

- A high-capacity, high-withstand voltage relay compatible with momentary voltage drops
- No contact chattering for momentary voltage drops up to 50% of rated voltage
- UL Class B construction standard
- Wide-range AC-activated coil that handles 100 to 120 VAC at either 50 or 60 Hz
- Miniature hinge for maximum switching capacity, particularly for inductive loads
- Flame resistant materials (UL94V-0-qualifying) used for all insulation material
- Quick-connect, screw, and PCB terminals available
- Standard models are UL, CSA, and TUV approved; VDE versions now available
- Conforming to IEC 950



## Ordering Information

To Order: Select the part number and add the desired coil voltage rating (e.g., G7L-1A-T-CB-AC100/120).

Replaces G5D series.

| Type                                | Contact form | Part number                      |                                  |                    |
|-------------------------------------|--------------|----------------------------------|----------------------------------|--------------------|
|                                     |              | Quick-connect terminal           | Screw terminal                   | PCB terminal       |
| E bracket                           | SPST-NO      | <b>G7L-1A-T-CB</b> (see note 1)  | <b>G7L-1A-B-CB</b> (see note 1)  | —                  |
|                                     | DPST-NO      | <b>G7L-2A-T-CB</b> (see note 1)  | <b>G7L-2A-B-CB</b> (see note 1)  | —                  |
| E bracket<br>(with test button)     | SPST-NO      | <b>G7L-1A-TJ-CB</b> (see note 1) | <b>G7L-1A-BJ-CB</b> (see note 1) | —                  |
|                                     | DPST-NO      | <b>G7L-2A-TJ-CB</b> (see note 1) | <b>G7L-2A-BJ-CB</b> (see note 1) | —                  |
| Upper bracket                       | SPST-NO      | <b>G7L-1A-TUB-CB</b>             | <b>G7L-1A-BUB-CB</b>             | —                  |
|                                     | DPST-NO      | <b>G7L-2A-TUB-CB</b>             | <b>G7L-2A-BUB-CB</b>             | —                  |
| Upper bracket<br>(with test button) | SPST-NO      | <b>G7L-1A-TUBJ-CB</b>            | <b>G7L-1A-BUBJ-CB</b>            | —                  |
|                                     | DPST-NO      | <b>G7L-2A-TUBJ-CB</b>            | <b>G7L-2A-BUBJ-CB</b>            | —                  |
| PCB mounting                        | SPST-NO      | —                                | —                                | <b>G7L-1A-P-CB</b> |
|                                     | DPST-NO      | —                                | —                                | <b>G7L-2A-P-CB</b> |

- Note: 1. E bracket or socket must be used for mounting (part number R99-07G5D). Refer to "Accessories" section for options and part numbers.
2. For VDE approved versions, please consult OMRON.

## MODEL NUMBER LEGEND

G7L- □ □- □ □ □ □  
1 2 3 4 5 6

### 1. Contact form

1A: SPST-NO  
2A: DPST-NO

### 2. Terminal shape

T: Quick-connect terminals  
P: PCB terminals  
B: Screw terminals

### 3. Mounting construction

No symbol: E bracket type  
UB: Upper bracket type

### 4. Special functions

No symbol: Without test button  
J: With test button

### 5. 80: VDE approved version (includes UL, CSA and TÜV)

### 6. CB: Class B insulation

### 7. Rated coil voltage

## ACCESSORIES

### Quick-connect terminals

| Description             | Model        |           |          |           | Part number               |
|-------------------------|--------------|-----------|----------|-----------|---------------------------|
|                         | Contact form |           |          |           |                           |
|                         | SPST-NO      |           | DPST-NO  |           |                           |
| E-brackets              | G7L-1A-T     | G7L-1A-TJ | G7L-2A-T | G7L-2A-TJ | <b>R99-07G5D</b>          |
| Track mounting adaptor  |              |           |          |           | <b>P7LF-D</b>             |
| Front connecting socket |              |           |          |           | <b>P7LF-06</b> (see note) |
| Cover                   |              |           |          |           | <b>P7LF-C</b>             |

### Screw terminals

| Description            | Model        |           |          |           | Part number |
|------------------------|--------------|-----------|----------|-----------|-------------|
|                        | Contact form |           |          |           |             |
|                        | SPST-NO      |           | DPST-NO  |           |             |
| E-brackets             | G7L-1A-B     | G7L-1A-BJ | G7L-2A-B | G7L-2A-BJ | R99-07G5D   |
| Track mounting adaptor |              |           |          |           | P7LF-D      |

Note: P7LF-C cover is supplied with the P7LF-06 socket.

