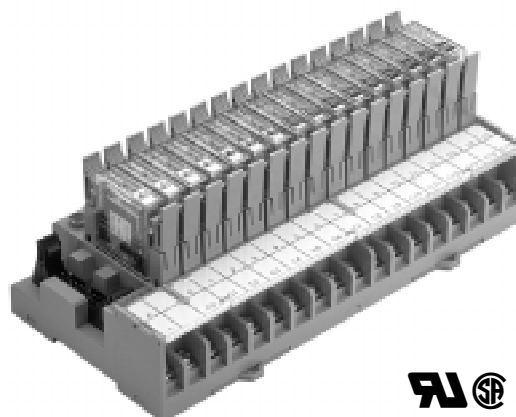


## Relay I/O Block

G7TC

Reduces Wiring within the Control Panel and Reduces Installation Time

- Compact 16-pt models: 182 W × 85 D × 68 H mm; 8-pt block width is 102 mm
- Can be connected to the PLC with a connecting cable and a snap-in connector
- Equipped with surge suppressor circuit and LED indicators
- Mounts easily on a DIN rail



## Ordering Information

### ■ G7TC RELAY I/O BLOCKS

Relay I/O Blocks include the I/O Base with G7T Relays installed.

| I/O classification     | I/O points | Internal I/O circuit common | Rated coil voltage | Part number   |
|------------------------|------------|-----------------------------|--------------------|---|
| Input                  | 16         | NPN (⊖ common)              | 24 VDC             | G7TC-ID16 DC24V   |
|                        |            |                             |                    | G7TC-ID16-5 DC24V (See Note 1)                              |
|                        |            | NPN (⊖ common)              | 110/120 VAC        | G7TC-IA16 AC110/120V  |
|                        |            |                             | 220/240 VAC        | G7TC-IA16-5 AC100/110V (See Note 1)<br>G7TC-IA16 AC220/240V |
| Output<br>(See Note 2) | 16         | NPN (⊕ common)              | 12 VDC             | G7TC-OC16 DC12V   |
|                        |            |                             | 24 VDC             | G7TC-OC16 DC24V   |
|                        |            | PNP (⊖ common)              | 24 VDC             | G7TC-OC16-1 DC24V   |
|                        | 8          | NPN (⊕ common)              | 12 VDC             | G7TC-OC08 DC12V   |
|                        |            |                             | 24 VDC             | G7TC-OC08 DC24V   |
|                        |            | PNP (⊖ common)              | 24 VDC             | G7TC-OC08-1 DC24V   |

Note: 1. The “-5” Block is for use with DRT1-ID16X DeviceNet Remote Adapter.

2. Output relays are rated up to 250 VAC. See “Specifications” for specific relay ratings.

### ■ P7TF BLOCK BASES AND RELAYS

Combine Relays and P7TF Block Bases to match your application requirements. Use the table below to configure Relay Blocks.

| I/O points              | Internal I/O circuit | Part number          |           |  |                   |                         |
|-------------------------|----------------------|----------------------|-----------|--|-------------------|-------------------------|
|                         |                      | Block Base           | I/O Relay |  | Solid State Relay |                         |
| 16 inputs<br>(AC coil)  | NPN (– common)       | P7TF-IS16 AC110/120V | 1 A       | G7T-1122S AC110/120 or<br>G7T-1122S AC200/220V | 25 mA             | G3TA-IAZR02S AC100/240V |
| 16 inputs<br>(DC coil)  | NPN (– common)       | P7TF-IS16 DC24V      | 1 A       | G7T-1122S DC24V                                | 25 mA             | G3TA-IDZR02S DC5-24V    |
| 16 outputs<br>(DC coil) | NPN (+ common)       | P7TF-OS16 DC12V      | 5 A       | G7T-1112S DC12V                                | 2 A               | G3TA-ODX02S 12VDC       |
|                         | NPN (+ common)       | P7TF-OS16 DC24V      | 5 A       | G7T-1112S DC24V                                | 2 A               | G3TA-ODX02S DC24V or    |
|                         | PNP (– common)       | P7TF-OS16-1 DC24V    | 5 A       | G7T-1112S DC24V                                | 1 A               | G3TA-OD201S DC24V       |
| 8 outputs<br>(DC coil)  | NPN (+ common)       | P7TF-OS08 DC12V      | 5 A       | G7T-1112S DC12V                                | 2 A               | G3TA-ODX02S 12VDC       |
|                         | NPN (+ common)       | P7TF-OS08 DC24V      | 5 A       | G7T-1112S DC24V                                | 2 A               | G3TA-ODX02S DC24V or    |
|                         | PNP (– common)       | P7TF-OS08-1 DC24V    | 5 A       | G7T-1112S DC24V                                | 1 A               | G3TA-OD201S DC24V       |


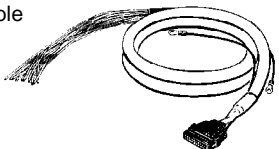
G7TC-□□□□  
1 2 3 4

- Input/Output Classification**  
I : For input  
O : For output
- Type of I/O Signal**  
A : AC coil type for input relays mounted  
D : DC coil type for input relays mounted  
C : Contact output
- Number of I/O Points**  
16: 16 points  
08: 8 points (for output only)
- Internal I/O Circuit Common**  
Blank: NPN (+) common  
1: PNP (-) common  
5: Block for use with DeviceNet

P7TF-□□□□  
1 2 3 4

- Input/Output Classification**  
I : For input  
O : For output
- Type of I/O Signal**  
S : Socket for input or output relays
- Number of I/O Points**  
16: 16 points  
08: 8 points (for output only)
- Internal I/O Circuit Common**  
Blank: NPN (+) common  
1: PNP (-) common

## ■ CONNECTOR CABLES

| Item   | Length           | Part number |
|--|------------------|-------------|
| Connecting cable with crimp type hooks<br>        | 1.0 m (3.28 ft)  | G79-Y100C   |
|  | 1.5 m (4.92 ft)  | G79-Y150C   |
|  | 2.0 m (6.56 ft)  | G79-Y200C   |
|  | 3.0 m (9.84 ft)  | G79-Y300C   |
|  | 5.0 m (16.40 ft) | G79-Y500C   |
| Connecting cable with connector on both ends<br> | 1.0 m (3.28 ft)  | G79-100C    |
|  | 1.5 m (4.92 ft)  | G79-150C    |
|  | 2.0 m (6.56 ft)  | G79-200C    |
|  | 3.0 m (9.84 ft)  | G79-300C    |
|  | 5.0 m (16.40 ft) | G79-500C    |

## ■ ACCESSORIES (ORDER SEPARATELY)

| Description   | Part number |
|---|-------------|
| Single I/O socket for SPST and SPDT Relays                | P7TF-05     |
| Indicator module for AC (with varistor surge suppression) | P70A        |
| Indicator module for DC (with diode surge suppression)    | P70D        |
| Output short circuit protection module                    | G77-5       |
| Shorting bar  | G78-04      |
| Finger protection cover for 16-pt blocks                  | G78-E       |

## Specifications

### ■ RATINGS: G7T RELAYS

#### Coil Data (Common to Input/Output per Relay)

| Rated voltage<br>(V) |                    | Rated current (mA) |                    | Coil<br>resistance<br>(See Note 1) | Must<br>operate          | Must<br>release | Maximum<br>voltage | Power consumption |               |
|----------------------|--------------------|--------------------|--------------------|------------------------------------|--------------------------|-----------------|--------------------|-------------------|---------------|
|                      |                    | 50 Hz              | 60 Hz              |                                    | Percent of rated voltage |                 |                    | per Relay         | per 16 Relays |
| AC                   | 110/120<br>220/240 | 7.5/—<br>3.7/—     | 6.4/7.0<br>3.2/3.5 | 13,000 Ω<br>48,300 Ω               | 80% max.                 | 30% min.        | 110%               | 0.7 VA            | 11 VA         |
| DC                   | 12                 | 42                 |                    | 290 Ω                              | 80% max.                 | 10% min.        | 110%               | 0.5 W             | 8 W           |
| DC                   | 24                 | 21                 |                    | 1,150 Ω                            | 80% max.                 | 10% min.        | 110%               | 0.5 W             | 8 W           |

Note: 1. The rated current and coil resistance are measured at a coil temperature of +23°C with a tolerance of +15%/-20% for AC rated current and ±15% for coil resistance.

2. Approx. 4 mA flows into each LED indicator. To calculate the power supply capacity, add the current value of each indicator.

