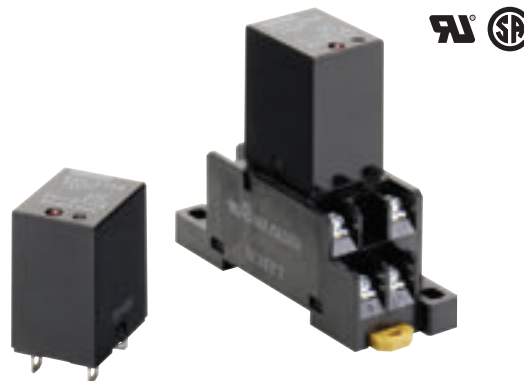


Hybridization of a Magnetic Relay and an SSR Achieves 10-A Switching for 10 Million Operations.

- Reduces wiring work by 60% when combined with the PTF-08-PU Push-In Plus Socket (according to actual OMRON measurements).
- UL/CSA certified (-US models).
- Using a triac to open and close the circuit reduces chattering and arcing, thereby increasing the electrical durability to 10 million operations.
- Relays contacts for power ON and 10-A switching with high-capacity are provided in a compact body without the need of radiators. Plus, there is almost no effect on heat generation or ambient temperature.
- Operation indicators to easily check operation.
- Built-in temperature fuse prevents internal burning due to triac or relay malfunctions.
- Socket-type Relays the same size as the 1-pole and 2-pole LY Relays.



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



Refer to *Safety Precautions for All Solid State Relays*.

Ordering Information

■ List of Model


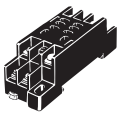

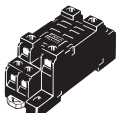
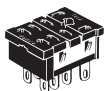

| Isolation method | Zero cross function | Operation indicator | Applicable output load (See note.) | Rated input voltage | Scheduled to be no longer available to order after March 2023 | Recommended Replacement/ certified for safety standard products |
|------------------|---------------------|---------------------|------------------------------------|---------------------|---|---|
| Relay | No | Yes | 5 A 100 to 240 VAC | 5 VDC | G9H-205S DC5 | G9H-205S-US DC5 |
| | | | | 12 VDC | G9H-205S DC12 | G9H-205S-US DC12 |
| | | | | 24 VDC | G9H-205S DC24 | G9H-205S-US DC24 |
| | | | 10 A 100 to 240 VAC | 5 VDC | G9H-210S DC5 | G9H-210S-US DC5 |
| | | | | 12 VDC | G9H-210S DC12 | G9H-210S-US DC12 |
| | | | | 24 VDC | G9H-210S DC24 | G9H-210S-US DC24 |

Note: 1. The actual product is labeled "250 VAC."

2. For information on products that are certified for safety standards, consult your OMRON sales representatives

■ Accessories (Order Separately)

Connection Sockets

| Classification | Terminal Type | Appearance | Model |
|----------------|---|---|-----------|
| Front-mounting | Push-In Plus Terminal blocks |  | PTF-08-PU |
| | Screw terminals |  | PTF08A |
| | Screw terminals (finger protection structure) |  | PTFZ-08-E |
| | Screw terminals (finger protection structure) |  | PTF08A-E |
| Back-mounting | Solder terminals |  | PT-08 |
| | Relays with PCB Terminals |  | PT08-0 |
| | Wrapping terminals |  | PT08QN |

Hold-down Clip

| Classification | Applicable Socket | | Hold-down Clip |
|----------------|---|-----------|----------------|
| | Terminal Type | Model | Model |
| Front-mounting | Screw terminals (finger protection structure) | PTFZ-08-E | PYC-A1 * |
| | Screw terminals | PTF08A | |
| | Screw terminals (finger protection structure) | PTF08A-E | |
| Back-mounting | Solder terminals | PT-08 | PYC-P |
| | Relays with PCB Terminals | PT08-0 | PYC-S |
| | Wrapping terminals | PT08QN | PYC-P |
| | | | PYC-S |

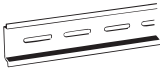
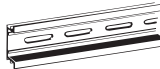


* One Set (2 Clips)

Connecting Socket Mounting Plate

| Model | Minimum quantity packaged (units) |
|--------|-----------------------------------|
| PYP-1 | 10 |
| PYP-18 | 1 |

Note: Order the models above in increments of the minimum quantity packaged.