## Specifications

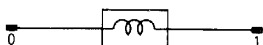
### CONTACT DATA

| Load                    | G7L-1A-T, G7L-1A-B                   |                                        | G7L-2A-T, G7L-2A-B                   |                                        | G7L-1A-P, G7L-2A-P                   |                                        |
|-------------------------|--------------------------------------|----------------------------------------|--------------------------------------|----------------------------------------|--------------------------------------|----------------------------------------|
|                         | Resistive load<br>( $\cos\phi = 1$ ) | Inductive load<br>( $\cos\phi = 0.4$ ) | Resistive load<br>( $\cos\phi = 1$ ) | Inductive load<br>( $\cos\phi = 0.4$ ) | Resistive load<br>( $\cos\phi = 1$ ) | Inductive load<br>( $\cos\phi = 0.4$ ) |
| Rated load              | 30 A, 220 VAC                        | 25 A, 220 VAC                          |                                      |                                        | 20 A, 220 VAC                        |                                        |
| Contact material        | AgCdO                                |                                        |                                      |                                        |                                      |                                        |
| Carry current           | 30 A                                 |                                        | 25 A                                 |                                        | 20 A                                 |                                        |
| Max. operating voltage  | 250 VAC                              |                                        |                                      |                                        |                                      |                                        |
| Max. operating current  | 30 A                                 |                                        | 25 A                                 |                                        | 20 A                                 |                                        |
| Max. switching capacity | 6,600 VA                             | 5,500 VA                               |                                      |                                        | 4,400 VA                             |                                        |
| Min. permissible load   | 100 mA, 5 VDC                        |                                        |                                      |                                        |                                      |                                        |

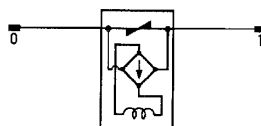
Note: P level:  $\lambda_{60} = 0.1 \times 10^{-6}$  operation.

### COIL INTERNAL CIRCUIT

#### DC operating coil



#### AC operating coil



## ■ COIL DATA

### AC

| Rated voltage (V) | Rated current (mA) | Resistance ( $\Omega$ ) | Must operate<br>% of rated voltage | Must release | Max. voltage | Power consumption      |
|-------------------|--------------------|-------------------------|------------------------------------|--------------|--------------|------------------------|
| 6                 | 283                | 18.90                   | 75% max.                           | 15% min.     | 110% max.    | Approx.1.70 to 2.50 VA |
| 12                | 142                | 75                      |                                    |              |              |                        |
| 24                | 71                 | 303                     |                                    |              |              |                        |
| 50                | 34                 | 1,310                   |                                    |              |              |                        |
| 100/120           | 17.00/20.40        | 5,260                   | 75 volts                           | 18 volts     | 132 volts    |                        |
| 200/240           | 8.50/10.20         | 21,000                  | 150 volts                          | 36 volts     | 264 volts    |                        |

### DC

| Rated voltage (V) | Rated current (mA) | Resistance ( $\Omega$ ) | Must operate<br>% of rated voltage | Must release | Max. voltage | Power consumption |
|-------------------|--------------------|-------------------------|------------------------------------|--------------|--------------|-------------------|
| 6                 | 317                | 18.90                   | 75% max.                           | 15% min.     | 110% max.    | Approx.1.90 W     |
| 12                | 158                | 75                      |                                    |              |              |                   |
| 24                | 79                 | 303                     |                                    |              |              |                   |
| 48                | 40                 | 1,220                   |                                    |              |              |                   |
| 100               | 19                 | 5,260                   |                                    |              |              |                   |

Note: 1. The rated current and coil resistance are measured at a coil temperature of 23°C (73°F) with tolerances of +15%/-20% for AC rated current and  $\pm 15\%$  for DC coil resistance.  
2. Performance characteristic data are measured at a coil temperature of 23°C (73°F).