## Contact Data (G7T I/O Relay)

| Classification        | For input  |   | For output                              |                                    |
|-----------------------|--|---|---|------------------------------------|
| Load type             | Resistive load (cosφ=1)  | Inductive load (cosφ=0.4 L/R=7 ms)                            | Resistive load (cosφ=1)                 | Inductive load (cosφ=0.4 L/R=7 ms) |
| Carry current         | 1 A  |   | 5 A                                     |                                    |
| Switching voltage     | 250 VAC, 125 VDC   |   |   |                                    |
| Switching current     | 1 A  | 0.5 A   | 5 A                                     | 2 A                                |
| Switching power       | DC 24 W  | DC 12 W   | DC 120 W<br>AC 440 VA                   | DC 48 W<br>AC 220 VA               |
| Min. permissible load | 100 μA at 1 V  |   | 10 mA at 5 V                            |                                    |
| Electrical life       | 10,000,000 operations (at 10 mA)<br>50,000 operations (at 1 A) | 2,500,000 operations (at 10 mA)<br>20,000 operations (at 1 A) | 1,000,000 operations (under rated load) |                                    |
| Mechanical life       | 50,000,000 operations  |   |   |                                    |

## ■ CHARACTERISTICS: G7T RELAYS

| Model   |                                | G7TC-IA16<br>(Input, AC coil)  | G7TC-ID16<br>(Input, DC coil) | G7TC-OC16 (-1)<br>(Output, DC coil) | G7TC-OC08 (-1)<br>(Output, DC coil) |
|---|--------------------------------|--|-------------------------------|-------------------------------------|-------------------------------------|
| LED color   |                                | Red  | Green                         | Green                               |                                     |
| Case color  |                                | Transparent red  | Transparent green             | Transparent                         |                                     |
| Contact resistance  |                                | 50 mΩ max.   |                               |                                     |                                     |
| Operate time  |                                | 15 ms max.   |                               |                                     |                                     |
| Release time  |                                | 15 ms max.   |                               |                                     |                                     |
| Max. operating frequency                                    | Mechanical limit               | 18,000 operations/hour   |                               |                                     |                                     |
|   | At rated load                  | 1,800 operations/hour  |                               |                                     |                                     |
| Insulation resistance                                       |                                | 100 MΩ at 500 VDC  |                               |                                     |                                     |
| Dielectric strength   | Between coil and contact       | 2,000 VAC, 50/60 Hz for 1 minute   |                               |                                     |                                     |
|   | Between same polarity contacts | 1,000 VAC, 50/60 Hz for 1 minute   |                               |                                     |                                     |
|   | Between paired connectors      | 250 VAC, 50/60 Hz for 1 minute   |                               |                                     |                                     |
| Malfunction vibration                                       |                                | 10 to 55 Hz with 1.0-mm double amplitude                                 |                               |                                     |                                     |
| Malfunction shock   |                                | 200 m/s <sup>2</sup>   |                               |                                     |                                     |
| Noise immunity  |                                | Noise level: 1.5 kV; pulse width: 100 ns to 1 μs                         |                               |                                     |                                     |
| Rated voltage between positive and negative terminal blocks |                                | Rated voltage of controller's (PLC or other) input circuit               |                               | 24 VDC ±5%                          |                                     |
| Rated current between positive and negative terminal blocks |                                | Input circuit current of controller (PLC or other) x number of ON points |                               | 24 VDC: 25 mA x number of ON points |                                     |
| Cable length  | To controller                  | 5 m max. (reference value)   |                               |                                     |                                     |
|   | To I/O devices                 | 50 m max. (reference value, for 2-mm <sup>2</sup> CVV cable)             |                               | Dependent on load                   |                                     |
| Ambient operating temperature                               |                                | 0°C to 55°C (32°F to 131°F)  |                               |                                     |                                     |
| Ambient operating humidity                                  |                                | 35% to 85%   |                               |                                     |                                     |
| I/O terminal tightening torque                              |                                | 8 to 12 kg • cm  |                               |                                     |                                     |
| Coil surge absorber   |                                | Variable resistor  | Diode (1 A, 400 V)            |                                     |                                     |
| Weight  |                                | Approx. 640 g  | Approx. 630 g                 | Approx. 670 g                       | Approx. 350 g                       |

## UL and CSA Standards

Standard G7TC I/O Blocks, except for the G7TC-OC16-1 and the G7TC-OC08(-1), have met UL and CSA standards (UL file no. E41643; CSA file no. LR31928).

Note that the following UL- and CSA-qualifying ratings differ from the performance characteristics of the individual models:

| Part number          | Coil ratings               | Contact ratings  |
|----------------------|----------------------------|--|
| G7TC-ID16, G7TC-IA16 | 10 mA/point, 24 VDC        | 250 VAC max.   |
| G7TC-OC16            | Coil drive current, 24 VDC | Inductive load: 10 A, 250 VAC<br>Resistive load: 10 A, 30 VDC<br>Rated horsepower: 1/2 HP, 240 VAC |

## ■ RATINGS: G3TA SOLID STATE RELAYS

### Input Relay

#### Coil Data

| Part number             | Rated voltage  | Operating voltage | Input current | Voltage level        |                      |
|-------------------------|----------------|-------------------|---------------|----------------------|----------------------|
|                         |                |                   |               | Must operate voltage | Must release voltage |
| G3TA-IAZR02S AC100/240V | 100 to 240 VAC | 80 to 264 VDC     | 5 mA max.     | 80 VAC max.          | 10 VAC min.          |
| G3TA-IDZR02S DC5-24V    | 5 to 24 VDC    | 4 to 32 VDC       |               | 4 VDC max.           | 1 VDC min.           |

#### Contact Data

| Part number             | Logic level supply voltage | Output breakdown voltage | Output current | Output current (load current) |
|-------------------------|----------------------------|--------------------------|----------------|-------------------------------|
| G3TA-IAZR02S AC100/240V | 4 to 32 VDC                | 32 VDC max.              | 25 mA max.     | 0.1 to 25 mA                  |
| G3TA-IDZR02S DC5-24V    |                            |                          |                |                               |

### Output Relay

#### Coil Data

| Part number        | Rated voltage | Operating voltage | Input impedance     | Voltage level        |                      |
|--------------------|---------------|-------------------|---------------------|----------------------|----------------------|
|                    |               |                   |                     | Must operate voltage | Must release voltage |
| G3TA-OA202SZ DC12V | 12 VDC        | 9.6 to 13.2 VDC   | 0.9 k $\Omega$ ±20% | 9.6 VDC max.         | 2 VDC min.           |
| G3TA-OA202SZ DC24V | 24 VDC        | 19.2 to 26.4 VDC  | 1.7 k $\Omega$ ±20% | 19.2 VDC max.        |                      |
| G3TA-ODX02S DC24V  | 12 VDC        | 9.6 to 13.2 VDC   | 3.5 k $\Omega$ ±20% | 9.6 VDC max.         |                      |
|                    | 24 VDC        | 19.2 to 26.4 VDC  | 6.5 k $\Omega$ ±20% | 19.2 VDC max.        |                      |
| G3TA-OD201S DC24V  | 24 VDC        | 19.2 to 26.4 VDC  | 6.4 k $\Omega$ ±20% | 19.2 VDC max.        |                      |

#### Contact Data

| Part number  | Applicable load    |               |                         |                       |
|--------------|--------------------|---------------|-------------------------|-----------------------|
|              | Rated load voltage | Load voltage  | Load current (See Note) | Inrush current        |
| G3TA-OA202SZ | 100 to 240 VAC     | 75 to 264 VAC | 0.05 to 2 A             | 30 A (60 Hz, 1 cycle) |
| G3TA-OA202SL | 100 to 240 VAC     | 75 to 264 VAC |                         |                       |
| G3TA-ODX02S  | 5 to 48 VDC        | 4 to 60 VDC   | 0.01 to 2 A             | 12 A (10 ms)          |
| G3TA-OD201S  | 48 to 200 VDC      | 40 to 200 VDC | 0.01 to 1 A             | 6 A (10 ms)           |

Note: The minimum current value is measured at 10°C min.