DIN Track Mounting Parts

| Type | | Appearance | Model |
|------------|-----------------------------------|--|-----------|
| DIN Tracks | Shallow type, total length: 1 m |  | PFP-100N |
| | Shallow type, total length: 0.5 m | | PFP-50N |
| | Deep type, total length: 1 m |  | PFP-100N2 |
| End Plate | |  | PFP-M |
| Spacer | |  | PFP-S |

Specifications

■ Ratings

Input

| Rated voltage | Item | Operating voltage | Coil resistance | Must operate voltage | Must release voltage | Power consumption |
|---------------|------|-------------------|-----------------|----------------------|----------------------|-------------------|
| DC | 5 V | 4 to 6 VDC | 104 Ω | 4 VDC max. | 0.5 VDC min. | Approx. 240 mW |
| | 12 V | 9.6 to 14.4 VDC | 600 Ω | 9.6 VDC max. | 1.2 VDC min. | |
| | 24 V | 19.2 to 28.8 VDC | 2,400 Ω | 19.2 VDC max. | 2.4 VDC min. | |

Note: 1. The coil resistance is measured at a coil temperature of 23°C with a tolerance of ±10%.

2. Performance characteristic data are measured at a coil temperature of 23°C.

Output

| Model | Item | Applicable load | | | |
|----------------|------|--------------------|--------------------|--------------------------|---------------------------|
| | | Rated load voltage | Load voltage range | Load current (See note.) | Inrush current resistance |
| G9H-205S (-US) | | 100 to 240 VAC | 75 to 264 VAC | 50 mA to 5 A (at 55°C) | 80 A (60 Hz, 1 cycle) |
| G9H-210S (-US) | | | | 50 mA to 10 A (at 55°C) | 170 A (60 Hz, 1 cycle) |

Note: The load current depends on the ambient temperature. For details, refer to *Load Current vs. Ambient Temperature* in Engineering Data.

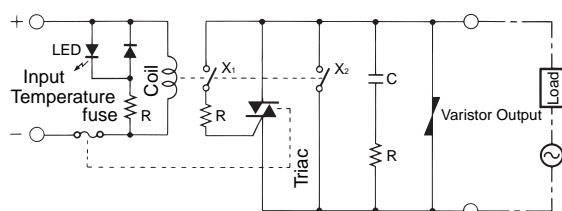
■ Characteristics

| Item | Model | G9H-205S (-US) | G9H-210S (-US) |
|-------------------------------|-------------|---|----------------------------|
| Operate time | | 10 ms max. | |
| Release time | | 1/2 cycle max. + 10 ms | |
| Output ON voltage drop | | 1.6 V max. (RMS) (at 5 A) | 1.6 V max. (RMS) (at 10 A) |
| Leakage current | | 5 mA max. at 250 VAC | |
| Inrush current resistance | | 80 A | 170 A |
| Temperature rise | | 50°C max. (rated voltage applied using resistance method) | |
| Insulation resistance | | 100 MΩ min. (at 500 VDC) | |
| Dielectric strength | | 2,000 VAC 50/60 Hz 1 min | |
| Vibration resistance | Destruction | 10 to 55 to 10 Hz, 1-mm single amplitude (2-mm double amplitude) | |
| | Malfunction | 10 to 45 to 10 Hz, 1-mm single amplitude (2-mm double amplitude) | |
| Shock resistance (See note.) | Destruction | 1,000 m/s ² | |
| | Malfunction | 100 m/s ² | |
| Life expectancy | Mechanical | 10 million operations min. (switching frequency: 18,000 operations/hour) | |
| | Electrical | 10 million operations min. (resistive load and switching frequency: 18,000 operations/hour) | |
| Storage temperature | | -25 to 70°C (with no icing or condensation) | |
| Ambient operating temperature | | -25 to 60°C (with no icing or condensation) | |
| Ambient operating humidity | | 35% to 85% | |
| Weight | | Approx. 25 g | |

Note: Value when excited.