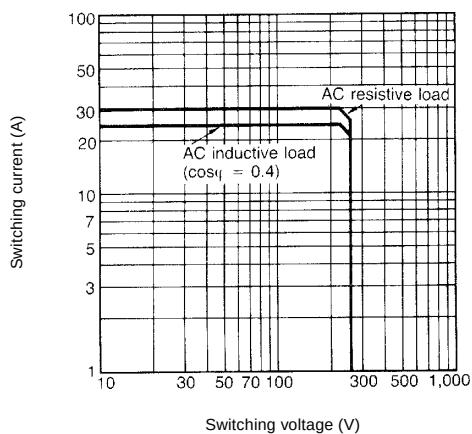
## ■ CHARACTERISTICS

|                           |                                                     |                                                                                     |
|---------------------------|-----------------------------------------------------|-------------------------------------------------------------------------------------|
| Contact resistance        |                                                     | 50 m $\Omega$ max.                                                                  |
| Operate time              |                                                     | 30 ms max.                                                                          |
| Release time              |                                                     | 30 ms max.                                                                          |
| Max. operating frequency  | Mechanical                                          | 1,800 operations/hour                                                               |
|                           | Electrical                                          | 1,800 operations/hour (under rated load)                                            |
| Insulation resistance     |                                                     | 1,000 M $\Omega$ min. (at 500 VDC)                                                  |
| Dielectric strength       |                                                     | 4,000 VAC, min./5,000 VAC typical, 50/60 Hz for 1 minute between coil and contacts  |
|                           |                                                     | 2,000 VAC, 50/60 Hz for 1 minute between contacts of same pole                      |
|                           |                                                     | 2,000 VAC, 50/60 Hz for 1 minute between contacts of different poles (DPST-NO type) |
| Impulse withstand voltage |                                                     | Between coil and contact: 10,000 V (impulse wave used: 1.20 x 50 $\mu$ s)           |
| Vibration                 | Mechanical durability                               | 10 to 55 Hz; 1.50 mm (0.06 in) double amplitude                                     |
|                           | Malfunction durability                              | 10 to 55 Hz; 1.50 mm (0.06 in) double amplitude                                     |
| Shock                     | Mechanical durability                               | 1,000 m/s <sup>2</sup> (approx. 100 G)                                              |
|                           | Malfunction durability                              | 1,000 m/s <sup>2</sup> (approx. 10 G)                                               |
| Life expectancy           | Mechanical                                          | 5,000,000 operations min. (at 1,800 operations/hour)                                |
|                           | Electrical                                          | 100,000 operations min. (at 1,800 operations/hour under rated load)                 |
| Ambient temperature       |                                                     | -20° to 85°C (-4° to 185°F)                                                         |
| Humidity                  |                                                     | 35% to 85% RH                                                                       |
| Weight                    | Quick-connect terminal type: approx. 90 g (3.17 oz) |                                                                                     |
|                           | PCB terminal type: approx. 100 g (3.52 oz)          |                                                                                     |
|                           | Screw terminal type: approx. 120 g (4.23 oz)        |                                                                                     |

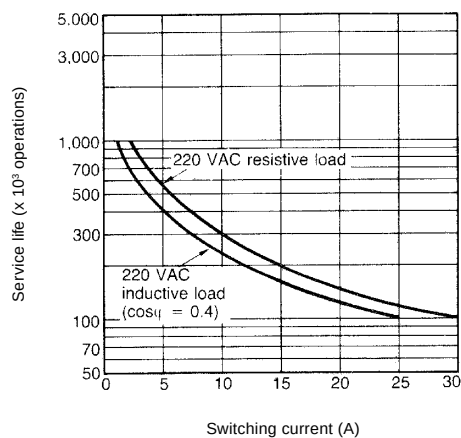
Note: Data shown are of initial value.

## ■ CHARACTERISTIC DATA

### Maximum switching capacity



### Electrical service life

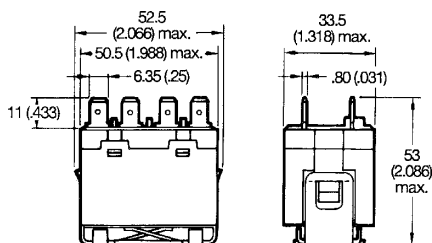


## Dimensions

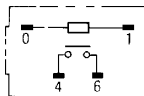
Unit: mm (inch)

## ■ RELAYS

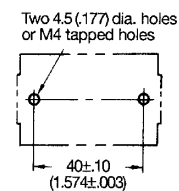
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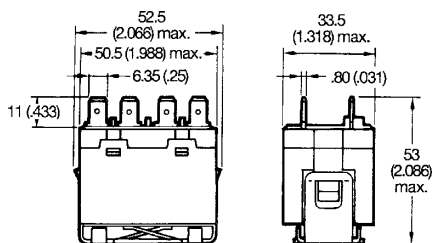
### Terminal arrangement/ Internal connections (Top view)



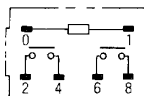
### Mounting holes (Bottom view)



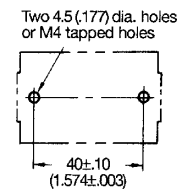
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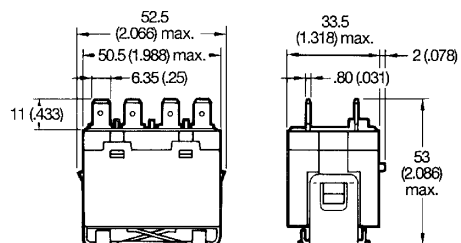
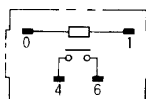
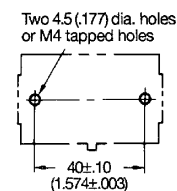
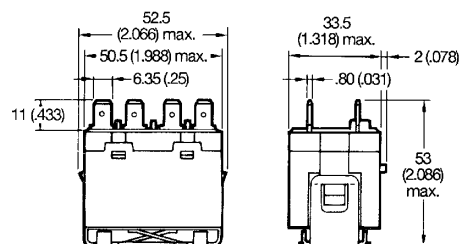
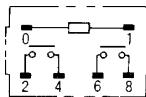
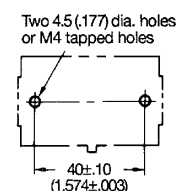
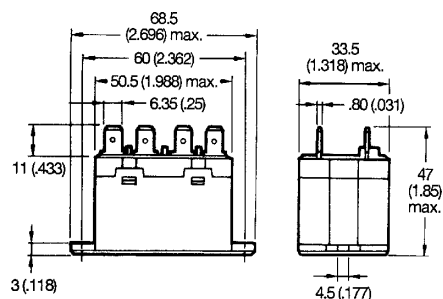
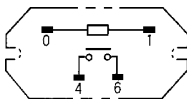
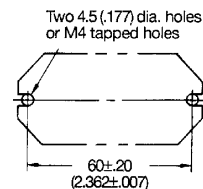
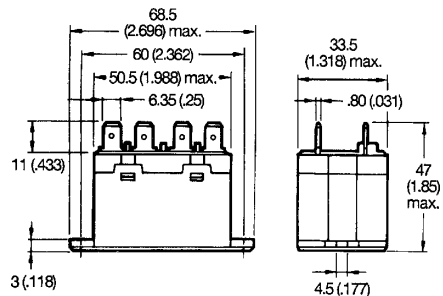
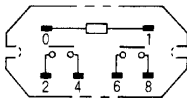
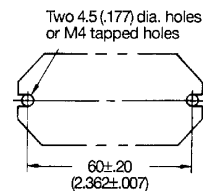
### Terminal arrangement/ Internal connections (Top view)