## ■ CHARACTERISTICS: G3TA SOLID STATE RELAYS

### Input Relay

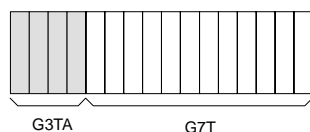
| Item                   | G3TA-IAZR02S  | G3TA-IDZR02S |
|------------------------|---|--------------|
| Operate time           | 20 ms max.  | 0.5 ms max.  |
| Release time           | 20 ms max.  | 0.5 ms max.  |
| Output ON voltage drop | 1.6 V max.  |              |
| Leakage current        | 5 $\mu$ A max.  |              |
| Insulation resistance  | 100 M $\Omega$ min. at 500 VDC  |              |
| Dielectric strength    | 4,000 VAC, 50/60 Hz for 1 min between input and output  |              |
| Vibration resistance   | Malfunction: 10 to 55 Hz, 1.5-mm double amplitude   |              |
| Shock resistance       | Malfunction: 1,000 m/s <sup>2</sup> (approx. 100G)  |              |
| Ambient temperature    | Operating: -30°C to 80°C (-22°F to 176°F) with no icing or condensation<br>Storage: -30°C to 100°C (-22°F to 212°F) with no icing or condensation |              |
| Ambient humidity       | Operating: 45% to 85%   |              |
| Approved standards     | UL508 file No. E64562/CSA C22.2 (No. 0, No. 14) file No. LR35535  |              |
| Weight                 | Approx. 16 g  |              |

### Output Relay

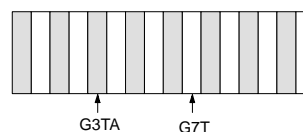
| Item                   | G3TA-OA202SZ  | G3TA-ODX02S | G3TA-OD201S |
|------------------------|---|-------------|-------------|
| Operate time           | 1/2 of load power source cycle + 1 ms max.  | 0.5 ms max. | 2 ms max.   |
| Release time           | 1/2 of load power source cycle + 1 ms max.  | 2 ms max.   | 2 ms max.   |
| Output ON voltage drop | 1.6 V max.  |             | 2.5 V max.  |
| Leakage current        | 5 mA max. at 200 VAC  | 1 mA max.   |             |
| Insulation resistance  | 100 MΩ min. at 500 VDC  |             |             |
| Dielectric strength    | 4,000 VAC, 50/60 Hz for 1 min between input and output  |             |             |
| Vibration resistance   | Malfunction: 10 to 55 Hz, 1.5-mm double amplitude   |             |             |
| Shock resistance       | Malfunction: 1,000 m/s <sup>2</sup> (approx. 100G)  |             |             |
| Ambient temperature    | Operating: -30°C to 80°C (-22°F to 176°F) with no icing or condensation<br>Storage: -30°C to 100°C (-22°F to 212°F) with no icing or condensation |             |             |
| Ambient humidity       | Operating: 45% to 85%   |             |             |
| Approved standards     | UL508 file No. E64562, CSA C22.2 (No. 14) file No. LR3553   |             |             |
| Weight                 | Approx. 23 g  |             |             |

## ■ MIXING G3TA WITH G7T RELAYS IN THE SAME I/O BLOCK

With up to four G3TA SSRs mounted before G7T Relays, 2-A loads can be switched.



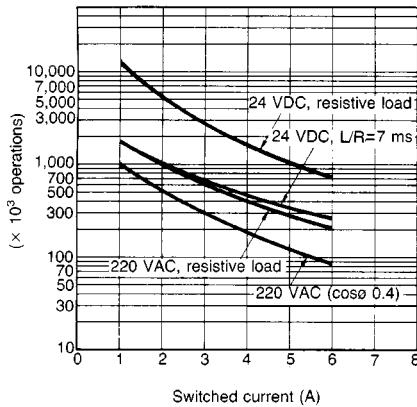
With G3TA SSRs mounted before every other G7T Relays, 2-A loads can be switched.



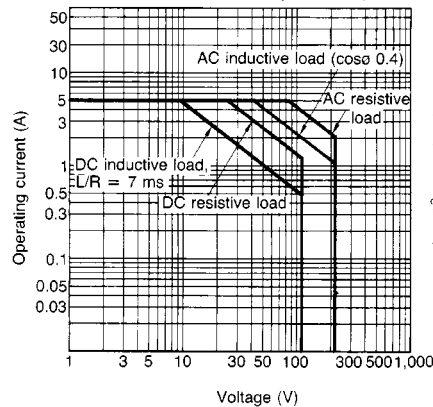
# Engineering Data

## ■ G7T RELAYS

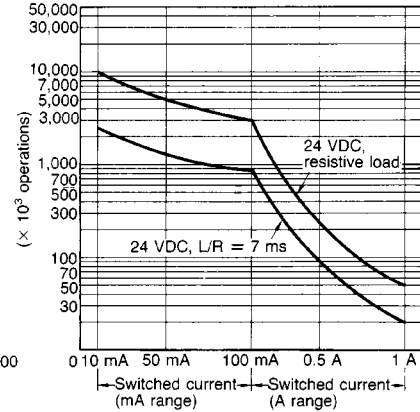
Life Expectancy of Output



Max. Switching Capacity of Output  
(Life expectancy: 1,000,000 Operations)



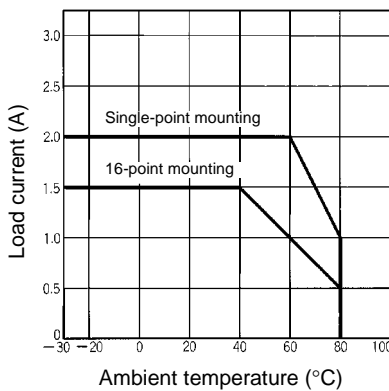
Life Expectancy of Input



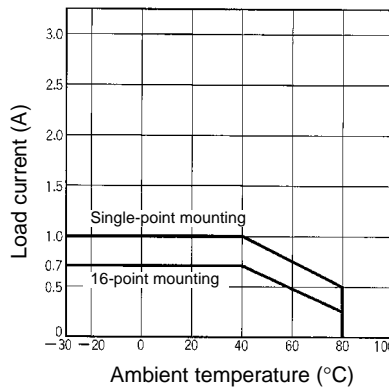
## ■ G3TA SOLID STATE RELAYS

Load Current vs. Ambient Temperature Characteristics

G3TA-OA202SZ/OA202SL/ODX02S



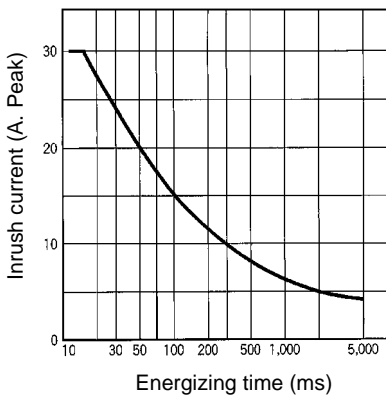
G3TA-OD201S



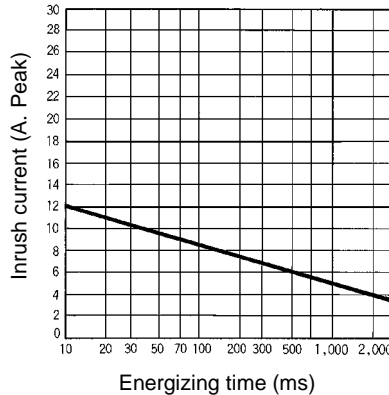
### Inrush Current

Non-repetitive (Keep the inrush current to half the rated value if it occurs repetitively.)

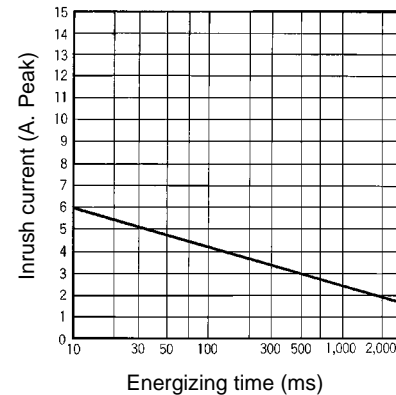
G3TA-OA202SZ



G3TA-ODX02S



G3TA-OD201S



# Operation

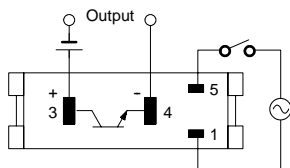
## ■ G3TA SOLID STATE RELAYS

### Circuit Configuration

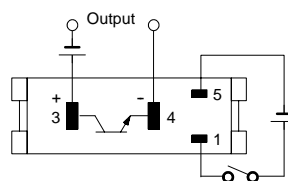
| Type      | Part number   | Case color | Indicator | Circuit |
|-----------|---|------------|-----------|---------|
| AC output | G3TA-OA202SZ<br>(with zero cross<br>function)<br>G3TA-OA202SL<br>(without zero cross<br>function) | Black      | Yes       |         |
| DC output | G3TA-ODX02S<br>G3TA-OD201S  | Black      | Yes       |         |
| AC input  | G3TA-IAZR02S  | Red        | Yes       |         |
| DC input  | G3TA-IDZR02S  | Green      | Yes       |         |
|           | G3TA-IDZR02SM   |            | No        |         |