Connection

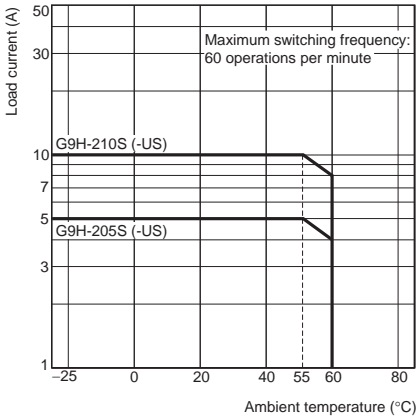
■ Layout



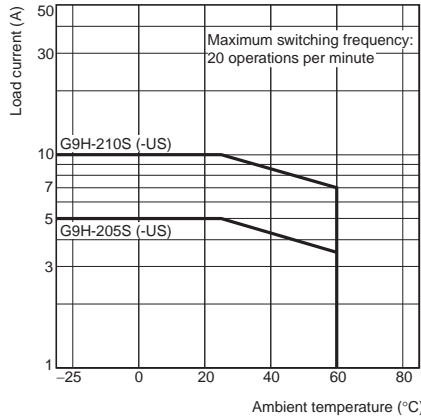
Engineering Data

Load Current vs. Ambient Temperature

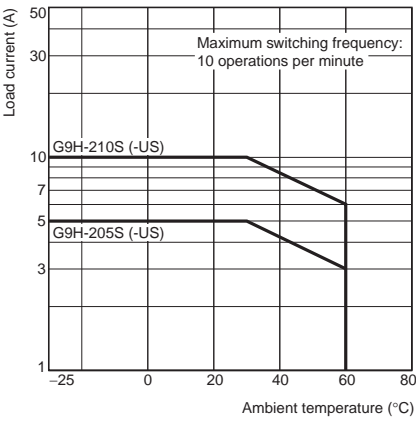
Resistive load



Lamp load (Inrush current: 6 times the rated current, Inrush current time: 2 cycles)

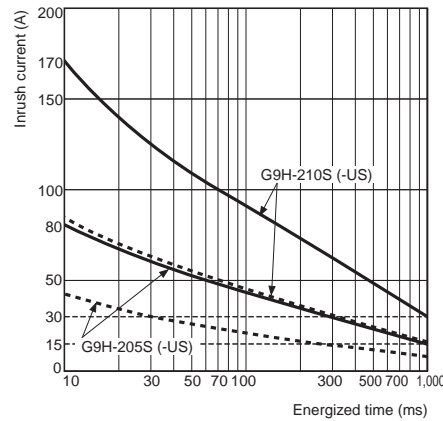


Motor load (Inrush current: 4 times the rated current, Inrush current time: 12 cycles)



Inrush Current Resistance vs. ON Time

Non-repetitive (Keep the inrush current below the dotted line if it occurs repetitively.)

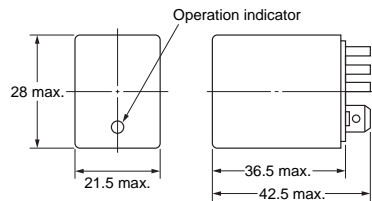


Dimensions

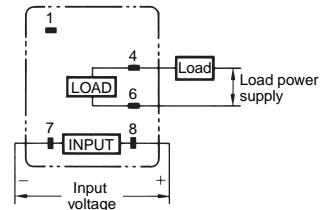
Note: All units are in millimeters unless otherwise indicated.