### Mounting holes (Bottom view)



\* E bracket must be ordered separately.

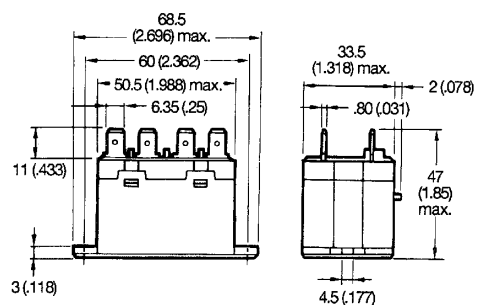
**G7L-1A-TJ**  
**(E Bracket Attached)\***

**Terminal arrangement/  
Internal connections**  
 (Top view)

**Mounting holes**  
 (Bottom view)

**G7L-2A-TJ**  
**(E Bracket Attached)\***

**Terminal arrangement/  
Internal connections**  
 (Top view)

**Mounting holes**  
 (Bottom view)

**G7L-1A-TUB**

**Terminal arrangement/  
Internal connections**  
 (Top view)

**Mounting holes**  
 (Bottom view)

**G7L-2A-TUB**

**Terminal arrangement/  
Internal connections**  
 (Top view)

**Mounting holes**  
 (Bottom view)


\* E bracket must be ordered separately.

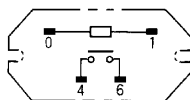
Unit: mm (inch)

## ■ RELAYS (continued)

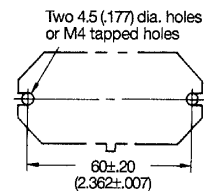
### G7L-1A-TUBJ



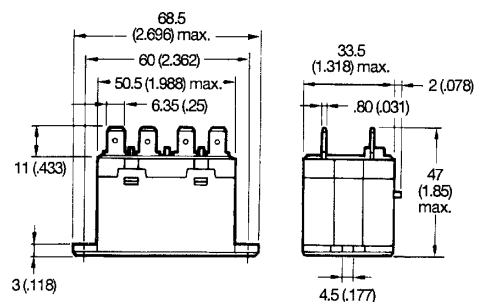
**Terminal arrangement/  
Internal connections**  
(Top view)



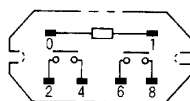
**Mounting holes**  
(Bottom view)



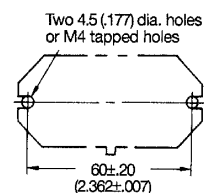
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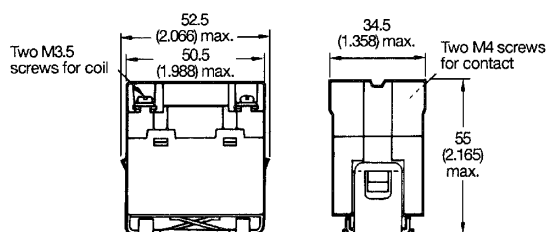
**Terminal arrangement/  
Internal connections**  
(Top view)



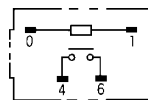
**Mounting holes**  
(Bottom view)



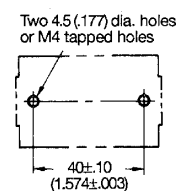
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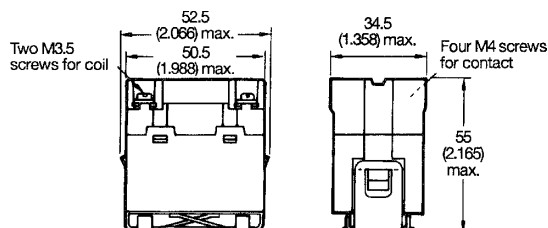
**Terminal arrangement/  
Internal connections**  
(Top view)



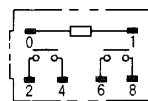
**Mounting holes**  
(Bottom view)



