# GT3 Series Multi-function Timers

## Wide Variety Including OFF Delay and Star-Delta

- Universal AC power voltage 100 to 240V AC
- Solid-state CMOS circuitry ensures high accuracy
- Easy-to-view operation indicator
- DIN 48mm square panel mount adapter for snap mounting
- Complies with safety standards. UL/c-UL listed.
- Complies with EN standard

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[Multi-mode]

- Instantaneous operation at zero setting
- Multi-mode, and universal AC power voltage cover 96 types by one timer

### Multi-Mode (Analog Setting)

For details, see pages 2 to 7.

| Operation Mode | | Model | Contact | Time Range | Output | Operating Voltage | Part No. |
|---|---|---|---|---|---|---|---|
| On Delay<br>Interval ON<br>Cycle OFF<br>Cycle ON | | GT3A-1 | Delayed SPDT | 0.1 sec to 180 hours | 240V AC, 3A<br>120V AC/<br>30V DC, 5A | 100 to 240V AC | GT3A-1AF20 |
| | | GT3A-2 | Delayed SPDT +<br>Instantaneous SPDT | | | 100 to 240V AC | GT3A-2AF20 |
| | | | | | | 24V AC/24V DC | GT3A-2AD24 |
| | | GT3A-3 | Delayed DPDT | | 240V AC/<br>24V DC, 5A | 100 to 240V AC | GT3A-3AF20 |
| | | | | | | 24V AC/24V DC | GT3A-3AD24 |
| ON Delay<br>Cycle<br>Signal ON/OFF Delay<br>Signal OFF Delay | With Input | GT3A-4 | Delayed DPDT (11P) | 0.1 sec to 180 hours | 240V AC/<br>24V DC, 5A | 100 to 240V AC | GT3A-4AF20 |
| | | | | | | 24V AC/24V DC | GT3A-4AD24 |
| Interval ON<br>One Shot Cycle<br>Signal ON/OFF Delay<br>Signal OFF Delay | With Input | GT3A-5 | | | | 100 to 240V AC | GT3A-5AF20 |
| | | | | | | 24V AC/24V DC | GT3A-5AD24 |
| One Shot<br>One Shot ON Delay<br>One Shot<br>Signal ON/OFF Delay | With Input | GT3A-6 | | | | 100 to 240V AC | GT3A-6AF20 |
| | | | | | | 24V AC/24V DC | GT3A-6AD24 |

### OFF Delay

For details, see pages 8 to 9.

| Operation Mode | | Model | Contact | Time Range | Output | Operating Voltage | Part No. |
|---|---|---|---|---|---|---|---|
| Power OFF Delay | With Reset Input | GT3F-1 | Delayed SPDT | 0.1 sec to 600 sec | 250V AC/<br>24V DC, 5A | 100 to 240V AC | GT3F-1AF20 |
| | | | | | | 24V AC/24V DC | GT3F-1AD24 |
| | Without Reset Input | GT3F-2 | Delayed DPDT | | 250V AC/<br>24V DC, 3A | 100 to 240V AC | GT3F-2AF20 |
| | | | | | | 24V AC/24V DC | GT3F-2AD24 |

### Star-Delta

For details, see pages 10 to 11.

| Operation Mode | Model | Contact | Time Range | Output | Operating Voltage | Part No. |
|---|---|---|---|---|---|---|
| Star-Delta | GT3S-1 | Delayed Star: SPST-NO<br>Delta: SPST-NO | Star: 0.05 to 100 sec<br>Star-Delta: 0.05 sec<br>0.1 sec<br>0.25 sec<br>0.5 sec | 250V AC/<br>30V DC, 5A | 100 to 240V AC | GT3S-1AF20 |
| | GT3S-2 | Delayed Star: SPST-NO<br>Delta: SPST-NO<br>Instantaneous: SPST-NO | | | | GT3S-2AF20 |

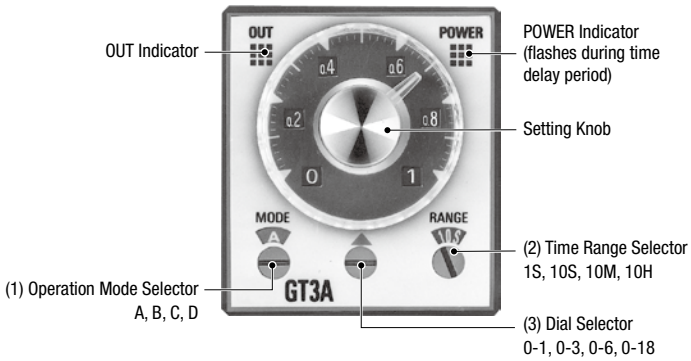
### Twin-Timer

For details, see pages 12 to 13.