Hybrid Power Relays

G9H-205S (-US)
G9H-210S (-US)



Terminal Arrangement/Internal Connections (Bottom View)



■ Accessories (Order Separately)

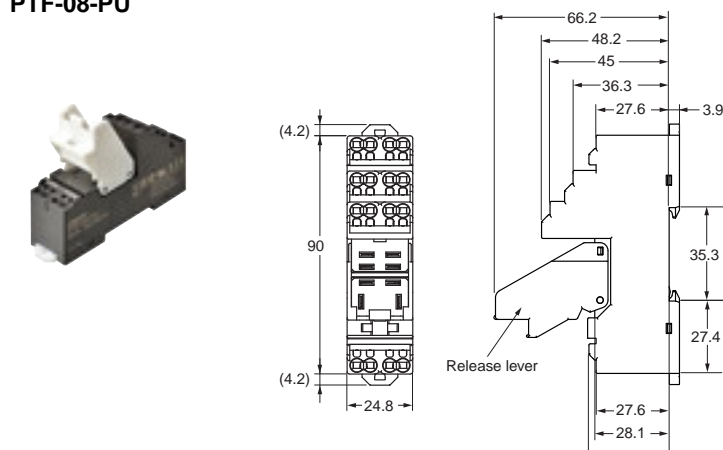
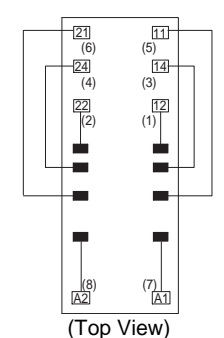
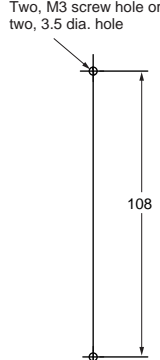
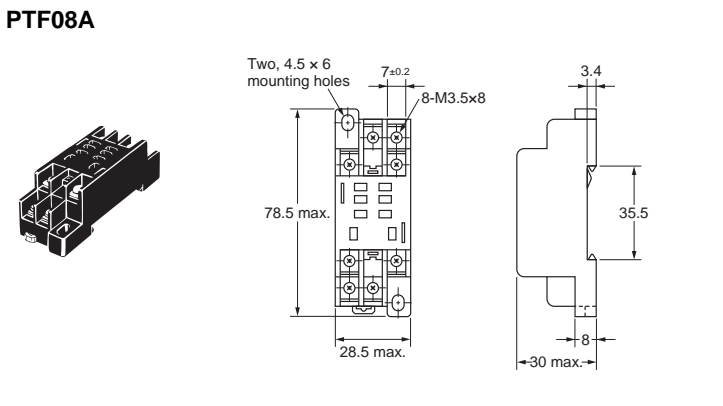
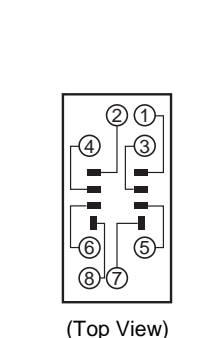
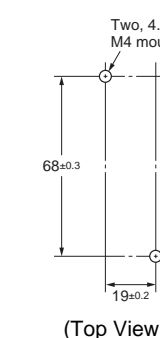
Socket Characteristics