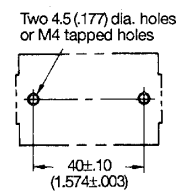
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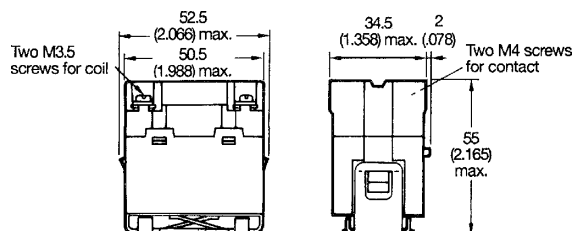
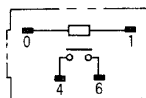
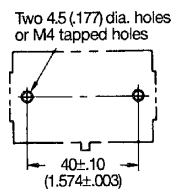
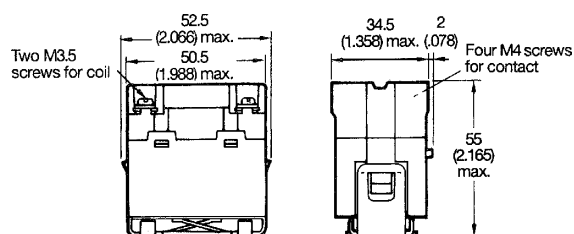
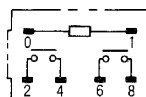
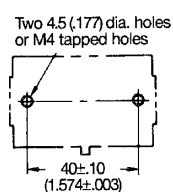
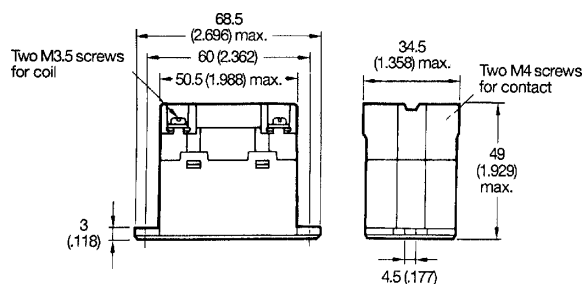
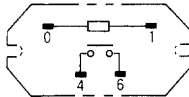
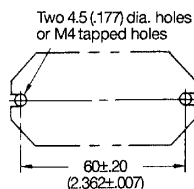
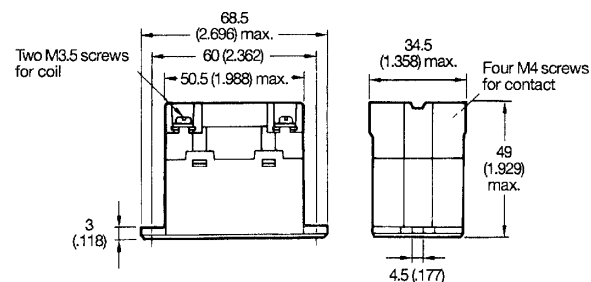
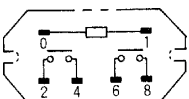
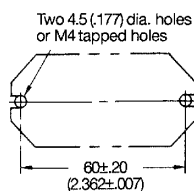
**Terminal arrangement/  
Internal connections**  
(Top view)



**Mounting holes**  
(Bottom view)



\* E bracket must be ordered separately.

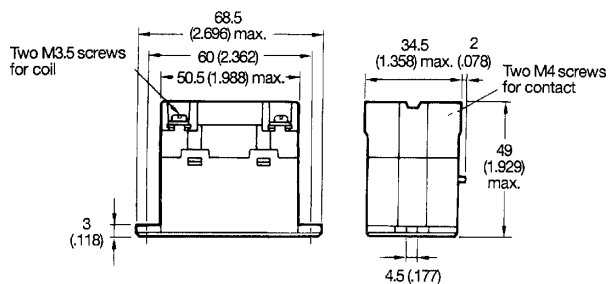
**G7L-1A-BJ**  
**(E bracket Attached)\***

**Terminal arrangement/  
Internal connections**  
 (Top view)

**Mounting holes**  
 (Bottom view)

**G7L-2A-BJ**  
**(E bracket Attached)\***

**Terminal arrangement/  
Internal connections**  
 (Top view)

**Mounting holes**  
 (Bottom view)

**G7L-1A-BUB**

**Terminal arrangement/  
Internal connections**  
 (Top view)

**Mounting holes**  
 (Bottom view)

**G7L-2A-BUB**

**Terminal arrangement/  
Internal connections**  
 (Top view)

**Mounting holes**  
 (Bottom view)


\* E bracket must be ordered separately.

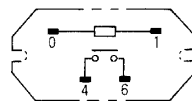
Unit: mm (inch)

## ■ RELAYS (continued)

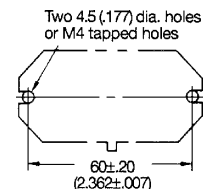
### G7L-1A-BUBJ



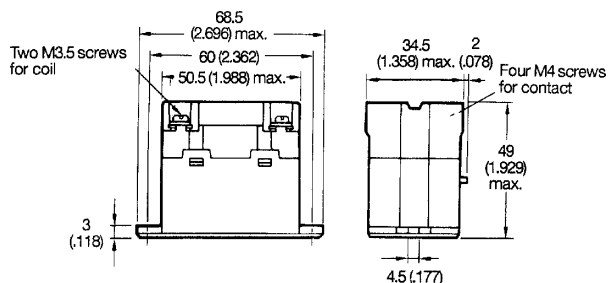
**Terminal arrangement/  
Internal connections**  
(Top view)