| Operation Mode | Model | Contact | Time Range | Output | Operating Voltage | Part No. |
|---|---|---|---|---|---|---|
| Serial Activation<br>Coarse/Fine Adjustment Setting<br>Instantaneous<br>Cycle<br>Cycle<br>Cycle Inversion<br>Interval ON<br>Interval ON Delay<br>Serial Interval ON | GT3W-A | Delayed SPDT +<br>Delayed SPDT | T1: 0.1 sec to 6 hours<br>T2: 0.1 sec to 6 hours | 240V AC, 3A<br>120V AC/<br>30V DC, 5A | 100 to 240V AC | GT3W-A11AF20N |
| | | | | | 24V AC/24V DC | GT3W-A11AD24N |
| | | | T1: 0.1 sec to 6 hours<br>T2: 0.1 sec to 300 hours | | 100 to 240V AC | GT3W-A13AF20N |
| | | | | | 24V AC/24V DC | GT3W-A13AD24N |
| | | | T1: 0.1 sec to 300 hours<br>T2: 0.1 sec to 6 hours | | 100 to 240V AC | GT3W-A31AF20N |
| | | | | | 24V AC/24V DC | GT3W-A31AD24N |
| | | | T1: 0.1 sec to 300 hours<br>T2: 0.1 sec to 300 hours | | 100 to 240V AC | GT3W-A33AF20N |
| | | | | | 24V AC/24V DC | GT3W-A33AD24N |

## GT3A-1, -2, -3 (8-Pin)

# Four Selectable Operation Modes in One Timer: ON Delay, Interval ON, Cycle, Cycle ON




| (1) Operation Mode | Rated Voltage | Time Ranges | Output | Contact | Part No. |
|---|---|---|---|---|---|
| A: ON Delay<br>B: Interval ON<br>C: Cycle OFF<br>D: Cycle ON | 100 to 240V AC | 0.1 sec to 180 hours<br>See Time Ranges for details. | 240V AC, 3A<br>120V AC/30V DC, 5A<br>(resistive load) | Delayed SPDT | GT3A-1AF20 |
| | 100 to 240V AC | | | Delayed SPDT +<br>Instantaneous SPDT | GT3A-2AF20 |
| | 24V AC/24V DC | | | | GT3A-2AD24 |
| | 100 to 240V AC | | 240V AC/24V DC, 5A<br>(resistive load) | Delayed DPDT | GT3A-3AF20 |
| | 24V AC/24V DC | | | | GT3A-3AD24 |

## Time Ranges

| (2) Range \ (3) Dial | 0 - 1 | 0 - 3 | 0 - 6 | 0 - 18 |
|---|---|---|---|---|
| 1S | 0.1 sec to 1 sec | 0.1 sec to 3 sec | 0.1 sec to 6 sec | 0.2 sec to 18 sec |
| 10S | 0.1 sec to 10 sec | 0.3 sec to 30 sec | 0.6 sec to 60 sec | 1.8 sec to 180 sec |
| 10M | 6 sec to 10 min | 18 sec to 30 min | 36 sec to 60 min | 108 sec to 180 min |
| 10H | 6 min to 10 hours | 18 min to 30 hours | 36 min to 60 hours | 108 min to 180 hours |