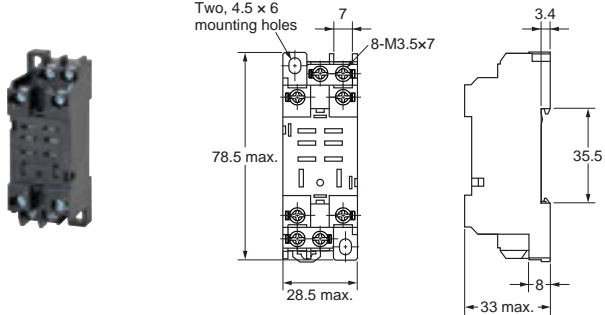
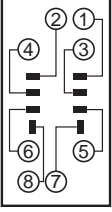
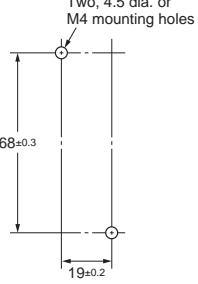
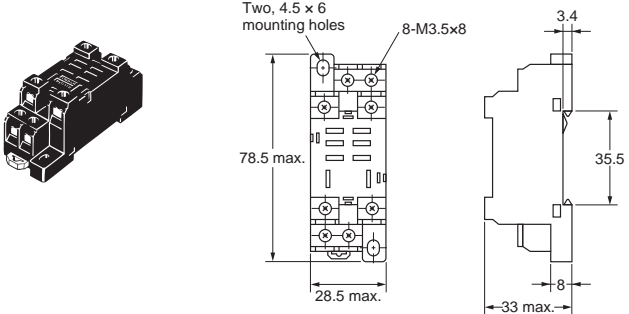
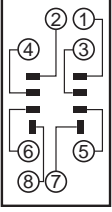
| Model | Continuous carry current | Dielectric strength | Insulation resistance *1 | Remarks |
|------------|--------------------------|---|--------------------------|---------|
| PTF-08-PU | 10 A | Between contact terminals of different polarity: 2,000 VAC, 1 min | 1,000 MΩ min. | |
| | | Between contact terminals of same polarity: 2,000 VAC, 1 min | | |
| | | Between coil and contact terminals: 2,000 VAC, 1 min | | |
| PTFZ-08-E | 12 A (@70°C) *2 | Between contact terminals of different polarity: 2,500 VAC, 1 min | 1,000 MΩ min. | |
| | | Between contact terminals of same polarity: 2,500 VAC, 1 min | | |
| | | Between ground terminals: 2,500 VAC, 1 min | | |
| | | Between coil and contact terminals: 2,500 VAC, 1 min | | |
| PTF08A(-E) | 10 A | Between terminals: 2,000 VAC for 1 min | 100 MΩ min. | |
| PT-08 | 10 A | Between terminals: 2,000 VAC for 1 min | 100 MΩ min. | |
| PT08-0 | 10 A | Between terminals: 2,000 VAC for 1 min | 100 MΩ min. | |
| PT08QN | 10 A | Between terminals: 2,000 VAC for 1 min | 100 MΩ min. | |

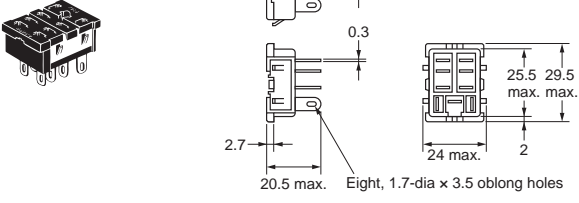
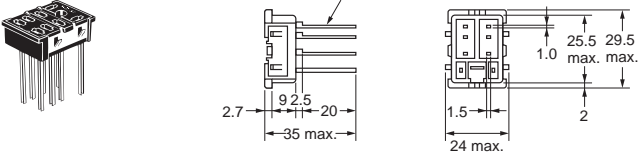
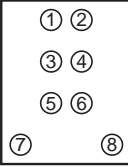
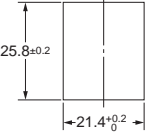
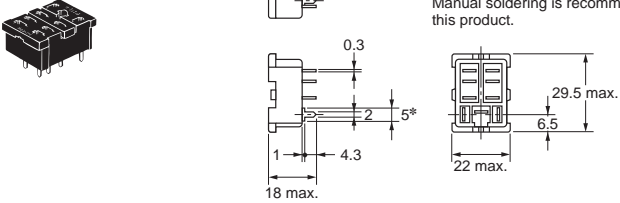
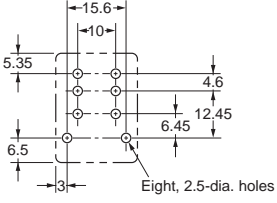
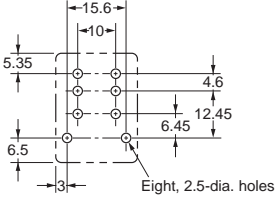
*1 The insulation resistance was measured with a 500-VDC insulation resistance meter at the same places as those used for measuring the dielectric strength.

*2 However, do not exceed the continuous carry current of the socket to be mounted.