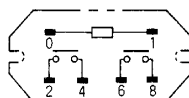
**Mounting holes**  
(Bottom view)



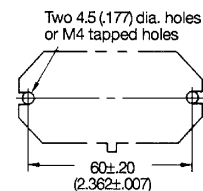
### G7L-2A-BUBJ



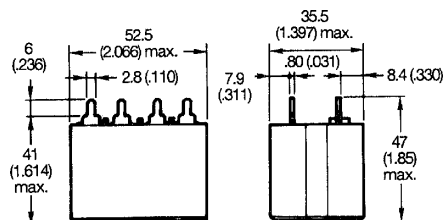
**Terminal arrangement/  
Internal connections**  
(Top view)



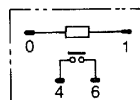
**Mounting holes**  
(Bottom view)



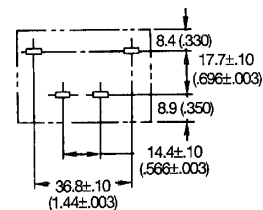
### G7L-1A-P



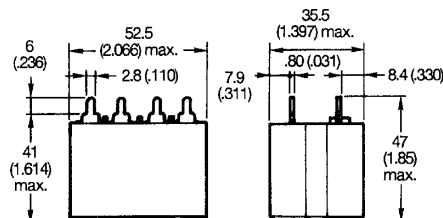
**Terminal arrangement/  
Internal connections**  
(Top view)



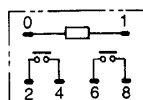
**Mounting holes**  
(Bottom view)



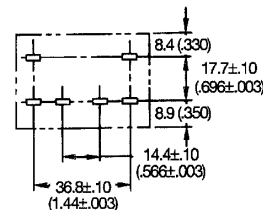
### G7L-2A-P



**Terminal arrangement/  
Internal connections**  
(Top view)

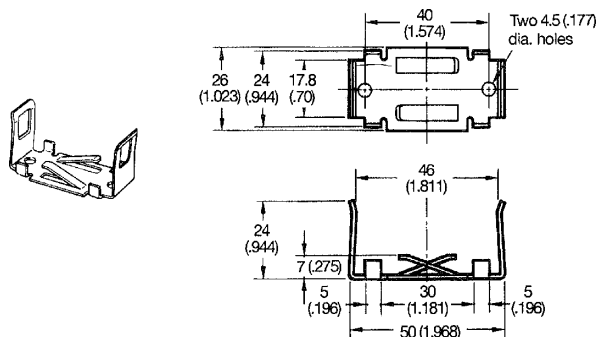


**Mounting holes**  
(Bottom view)

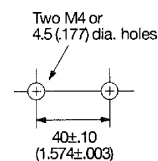


## ■ ACCESSORIES

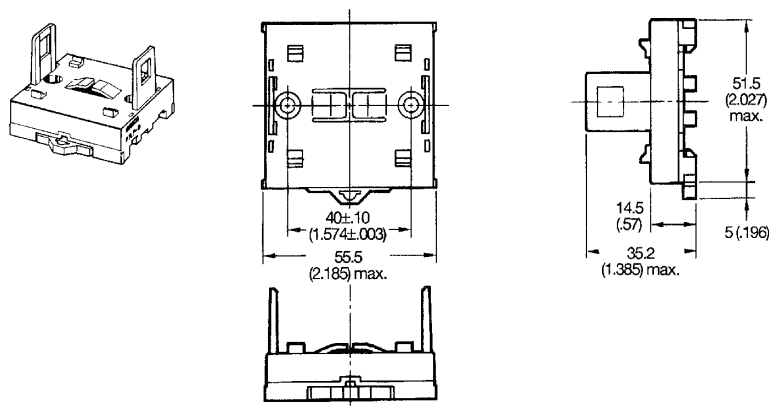
### E bracket R99-07G5D



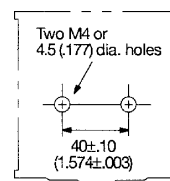
### Mounting holes (Bottom view)



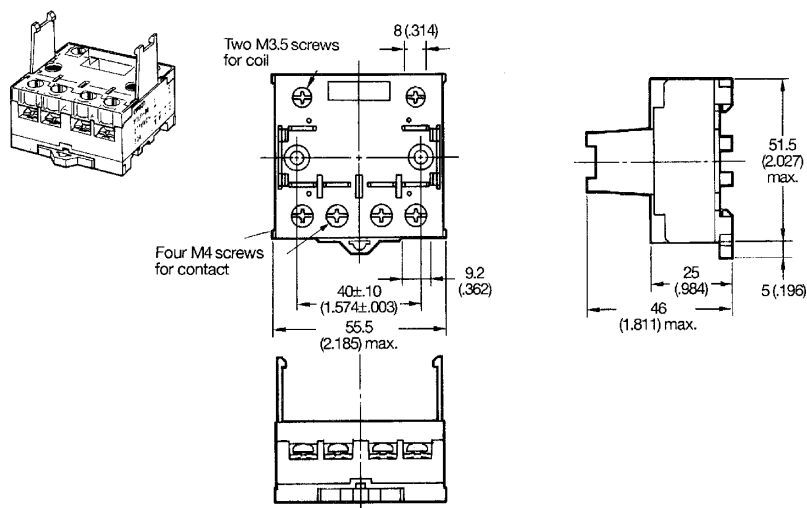
### Adaptor P7LF-D



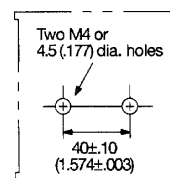
### Mounting holes (Bottom view)



