Mating Connector AMP 175778-3 AMP 173977-3
NOTE: The above specifications do not apply to all models listed. For specific model information, visit <a href="http://www.omron.com/oei">www.omron.com/oei</a> or contact your Omron representative.				



Omron's high-visibility, dual-reflective LEDs provide at least twice the brightness while lowering energy costs. That translates to lower power consumption for the overall design, greater reliability, and purity of hue compared to incandescent lighting. Typical applications for these LEDs include:

- Emergency vehicle lights
- Airport lighting
- Vehicle lighting
- Consumer interior lighting
- Traffic signals
- Display/signage for indoor or outdoor use

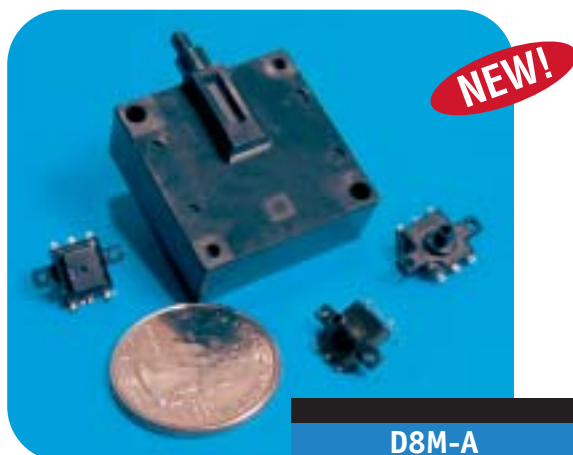
LIGHT EMITTING DEVICES	
Dual-Reflective LEDs	
Colors	Red, blue, blue-green, green, yellow, orange
Viewing angle	17° (2 1/2)
Intensity	2,500 to 10,000 mcd
Max forward current	50 mA
Nom. forward current	20 mA
Operating temperature	-30°C to 85°C
Base diameter	8.5 mm
Lead length	23 mm (from stand-off)
Other options	<ul style="list-style-type: none"> <li>• High power</li> <li>• 11 mm</li> <li>• IR</li> <li>• Oval shape</li> </ul>

**Omron's advanced micro sensing products meet today's demand for compact, portable design. These sensors give your designs a greater ability to sense more about their environment so you can provide more functionality and operational efficiency.**

## Micro sensing solutions from Omron can measure:

- For more information about Omron  
sensors visit our website at  
[www.omron.com/oei](http://www.omron.com/oei).**