Connection Sockets

| Dimensions | Terminal Arrangement/ Internal Connections | Mounting Hole Dimensions |
|--|--|---|
| <p>PTF-08-PU</p>  <p>Dimensions: 66.2, 48.2, 45, 36.3, 27.6, 3.9, 35.3, 27.4, 27.6, 28.1, 30.3, 24.8, 90, 4.2, 4.2. Release lever.</p> |  <p>(Top View)</p> <p>Note: The numbers in parentheses are traditionally used terminal numbers.</p> | <p>Two, M3 screw hole or two, 3.5 dia. hole</p>  <p>108</p> <p>(Top View)</p> <p>Note: Pull out the hooks to mount the Relay with screws.</p> |
| <p>PTF08A</p>  <p>Dimensions: 78.5 max., 28.5 max., 7±0.2, 8-M3.5x8, 3.4, 35.5, 8, 30 max., 19±0.2, 68±0.3.</p> |  <p>(Top View)</p> | <p>Two, 4.5 dia. or M4 mounting holes</p>  <p>(Top View)</p> <p>Note: Track mounting is also possible.</p> |

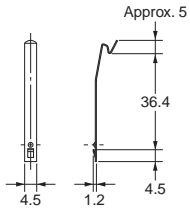
| Dimensions | Terminal Arrangement/ Internal Connections | Mounting Hole Dimensions |
|--|--|---|
| <p>PTFZ-08-E (Finger Protection Structure)</p>  <p>Two, 4.5 x 6 mounting holes 7 8-M3.5x7 78.5 max. 28.5 max. 3.4 35.5 8 33 max.</p> |  <p>(Top View)</p> |  <p>Two, 4.5 dia. or M4 mounting holes 68±0.3 19±0.2</p> |
| <p>PTF08A-E (Finger Protection Structure)</p>  <p>Two, 4.5 x 6 mounting holes 8-M3.5x8 78.5 max. 28.5 max. 3.4 35.5 8 33 max.</p> |  <p>(Top View)</p> | <p>Note: Track mounting is also possible.</p> |

| Dimensions | Terminal Arrangement/ Internal Connections | Mounting Hole Dimensions |
|--|---|--|
| <p>PT08</p>  <p>5 0.3 2.7 20.5 max. Eight, 1.7-dia x 3.5 oblong holes 25.5 29.5 max. max. 24 max. 2</p> <p>PT08QN</p>  <p>1.5x1.0 2.7 9 2.5 20 35 max. 1.5 24 max. 1.0 25.5 29.5 max. max. 2</p> |  <p>(Bottom View)</p> |  <p>25.8±0.2 21.4^{+0.2}</p> |
| <p>PT08-0</p>  <p>2 0.3 2 5* 1 4.3 18 max. 29.5 max. 6.5 22 max.</p> <p>*Maintain a sufficient distance from the pattern when using double-sided PCBs. • The structure does not resist flux. Manual soldering is recommended for this product.</p> |  <p>Eight, 2.5-dia. holes (±0.1 tolerance)</p> |  <p>15.6 10 5.35 4.6 12.45 6.45 6.5 3</p> |

Hold-down Clips

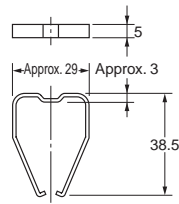
PYC-A1

Approx. 0.54 g (per clip)
One Set (2 Clips)



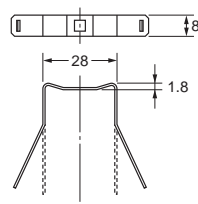
PYC-P

Approx. 1.4 g



PYC-S

Approx. 1.8 g

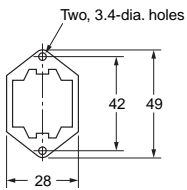


Connecting Socket Mounting Plate (t = 1.6)

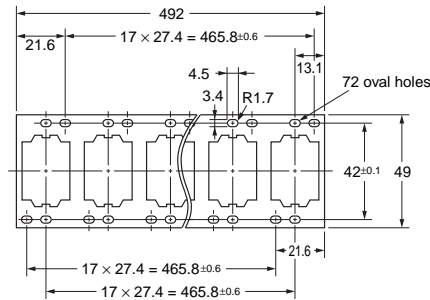
Use a Mounting Plate when two or more Connecting Sockets are mounted side by side.