### External Connections (Bottom View)

G3TA-IAZR02S

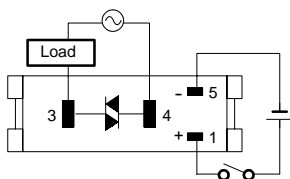


G3TA-IDZR02S/IDZR02SM



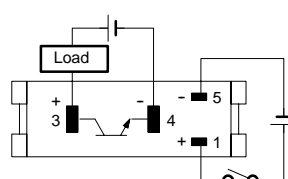
G3TA-OA

Load power supply



G3TA-OD

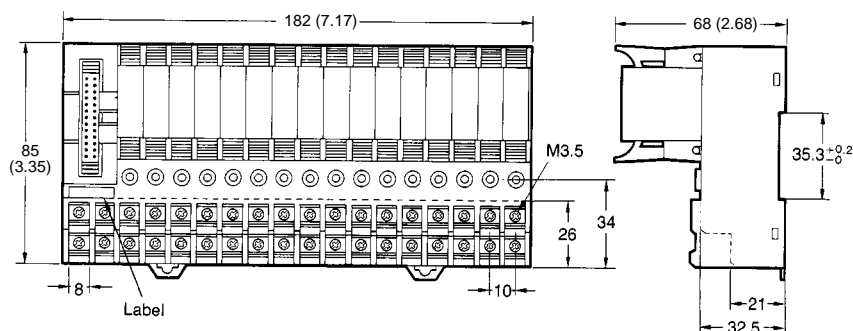
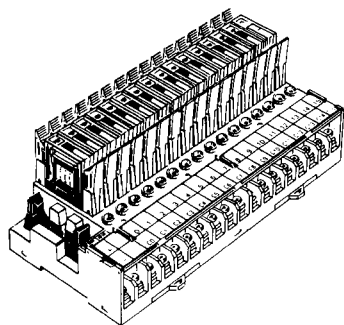
Load power supply



## Unit: mm (inch)

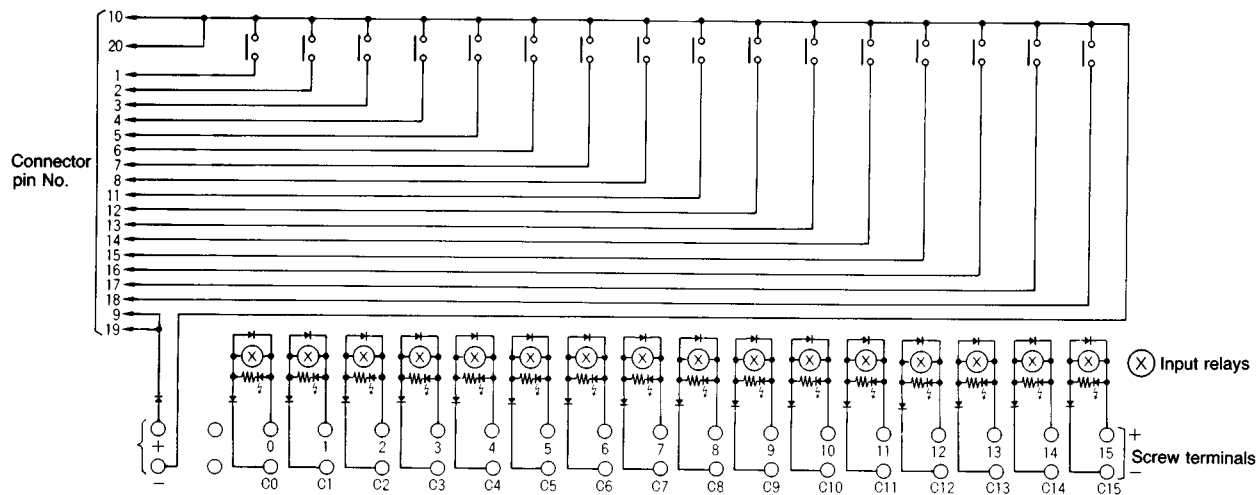
### I/O Block for NPN Input ( $\ominus$ common)

**G7TC-ID16**  
**G7TC-IA16**



**G7TC-ID16 (-5)**

(See Note)

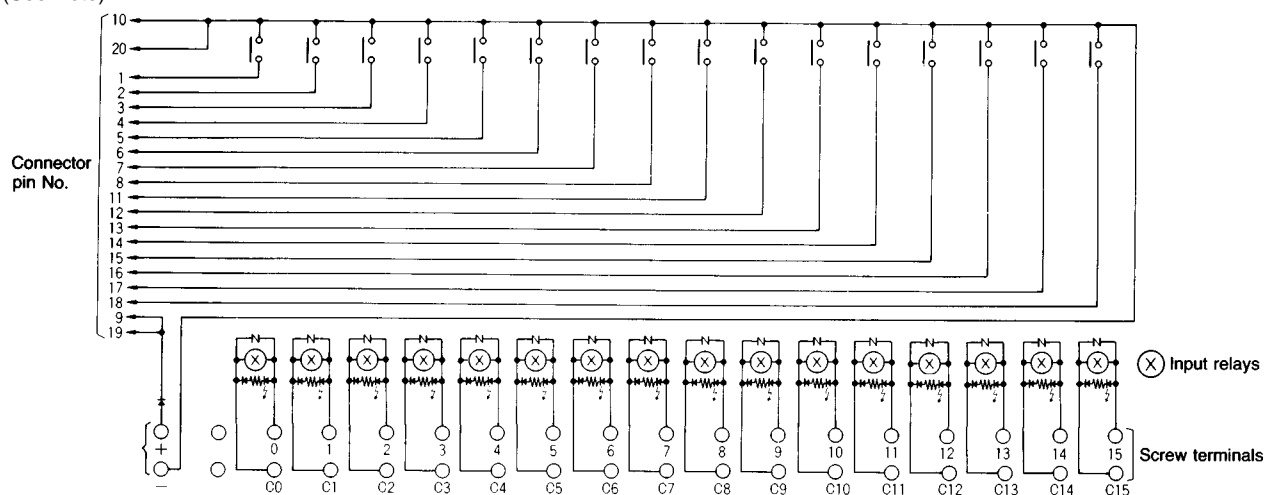


Note: When the product has a “-5” at the end of the part number, connector pin number 9 and 19 are negative and connector number 10 and 20 are positive.



**G7TC-IA16 (-5)**

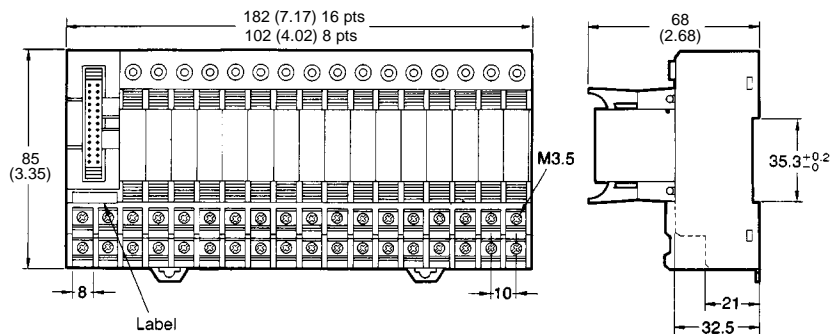
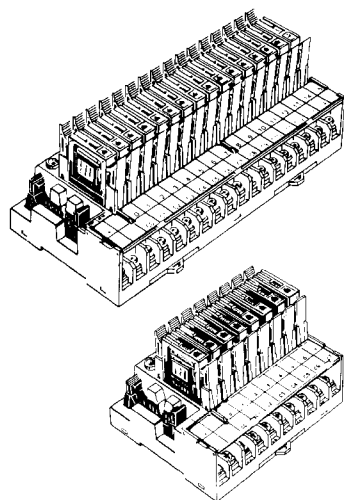
(See Note)



Note: When the product has a "-5" at the end of the part number, connector pin number 9 and 19 are negative and connector pin number 10 and 20 are positive.

**I/O Block for Output**

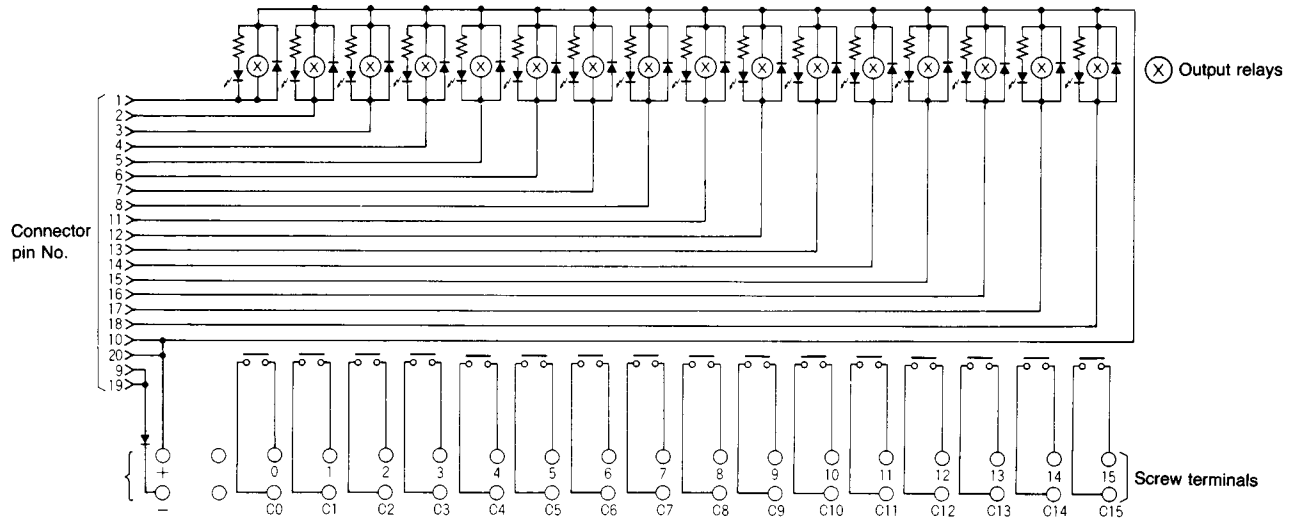
G7TC-OC16 (NPN output/⊕ common)  
 G7TC-OC16-1 (PNP output/⊖ common)  
 G7TC-OC8 (NPN output/⊕ common)  
 G7TC-OC8-1 (PNP output/⊖ common)