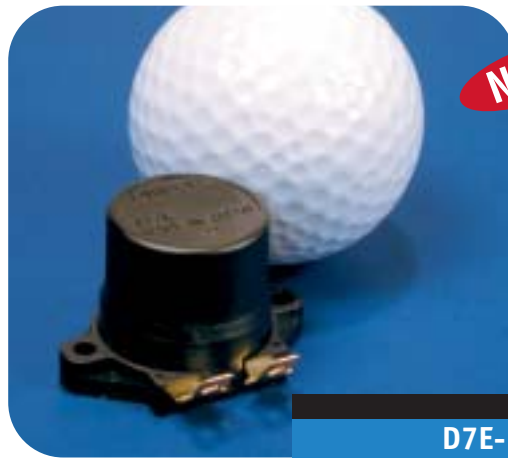




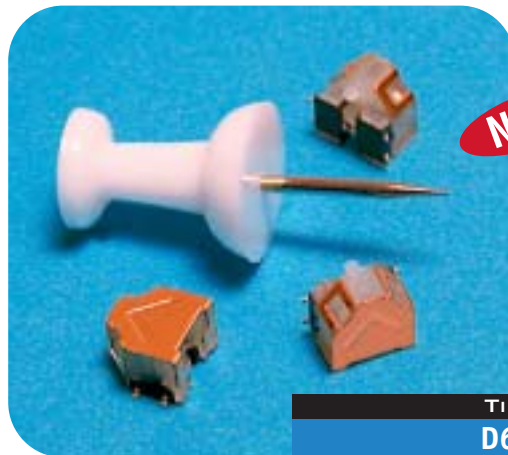
	PRESSURE		
	D8M-A	D8M-D	D8M-R
Dimensions mm (in)	30 H x 25.8 D x 30 W (1.18 x 1.02 x 1.18)	Varies by type	30 H x 25.8 D x 30 W (1.18 x 1.02 x 1.18)
Features	• Solid state MEMS pressure sensor with analog output	• Solid state MEMS pressure sensor with pulse count output	• Solid state MEMS pressure sensor with frequency output
Applicable fluid	Air. Other gas/fluid, please inquire.	Air. Other gas/fluid, please inquire.	Air. Other gas/fluid, please inquire.
Pressure range	0 to 4.9 kPa	Varies by type (0 to 5.88 kPa)	0 – 196.13 Pa
Output voltage	0 – 1.25 VDC	–	–
Output frequency	–	Varies by model 45 – 450 kHz (1 pulse/9.81 Pa)	80 – 300 kHz (1 kHz/9.81 Pa)
Supply voltage	2.2 ±0.1 VDC	2.2 – 3.4 VDC	4.2 – 5.5 VDC
Current consumption	2.5 mA max.	Varies by model (25 – 40 mA)	10 mA max.
Temperature range	-30° to + 70°C	Varies by model (-30° to + 70°C)	-20° to +70°C



	AIR FLOW	
	D6A-N	
Dimensions mm (in)	39 H x 9 D x 33 W (1.54 x 0.35 x 1.30)	
Features	• Detects clogged air filters to prevent overheating of servers, routers, network devices, UPS	
Applicable fluid	Air	
Output voltage	0.25 ±1.25 V at 0.5 mm/sec wind velocity 2.70 ±1.35 V at 1.0 mm/sec wind velocity 4.50 ±1.35 V at 1.5 mm/sec wind velocity	
Supply voltage	12 VDC ±10%	
Current consumption	60 mA max.	
Temperature range	0° to + 45°C	



	SHOCK/VIBRATION	
	D7E-1, -2	D7E-3
<b>Dimensions mm (in)</b>	23.1 H x 23.6 D x 36.4 W (0.91 x 0.93 x 1.43)	23.1 H x 23.6 D x 36.4 W (0.91 x 0.93 x 1.43)
<b>Features</b>	<ul style="list-style-type: none"> <li>• Compact seismic detector</li> <li>• Self-resetting</li> <li>• Quick-connect terminals</li> </ul>	<ul style="list-style-type: none"> <li>• Compact tilt sensor</li> <li>• Responds to gradual tilting of 1 degree/sec</li> <li>• Self-resetting</li> <li>• Quick-connect terminals</li> </ul>
<b>Acceleration range</b>	Varies by model (100 – 200 cm/s <sup>2</sup> )	–
<b>Operating angle</b>	–	50 – 80 degrees
<b>Return angle (reset)</b>	2.5 degrees minimum from horizontal	25 degrees or more
<b>Contact capacity</b>	0.1 mA at 5 VDC to 100 mA at 30 VDC resistive load	0.1 mA at 5 VDC to 100 mA at 30 VDC resistive load
<b>Contact form</b>	SPST-NC	SPST-NC
<b>Temperature range</b>	-25° to + 60°C	-25° to + 60°C
<b>Service life</b>	5000 operations min.	5000 operations min.



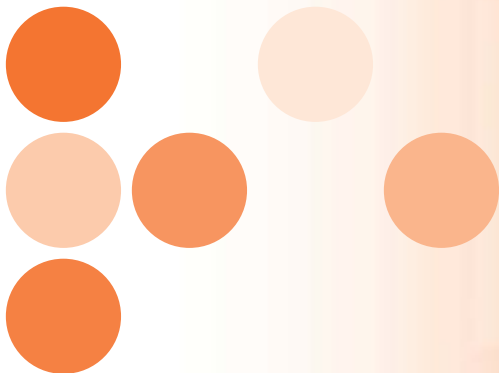
	TILT	
	D6B	
<b>Dimensions mm (in)</b>	5.50 H x 3.75 D x 5.50 W (0.22 x 0.15 x 0.22)	
<b>Features</b>	• Micro tilt sensor for space-constrained applications	
<b>Operating angle</b>	45 – 75 degrees (output goes from high to low)	
<b>Return angle</b>	50 – 20 degrees (output goes from low to high)	
<b>Operating voltage (Vdd)</b>	2.7 – 3.3 VDC	
<b>Output voltage</b>		
<b>Low</b>	0.5 VDC max.	
<b>High</b>	Vdd – 0.5 VDC min.	
<b>Current consumption</b>	20 µA max.; 10 µA typ (Vcc = 3 VDC)	
<b>Temperature range</b>	Surface mount	