## Contact Ratings

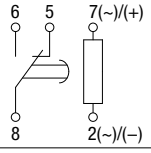
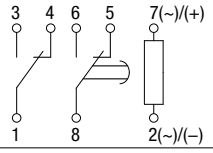
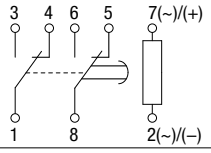
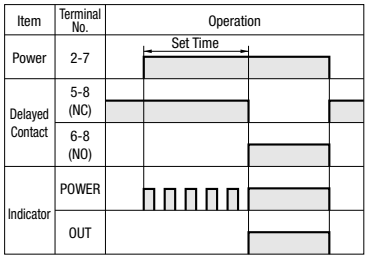
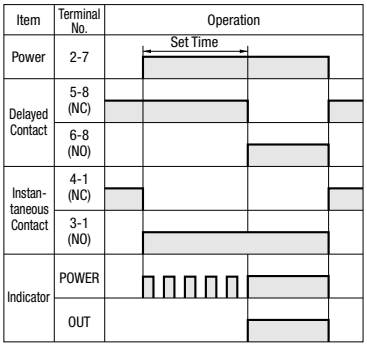
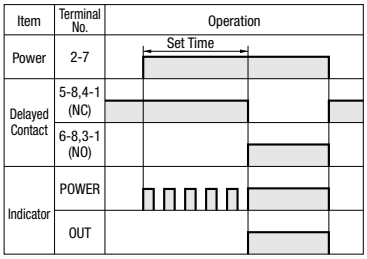
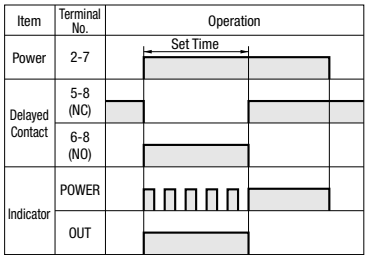
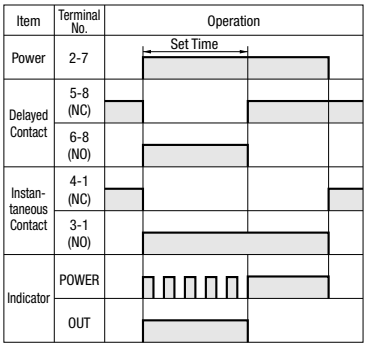
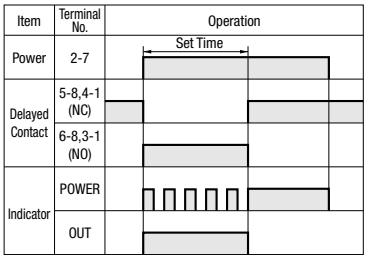
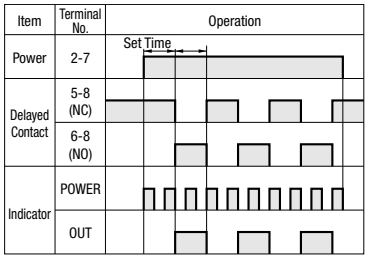
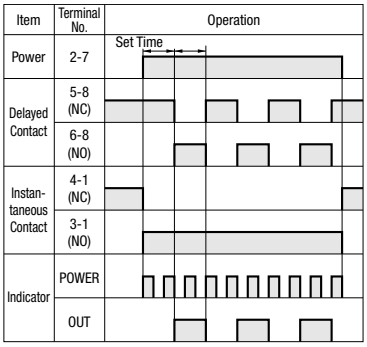
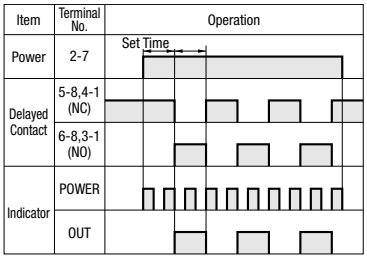
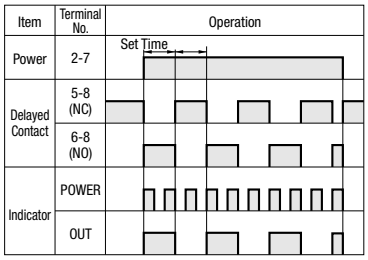
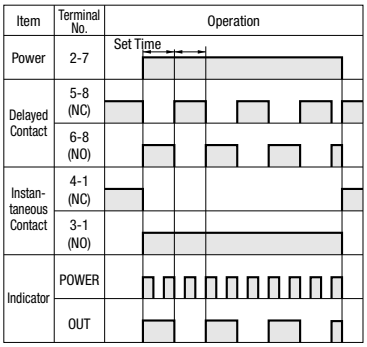
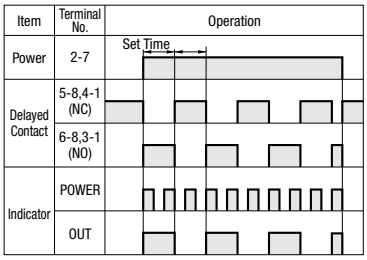
| Model | | GT3A-1, GT3A-2 | GT3A-3 |
|---|---|---|---|
| Rated Load | | 240V AC, 3A (resistive load)<br>120V AC/30V DC, 5A<br>(resistive load) | 240V AC/24V DC, 5A<br>(resistive load) |
| Maximum Switching Power | | AC: 960VA<br>DC: 120W | AC: 1200VA<br>DC: 120W |
| Maximum Switching Voltage | | 250V AC/150V DC | |
| Maximum Switching Current | | 5A | |
| Maximum Switching Frequency | | 600 operations/hour | 600 operations/hour |
| Minimum Applicable Load | | 5V DC, 10 mA (reference value) | |
| External Protection Element | | Fuse 250V, 5A | |
| Life | Electrical | 100,000 operations minimum (rated load) | |
| | Mechanical | 20,000,000 operations minimum | |