## Terminal Arrangement/Internal Connection

### G7TC-OC16

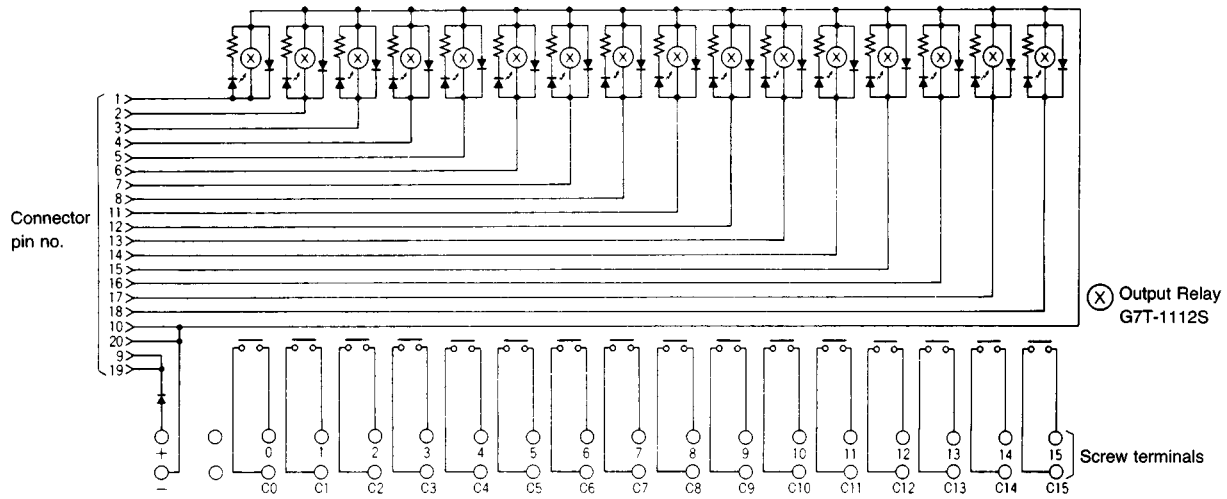
A controller with an NPN transistor, common output can be connected to the G7TC-OC16.



### G7TC-OC16-1 (PNP output/⊖ common)

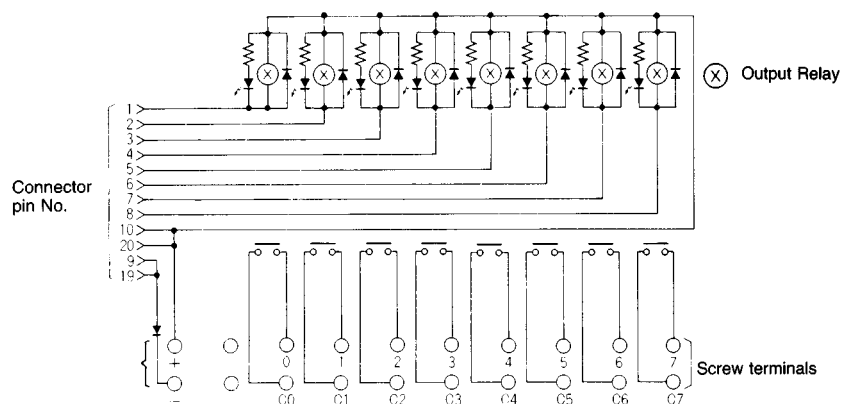
A controller with a PNP transistor, common output can be connected to the G7TC-OC16-1. Do not connect the G71 Remote Interface to the G7TC-OC16-1. Due to the difference in polarity, the G71 will be damaged if the G7TC-OC16-1 and the G71 are connected to each other. Use the G7TC-OC16 (NPN output/⊕ common) instead, to connect to the G71.

## Terminal Arrangement/Internal Connection

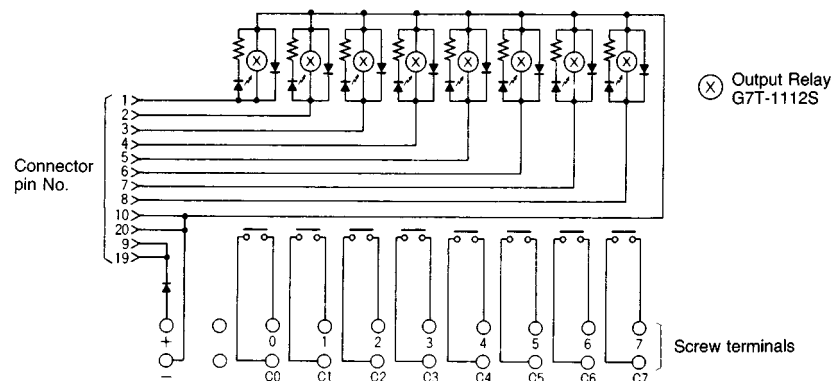


**G7TC-OC08**

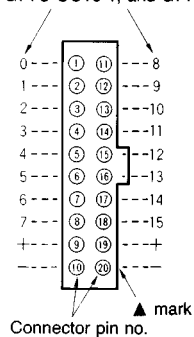
A controller with an NPN transistor, common output can be connected to the G7TC-OC08.

**G7TC-OC08-1 (PNP output/⊖ common)**

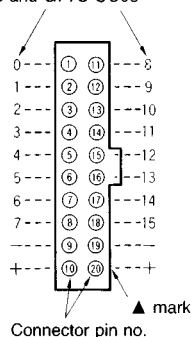
A controller with a PNP transistor, common output can be connected to the G7TC-OC08-1. Do not connect the G7TC-OC08-1 with the G71. Due to the difference in polarity, the G71 will be damaged if the G7TC-OC08-1 and the G71 are connected to each other. Use the G7TC-OC08 (NPN output/⊕ common) instead, to connect to the G71.

**Connector Pin Configuration  
Top View**

I/O indications on Screw Terminals of G7TC-ID16,  
G7TC-IA16, G7TC-OC16-1, and G7TC-OC08-1



I/O Numbers Allocated to Screw Terminals of  
G7TC-OC16 and G7TC-OC08

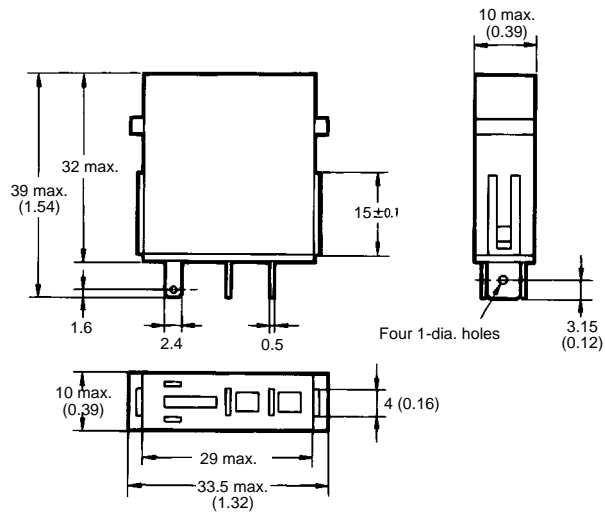
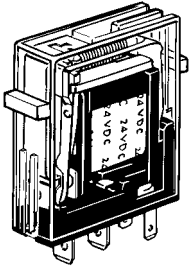


Note: Pin numbers are indicated for convenience. The ▲ mark can be used to determine orientation.