### Front connecting socket P7LF-06



### Mounting holes (Bottom view)

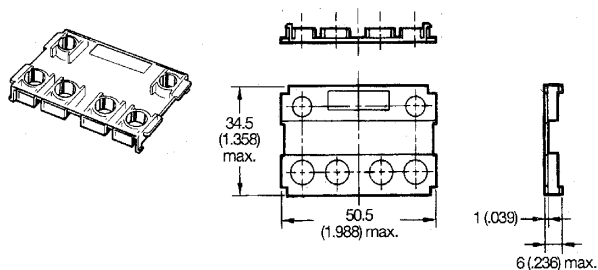


- Note: 1. To protect against electric shock, use the P7LF-C cover on terminals.  
2. P7LF-C cover is supplied with P7LF-06 socket

Unit: mm (inch)

## ACCESSORIES (continued)

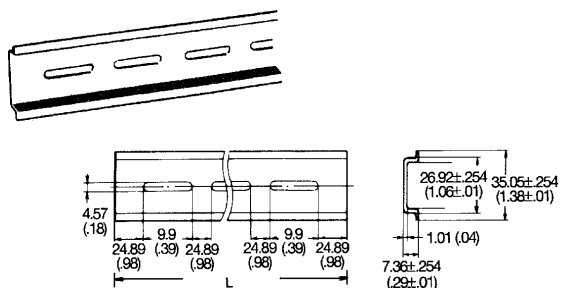
### Cover P7LF-C



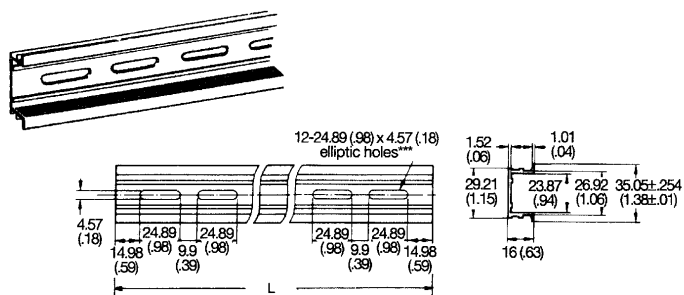
Note: P7LF-C cover is supplied with P7LF-06 socket

### Mounting track

#### PFP-100N, PFP-50N



#### PFP-100N2



Note: 1. It is recommended that a panel thickness of 1.60 to 2.00 mm (0.06 to 0.08 in) be used.

2. L = Length

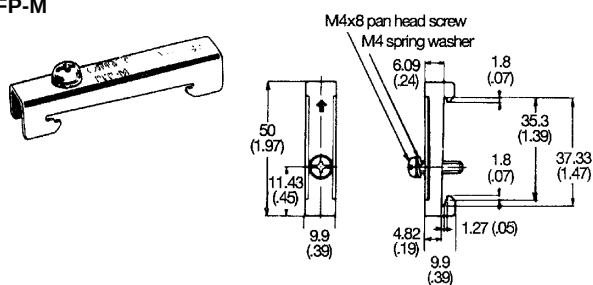
PFP-100N ..... L = 1 m (39.00 in)

PFP-50N ..... L = 50 cm (19.60 in)

PFP-100N2 ..... L = 1 m (39.00 in)

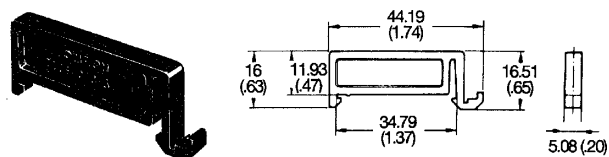
### End plate

#### PFP-M



### Spacer

#### PFP-S



## ■ APPROVALS

UL recognized type (File No. E41643)/ CSA certified type (File No. LR35535)