# Connectors

Omron developed a new line of flexible printed circuit (FPC) connectors to improve space savings in your design and increase productive yield in product assembly. Omron's FPC connector designs have unique and reliable locking mechanisms and close tolerances for surface mounting that provide fabrication advantages over other manufacturers' connector designs. While a perfect choice for any FPC need, this unique locking feature offers a clear advantage in mobile and hand-held applications. Omron began supplying connectors in 1984 throughout S.E. Asia and now offers the latest in technology to U.S. designers. For more information about Omron connectors visit our website at [www.omron.com/oei](http://www.omron.com/oei).



FLEXIBLE PRINTED CIRCUIT CONNECTORS				
				
	XF2L	XF2H	XF2J	XF2G
<b>Pitch mm</b>	0.5 mm	0.5 mm	0.5 mm	0.5 mm
<b>Insertion type</b>	ZIF	ZIF	ZIF	Non-ZIF
<b>Cable lock type</b>	Slide Lock	Rotary Slide Lock	Slide Lock	—
<b>PCB mounting</b>	SMT	SMT	SMT	SMT
<b>Cable insertion</b>	Horizontal	Horizontal	Vertical	Vertical
<b>Contact types</b>	Top & Bottom	Double Sided	Vertical	Vertical
<b>Dimensions mm (in)</b>	18.9 W x 3.5 D x 1.2 H (0.74 x 0.14 x 0.05) for 30 circuits	18.9 W x 3.05 D x 1.2 H (0.74 x 0.12 x 0.05) for 30 circuits	19.5 W x 3.4 D x 4.15 H (0.77 x 0.13 x 0.16) for 30 circuits	9.9 W x 3.4 D x 4.15 H (0.39 x 0.13 x 0.16) for 16 circuits
<b>Available circuits</b>	4, 5, 6, 7, 8, 10, 12, 13, 15, 18, 20, 21, 22, 26, 30	10, 12, 13, 14, 18, 20, 21, 22, 24, 26, 30, 32, 33, 34, 35, 36, 38, 40, 45, 50	6, 8, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30	6, 14, 16
<b>Packaging</b>	Tape & reel	Tape & reel	Tape & reel	Tape & reel
<b>Features</b>	Low profile, small size	Same connector for top and bottom applications	Low profile, top entry	Low cost, top entry
<b>Specifications</b>				
<b>Rated current</b>	0.5A	0.5A	0.5A	0.5A
<b>Rated voltage</b>	50 VDC	50 VDC	50 VDC	50 VDC
<b>Contact resistance</b>	30 mΩ max.	30 mΩ max.	30 mΩ max.	30 mΩ max.
<b>Insulation resistance</b>	100 M-Ω @ 250 VDC	100 M-Ω @ 250 VDC	100 M-Ω @ 250 VDC	100 M-Ω @ 250 VDC
<b>Withstand voltage</b>	250 VAC 1 min. (leakage current: 1 mA max.)	250 VAC 1 min. (leakage current: 1 mA max.)	250 VAC 1 min. (leakage current: 1 mA max.)	250 VAC 1 min. (leakage current: 1 mA max.)
<b>Circuit insertion or service life</b>	20 times	20 times	20 times	20 times
<b>Ambient operating temperature (°C)</b>	−30 to 85°C	−30 to 85°C	−30 to 85°C	−30 to 85°C



OMRON ELECTRONICS LLC  
Schaumburg, IL  
[www.omron.com/oei](http://www.omron.com/oei)

OMRON CANADA, INC.  
Toronto, Ontario  
[www.omron.ca](http://www.omron.ca)

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