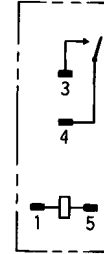
## ■ G7T RELAY

Unit: mm (inch)

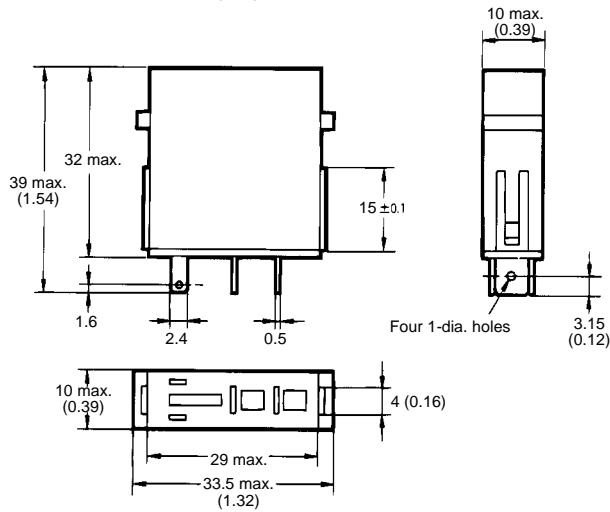
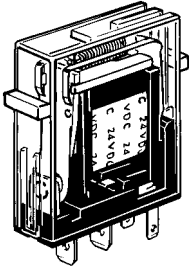
**SPST-NO Type**  
G7T-1122S (for input)  
G7T-1112S (for output)



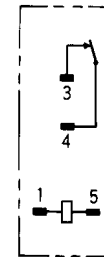
**Terminal Arrangement/  
Internal Connections  
(Bottom View)**



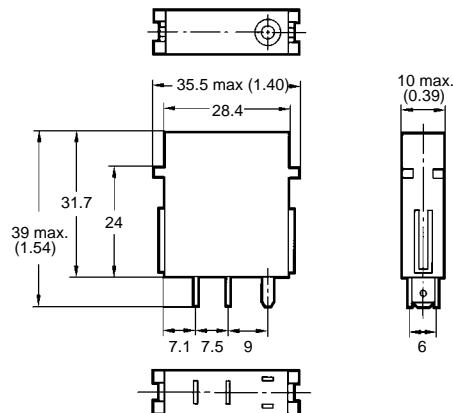
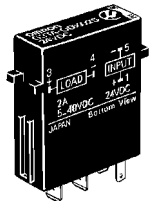
**SPST-NC Type**  
G7T-1012S (for output)



**Terminal Arrangement/  
Internal Connections  
(Bottom View)**



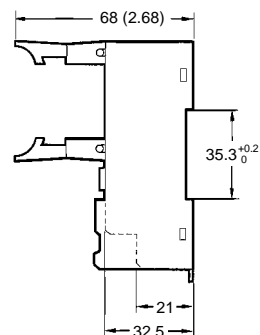
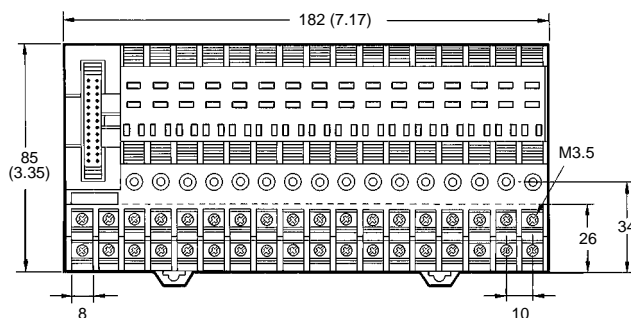
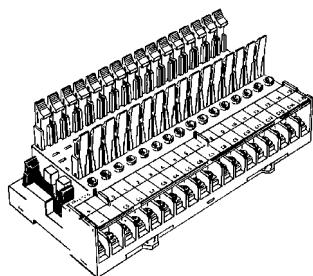
## ■ G3TA SOLID STATE RELAYS



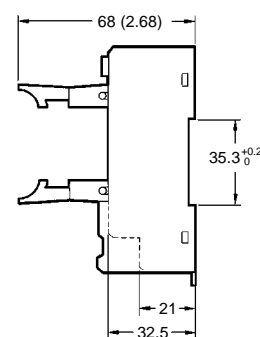
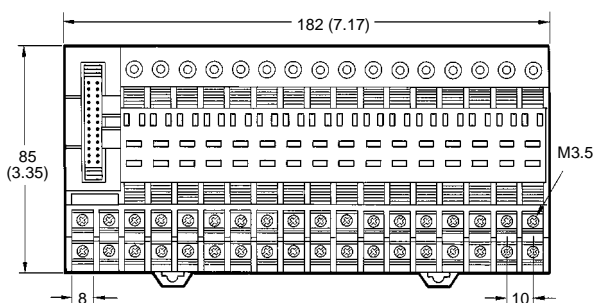
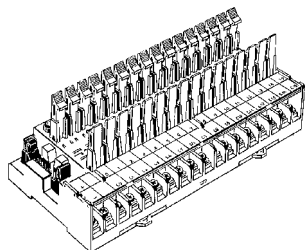
Unit: mm (inch)

## ■ P7TF BLOCK BASES

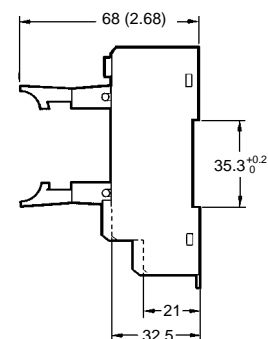
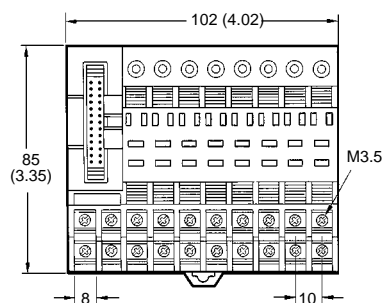
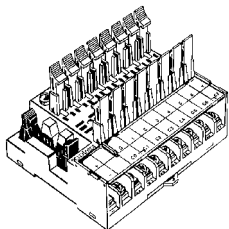
For Input (NPN,  $\ominus$  Common)  
P7TF-IS16



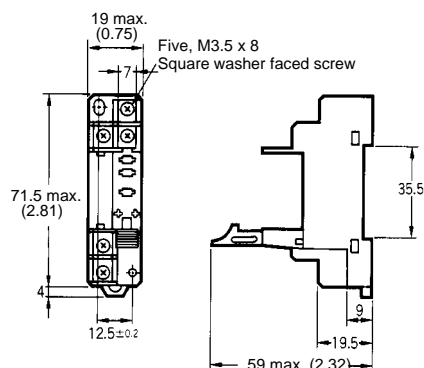
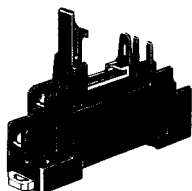
For Output (NPN,  $\oplus$  Common)  
P7TF-OS16



For Output (PNP,  $\ominus$  Common)  
P7TF-OS08

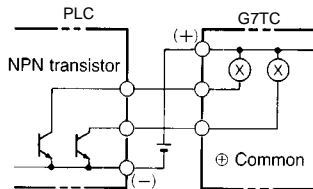


P7TF-05

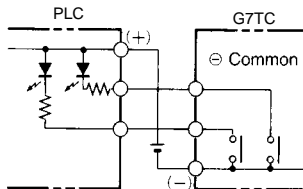


## G7TC Internal I/O Circuit Common

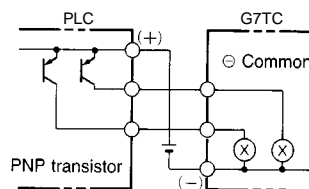
### NPN Output



### Input



### PNP Output (Output Only)



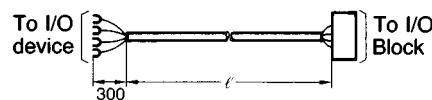
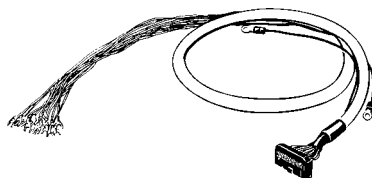
## Accessories (Order Separately)

### ■ G79 CONNECTING CABLES

#### G79 Connecting Cable with Crimp-type Hooks

Use these convenient Cables to connect relay I/O Blocks to devices equipped with screw terminals. Power line capacity must be within 50 mA per I/O point. Always check driver capacity and I/O relay power consumption when using an Output Block. Hoods are labeled with corresponding connector pin numbers. Connect hooks 9 and 19 and hooks 10 and 20 together when using the G7TC-OC08.