| Type                                                           | Contact form | Terminal type | Contact ratings                          |
|----------------------------------------------------------------|--------------|---------------|------------------------------------------|
| G7L-1A-T-CB<br>G7L-1A-TJ-CB<br>G7L-1A-TUB-CB<br>G7L-1A-TUBJ-CB | SPST-NO      | Quick-connect | 30 A, 277 VAC (Resistive) 30,000 c       |
|                                                                |              |               | 30 A, 120 VAC (General purpose) 30,000 c |
|                                                                |              |               | 30 A, 277 VAC (General purpose) 30,000 c |
|                                                                |              |               | 1.5 kW, 120 VAC (Tungsten)               |
| G7L-1A-B-CB<br>G7L-1A-BJ-CB<br>G7L-1A-BUB-CB<br>G7L-1A-BUBJ-CB |              | Screw         | 1.5 HP, 120 VAC                          |
|                                                                |              |               | 3 HP, 240/265/277 VAC                    |
|                                                                |              |               | 20 FLA/120 LRA, 120 VAC, 30,000 c        |
|                                                                |              |               | 17 FLA/102 LRA, 277 VAC, 30,000 c        |
| G7L-1A-P-CB                                                    |              | PCB           | TV-10, 120 VAC                           |
|                                                                |              |               | 20 A (2.4 kW), 120 VAC (Tungsten)        |
| G7L-2A-T-CB<br>G7L-2A-TJ-CB<br>G7L-2A-TUB-CB<br>G7L-2A-TUBJ-CB | DPST-NO      | Quick-connect | 30 A, 277 VAC (Resistive) 30,000 c       |
|                                                                |              |               | 30 A, 120 VAC (General purpose) 30,000 c |
|                                                                |              |               | 30 A, 277 VAC (General purpose) 30,000 c |
|                                                                |              |               | 1.5 kW, 120 VAC (Tungsten)               |
| G7L-2A-B-CB<br>G7L-2A-BJ-CB<br>G7L-2A-BUB-CB<br>G7L-2A-BUBJ-CB |              | Screw         | 1.5 HP, 120 VAC                          |
|                                                                |              |               | 3 HP, 240/265/277 VAC                    |
|                                                                |              |               | 20 FLA/120 LRA, 120 VAC, 30,000 c        |
|                                                                |              |               | 17 FLA/102 LRA, 277 VAC, 30,000 c        |
| G7L-2A-P-CB                                                    |              | PCB           | TV-10, 120 VAC                           |
|                                                                |              |               | 20 A (2.4 kW), 120 VAC (Tungsten)        |

TÜV (File No. R9251551)

| Type                                                           | Contact form | Coil ratings                                                                              | Terminal type | Contact ratings             |
|----------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------------|---------------|-----------------------------|
| G7L-1A-T-CB<br>G7L-1A-TJ-CB<br>G7L-1A-TUB-CB<br>G7L-1A-TUBJ-CB | SPST-NO      | 6, 12, 24, 48,<br>100, 110, 200,<br>220 VDC<br><br>12, 24, 50,<br>100/120, 200/240<br>VAC | Quick-connect | 25 A, 240 VAC, (cosφ = 1)   |
|                                                                |              |                                                                                           |               | 25 A, 240 VAC, (cosφ = 0.4) |
| G7L-1A-B-CB<br>G7L-1A-BJ-CB<br>G7L-1A-BUB-CB<br>G7L-1A-BUBJ-CB |              |                                                                                           | Screw         | 30 A, 240 VAC, (cosφ = 1)   |
|                                                                |              |                                                                                           |               | 25 A, 240 VAC, (cosφ = 0.4) |
|                                                                |              |                                                                                           |               | 30 A, 240 VAC, (cosφ = 0.4) |
| G7L-1A-P-CB                                                    |              |                                                                                           | PCB           | 20 A, 240 VAC, (cosφ = 1)   |
|                                                                |              |                                                                                           |               | 20 A, 240 VAC, (cosφ = 0.4) |
| G7L-2A-T-CB<br>G7L-2A-TJ-CB<br>G7L-2A-TUB-CB<br>G7L-2A-TUBJ-CB | DPST-NO      |                                                                                           | Quick-connect | 25 A, 240 VAC, (cosφ = 1)   |
|                                                                |              |                                                                                           |               | 25 A, 240 VAC, (cosφ = 0.4) |
| G7L-2A-B-CB<br>G7L-2A-BJ-CB<br>G7L-2A-BUB-CB<br>G7L-2A-BUBJ-CB |              |                                                                                           | Screw         | 25 A, 240 VAC, (cosφ = 1)   |
|                                                                |              |                                                                                           |               | 25 A, 240 VAC, (cosφ = 0.4) |
| G7L-2A-P-CB                                                    |              |                                                                                           | PCB           | 20 A, 240 VAC, (cosφ = 1)   |
|                                                                |              |                                                                                           |               | 20 A, 240 VAC, (cosφ = 0.4) |

VDE recognized type (Licence no. 1530 UG)

Note: 1. Please consult OMRON for details of VDE approvals.

2. The G7L relay conforms to the following standards: Electrical safety: DIN IEC 255 Teil 1-00/DIN VDE 0435 Teil 201/05. 83  
DIN VDE 0435 Teil 201 A1/05. 90  
DIN IEC 255 Teil 0-20/DIN VDE 0435 Teil 120/10. 81  
DIN EN 60 950/VDE 0805/11. 93  
EMC: prEN 50082-2, EN 55022

3. The rated values approved by each of the safety standards (e.g., UL and CSA) may be different from the performance characteristics individually defined in this catalog.

4. In the interest of product improvement, specifications are subject to change.