Types of Mounting Plates are available: the PYP-1 (for mounting one Unit) and the PYP-18 (for mounting up to 18 Units). The Mounting Plate for 18 Units can be cut to the desired length before use.

PYP-1

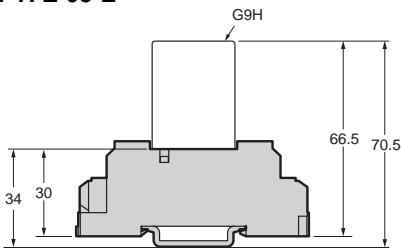


PYP-18



Mounting Height with Sockets

PTFZ-08-E



Safety Precautions

Refer to *Safety Precautions for All Solid State Relays*.

ALL DIMENSIONS SHOWN ARE IN MILLIMETERS.

To convert millimeters into inches, multiply by 0.03937. To convert grams into ounces, multiply by 0.03527.

In the interest of product improvement, specifications are subject to change without notice.

Terms and Conditions Agreement

Read and understand this catalog.

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

Warranties.

(a) Exclusive Warranty. Omron's exclusive warranty is that the Products will be free from defects in materials and workmanship for a period of twelve months from the date of sale by Omron (or such other period expressed in writing by Omron). Omron disclaims all other warranties, express or implied.

(b) Limitations. OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, ABOUT NON-INFRINGEMENT, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OF THE PRODUCTS. BUYER ACKNOWLEDGES THAT IT ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE.

Omron further disclaims all warranties and responsibility of any type for claims or expenses based on infringement by the Products or otherwise of any intellectual property right. (c) Buyer Remedy. Omron's sole obligation hereunder shall be, at Omron's election, to (i) replace (in the form originally shipped with Buyer responsible for labor charges for removal or replacement thereof) the non-complying Product, (ii) repair the non-complying Product, or (iii) repay or credit Buyer an amount equal to the purchase price of the non-complying Product; provided that in no event shall Omron be responsible for warranty, repair, indemnity or any other claims or expenses regarding the Products unless Omron's analysis confirms that the Products were properly handled, stored, installed and maintained and not subject to contamination, abuse, misuse or inappropriate modification. Return of any Products by Buyer must be approved in writing by Omron before shipment. Omron Companies shall not be liable for the suitability or unsuitability or the results from the use of Products in combination with any electrical or electronic components, circuits, system assemblies or any other materials or substances or environments. Any advice, recommendations or information given orally or in writing, are not to be construed as an amendment or addition to the above warranty.

See <http://www.omron.com/global/> or contact your Omron representative for published information.

Limitation on Liability: Etc.

OMRON COMPANIES SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, NEGLIGENCE OR STRICT LIABILITY.

Further, in no event shall liability of Omron Companies exceed the individual price of the Product on which liability is asserted.

Suitability of Use.

Omron Companies shall not be responsible for conformity with any standards, codes or regulations which apply to the combination of the Product in the Buyer's application or use of the Product. At Buyer's request, Omron will provide applicable third party certification documents identifying ratings and limitations of use which apply to the Product. This information by itself is not sufficient for a complete determination of the suitability of the Product in combination with the end product, machine, system, or other application or use. Buyer shall be solely responsible for determining appropriateness of the particular Product with respect to Buyer's application, product or system. Buyer shall take application responsibility in all cases.

NEVER USE THE PRODUCT FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY OR IN LARGE QUANTITIES WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCT(S) IS PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

Programmable Products.

Omron Companies shall not be responsible for the user's programming of a programmable Product, or any consequence thereof.

Performance Data.

Data presented in Omron Company websites, catalogs and other materials is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of Omron's test conditions, and the user must correlate it to actual application requirements. Actual performance is subject to the Omron's Warranty and Limitations of Liability.

Change in Specifications.

Product specifications and accessories may be changed at any time based on improvements and other reasons. It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without any notice. When in doubt, special part numbers may be assigned to fix or establish key specifications for your application. Please consult with your Omron's representative at any time to confirm actual specifications of purchased Product.

Errors and Omissions.

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