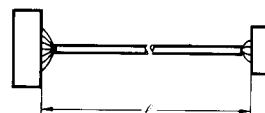
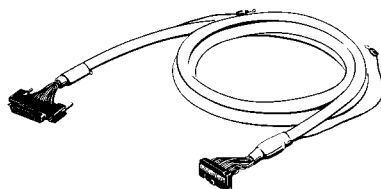
| Length (ℓ) | Part number |
|------------|-------------|
| 1,000 mm   | G79-Y100C   |
| 1,500 mm   | G79-Y150C   |
| 2,000 mm   | G79-Y200C   |
| 3,000 mm   | G79-Y300C   |
| 5,000 mm   | G79-Y500C   |



#### G79 Connecting Cable with One-to-One Connector

This Cable is convenient for connecting a Relay I/O Block to a single device equipped with one connector socket.

| Length (ℓ) | Part number |
|------------|-------------|
| 1,000 mm   | G79-100C    |
| 1,500 mm   | G79-150C    |
| 2,000 mm   | G79-200C    |
| 3,000 mm   | G79-300C    |
| 5,000 mm   | G79-500C    |



## ■ G7TC TO PLC MODULE CONNECTION OPTIONS

### One-to-One Connections: (16 Points per Cable)

The connecting cables with crimp hooks allow G7TC and P7TF blocks to be used with PLCs from all manufacturers.

| Relay block                         | Omron PLC module   | Connection method to PLC | Connecting cable         |
|-------------------------------------|--|--------------------------|--------------------------|
| <b>Inputs</b>                       |  |                          |                          |
| G7TC-1A16<br>G7TC-ID16<br>P7TF-IS16 | 3G2A5-ID213 (16 pts)<br>3G2A5-IM211 (16 pts)<br>C200H-ID212 (16 pts)<br>C200H-IM212 (16 pts)<br>CQM1-ID212 (16 pts)  | Crimp hooks              | G79-Y___C                |
|                                     | C500-MD211CN (input side only)<br>C200H-MD215 (input side only)<br>C200H-ID215 (32 pts)  | One-to-one connector     | G79-___C<br>G79-___C (2) |
| <b>Outputs</b>                      |  |                          |                          |
| G7TC-OC16<br>P7TF-OS16              | 3G2A5-OC221 (16 pts)<br>3G2A5-OC223 (16 pts)<br>3G2A5-OD215 (16 pts)<br>3G2A5-OD411 (16 pts)<br>C200H-OC225 (16 pts)<br>C200H-OD212 (16 pts)<br>CQM1-OC222 (16 pts)<br>CQM1-OD212 (16 pts) | Crimp hooks              | G79-Y___C                |
|                                     | C500-OD415CN (16 pts)<br>C500-MD211CN (output side only)<br>C200H-MD115 (output side only)<br>C200H-MD215 (output side only)<br>C200H-OD215 (16 pts)                                       | One-to-one connector     | G79-___C                 |

### One-to-Two Connections: (Cable Splits One Connector to Two Relay Blocks)

| Relay block                         | PLC module  | Connection method to PLC   | Connecting cable                                   |
|-------------------------------------|---|--|--|
| <b>Inputs</b>                       |   |  |  |
| G7TC-1A16<br>G7TC-ID16<br>P7TF-IS16 | 3G2A5-ID219 (64 pts)<br>C500-ID114 (64 pts)<br>C500-ID218CN (32 pts)<br>C200H-ID216 (32 pts)<br>C200H-ID217 (64 pts)<br>CQM1-ID213 (32 pts) | Special cable that splits a single connector at the PLC to two at the relay blocks | G79-I___C___<br>(2 are required for 64-pt modules) |
| <b>Outputs</b>                      |   |  |  |
| G7TC-OC16<br>P7TF-OS16              | 3G2A5-OD213 (64 pts)<br>C500-OD218 (32 pts)<br>C500-OD415CN (32 pts)<br>C200H-OD218 (32 pts)<br>CQM1-OD219 (64 pts)                         | Special cable that splits a single connector at the PLC to two at the relay blocks | G79-O___C___<br>(2 are required for 64-pt modules) |

### High-density Connections (Cable Splits One Connector to Three Relay Blocks)

| Relay block                         | PLC module   | Connection method to PLC   | Connecting cable                                       |
|-------------------------------------|--|--|--|
| <b>Inputs</b>                       |  |  |  |
| G7TC-1A16<br>G7TC-ID16<br>P7TF-IS16 | CS1W-ID291 (96 pts)<br>CS1W-MD291 (48 pts, input side only)  | Special cable that splits a single connector at the PLC to three at the relay blocks | G79-___C-___-___<br>(2 are required for 96-pt modules) |
| <b>Outputs</b>                      |  |  |  |
| G7TC-OC16<br>P7TF-OS16              | CS1W-OD219 (96 pts)<br>CS1W-MD291 (48 pts, output side only) | Special cable that splits a single connector at the PLC to three at the relay blocks | G79-___C-___-___<br>(2 are required for 96-pt modules) |

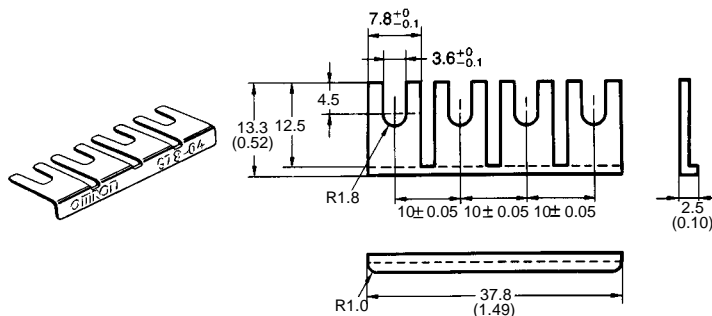
Unit: mm (inch)

## ■ SHORTING BAR

### G78-04

Use this piece for short-circuiting across terminals.  
Max. current flow: 20 A

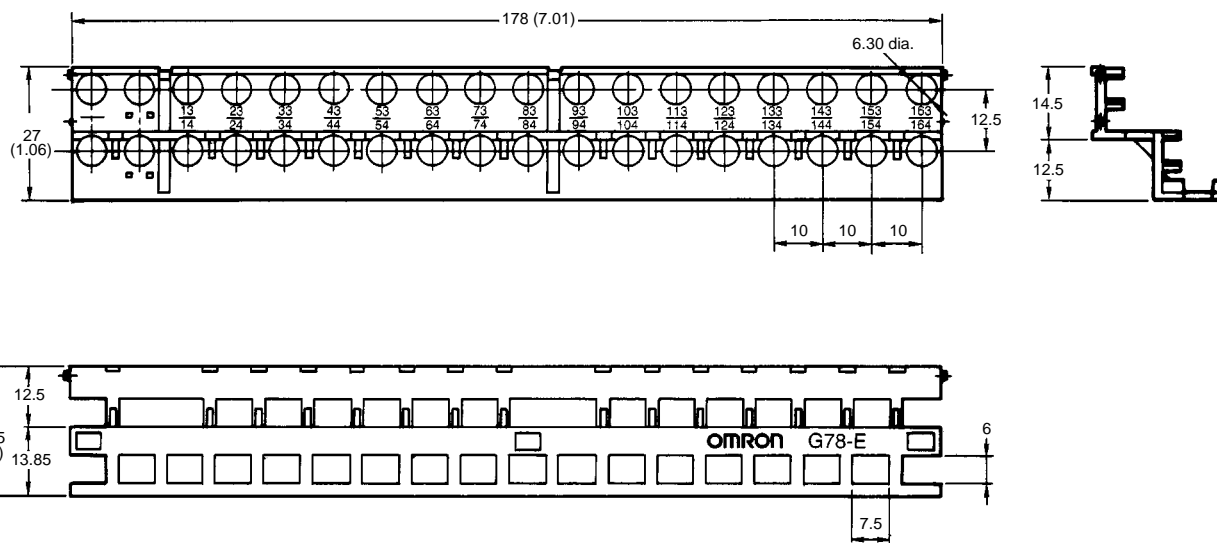
| Item         | Part number   |
|--------------|---------------|
| Shorting bar | <b>G78-04</b> |



## ■ FINGER PROTECTION COVER FOR G7TC OR P7TF (MEETS VDE 0106 PART 100)

### G78-E

This cover is for 16-point relay blocks only and cannot be used with an 8-point relay block.





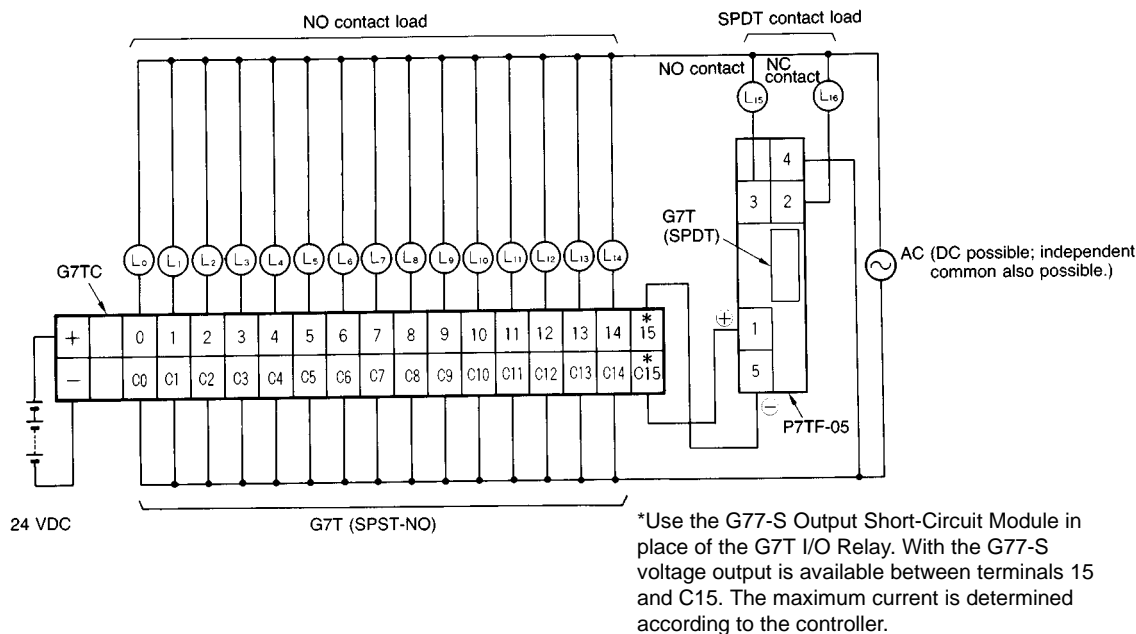


## To Increase the Number of Outputs

Use sockets (order separately) to increase the number of outputs or to use SPDT I/O Relays on the G7TC.

### EXTERNAL CONNECTION EXAMPLE

The following is an application example for the P7TF-05 using a SPDT Relay on a terminal of the G7TC-16(-1).



Note: If more than one G77-S Output Short-Circuit Module is employed, the voltage output of the terminals on the G7TC is as follows:

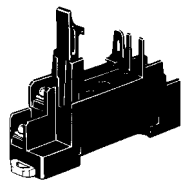
G7TC-OS16: The positive side (the lower row) connects to the common line internally.

G7TC-OS16-1: The negative side (the upper row) connects to the common line internally.

### P7TF-05 SOCKET

The G7T Relays (SPST-NO, SPST-NC, and SPDT types) and the G3TA I/O Relays can be mounted on the P7TF-05 Socket.

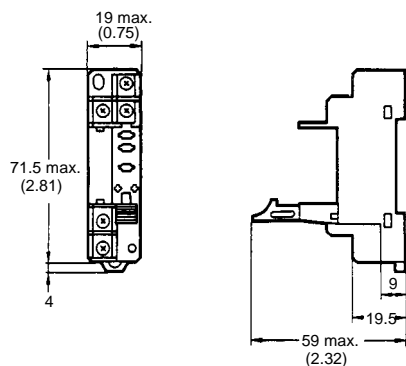
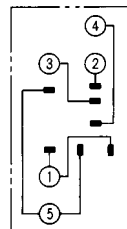
To add SPDT relays (G7T-112S) to a G7TC or P7TF installation, use the G77-S Output Short-Circuit Module and the P7TF-05 Socket.



#### Specifications

|                       |                                      |
|-----------------------|--------------------------------------|
| Contact resistance    | 10 mΩ max.                           |
| Dielectric strength   | 2,000 VAC for 1 minute               |
| Insulation resistance | 100 MΩ at 500 V                      |
| Vibration             | 10 to 55 Hz, 1.0 mm double amplitude |
| Shock                 | 200 m/s <sup>2</sup>                 |
| Ambient temperature   | Operating: 0 to 55°C (32°F to 131°F) |
| Humidity              | 35% to 85%                           |
| Weight                | Approx. 28 g                         |

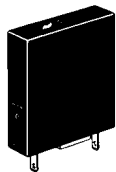
Unit: mm (inch)

**Dimensions****Internal Connections  
(Top View)**

Note: Terminal 1 is positive when the I/O SSR is employed.

**■ P70 INDICATOR MODULE (WITH SURGE SUPPRESSING FUNCTION)**

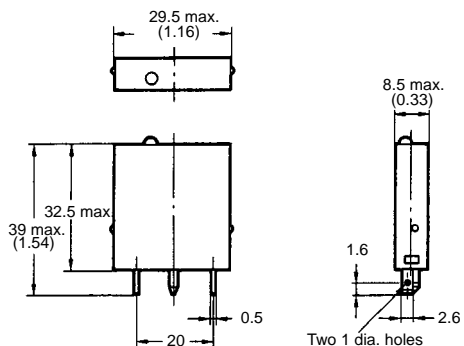
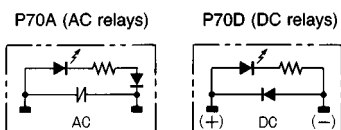
Remove the transparent style strip of the P7TF-05 socket and mount this module and it will function as an operation indicator with the surge suppression.



| Part number  |      | Applicable relay coil voltage | Remarks                                |
|--------------|------|-------------------------------|--|
| For AC relay | P70A | 110/120 VAC                   | Surge suppressing system with varistor |
|              |      | 220/240 VAC                   |  |
| For DC relay | P70D | 12/24 VDC                     | Surge suppressing system with diode    |

Note: 1. Order the indicator module suitable for the relay coil voltage.

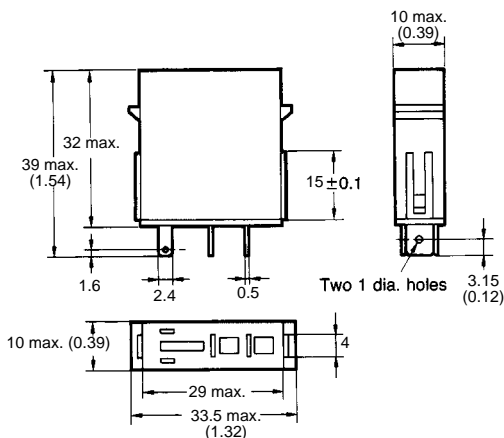
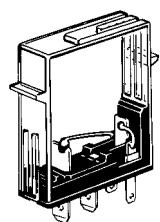
2. The indicator module for DC relays has a multiple power supply common to both 12 and 24 VDC.

**Dimensions****Internal Connection**

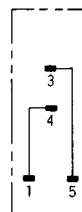
Unit: mm (inch)

## ■ G77-S OUTPUT SHORT-CIRCUIT MODULE

The output of the I/O Block can be obtained without relays through the G77-S Output Short-Circuit Module. Note that the G77-S Output Short-Circuit Module is not available for inputs.



**Terminal Arrangement/Internal Connections (Bottom View)**



## Precautions

### ■ CORRECT INSTALLATION

I/O Blocks are color coded, as shown below, according to input/output and AC/DC specifications.

| Block type        |    | I/O Terminal label | I/O Terminal indicators | I/O Relay case |
|-------------------|----|--------------------|-------------------------|----------------|
| Output Block (DC) |    | Yellow             | Green                   | Transparent    |
| Input Block       | DC | Red                | Green                   | Green          |
|                   | AC | Red                | Red                     | Red            |

Both Input and Output Blocks do not have internal power supplies. For an Output Block, supply the relay drive power to the positive and negative terminals (either 12 or 24 VDC). Loads (terminal contacts 0 through 15) must also be supplied with appropriate power. For an Input Block, supply power to the positive and negative terminals for the input signals to the controller.

The same Connecting Cable, G79-Y, is used for the G7TC-OC08 eight-point Output Block as for other I/O Blocks; leave 8 points unconnected.

LEDs indicate the presence or absence of signals. Use the display lever inside each relay for fault diagnosis. (Some relays do not have this lever, depending on the specifications.)

Each relay must be pressed down until its hold-down hooks engage completely. Heating or malfunction can result if relays are not mounted properly.

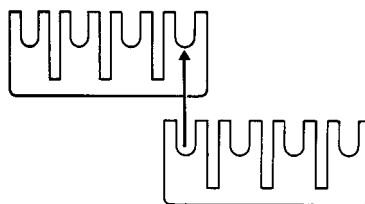
Unlabeled terminals are not electrically connected. Use these for repeater terminals.

LED positions and relay orientation differ between Input and Output Blocks. This is to aid in differentiating Input Blocks from Output Blocks and in following signal flow. DC I/O Blocks have positive and negative terminals, with the positive terminals normally on the top of the I/O Block. Reversing positive and negative terminals will prevent operation.

Rails are generally used to mount Relay I/O Blocks. For screw mounting, a 210-mm DIN rail is available that can be used as an adapter in combination with End Plates (PFP-M, two required).

### ■ USING A SHORTING BAR

A Shorting Bar is provided to connect four terminals. The current capacity of the shorting bar is 20 A. As long as this current capacity is not exceeded, the shorting bar can be used in combination as shown at the right to connect more than four terminals.



Operational errors can result if connectors are connected or removed with power supplied to the I/O Block.

NOTE: DIMENSIONS SHOWN ARE IN MILLIMETERS. To convert millimeters to inches divide by 25.4.

**OMRON**<sup>®</sup>  
**OMRON ELECTRONICS, INC.**  
One East Commerce Drive  
Schaumburg, IL 60173  
**1-800-55-OMRON**

**OMRON CANADA, INC.**  
885 Milner Avenue  
Scarborough, Ontario M1B 5V8  
**416-286-6465**