## General Specifications

| Model | | GT3A-1 | GT3A-2 | GT3A-3 |
|---|---|---|---|---|
| Operation System | | Solid-state CMOS circuitry | | |
| Operation | | Multi-Mode | | |
| Time Range | | 0.1 sec to 180 hours | | |
| Pollution Degree | | 2 (IEC60664-1) | | |
| Overvoltage Category | | III (IEC60664-1) | | |
| Rated Voltage | AF20 | 100 to 240V AC (50/60Hz) | | |
| | AD24 | 24V AC (50/60Hz)/24V DC | | |
| Voltage Range | AF20 | 85 to 264V AC (50/60Hz) | | |
| | AD24 | 20.4 to 26.4V AC (50/60Hz)/21.6 to 26.4V DC | | |
| Reset Voltage | | Rated voltage × 10% minimum | | |
| Operating Temperature | | −10 to +50°C (no freezing) | | |
| Storage Temperature | | −30 to +70°C (no freezing) | | |
| Operating Humidity | | 35 to 85% RH (no condensation) | | |
| Storage Humidity | | 35 to 85% RH (no condensation) | | |
| Altitude | | 0 to 2000m (operation), 0 to 3000m (transportation) | | |
| Reset Time | | 60 ms maximum | | |
| Repeat Error | | ±0.2%, ±10 ms maximum (Note) | | |
| Voltage Error | | ±0.2%, ±10 ms maximum (Note) | | |
| Temperature Error | | ±0.2%, ±10 ms maximum (Note) | | |
| Setting Error | | ±10% maximum | | |
| Insulation Resistance | | 100 MΩ minimum (500V DC megger) | | |
| Dielectric Strength | | Between power and output terminals: 2000V AC, 1 minute<br>Between contacts of different poles: 2000V AC, 1 minute<br>Between contacts of the same pole:<br>750V AC, 1 minute (GT3A-1, 2)<br>1000V AC, 1 minute (GT3A-3) | | |
| Vibration Resistance | | GT3A-1/-2/-3: Damage limits: 10 to 55 Hz, amplitude 0.75mm, 2 hours each in 3 directions<br>GT3A-1/-2: Operating extremes: 10 to 55 Hz, amplitude 0.75mm, 2 hours each in 3 directions<br>GT3A-3: Operating extremes: 10 to 55 Hz, amplitude 0.41mm, 2 hours each in 3 directions | | |
| Shock Resistance | | Operating extremes: 98 m/s², Damage limits: 490 m/s², 3 shocks each in 6 directions | | |
| Degree of Protection | | IP40 (timer), IP20 (socket) (IEC60529) | | |
| Power Consumption (approx.) | AF20 100V AC/60Hz | 2.9VA | 2.5VA | 2.2VA |
| | AF20 200V AC/60Hz | 4.7VA | 4.3VA | 4.0VA |
| | AD24 (AC/DC) | 1.3VA/0.5W | 2.0VA/0.8W | 1.8VA/0.7W |
| Dimensions | | 40H × 36W × 72.2D mm | | |
| Weight (approx.) | | 63g | 73g | 79g |

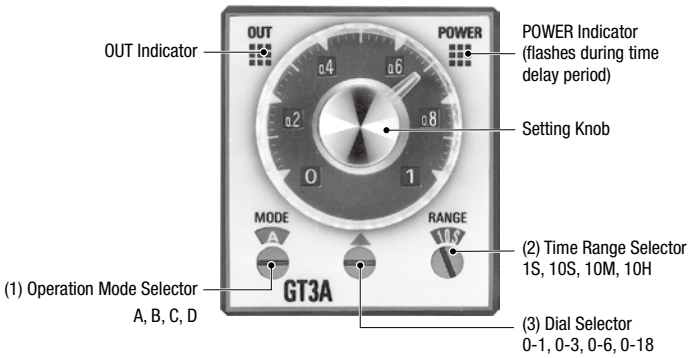
Note: The largest value becomes the error against a preset value depending on the time range.

## Operation Chart

| | Operation Chart | | |
|---|---|---|---|
| Part No. | GT3A-1 ☐ | GT3A-2 ☐ | GT3A-3 ☐ |
| Contact | Delayed SPDT | Delayed SPDT + Instantaneous SPDT | Delayed DPDT |
| Internal Connection / Operation Mode Selection |  |  |  |
| On Delay<br>MODE A<br>Set timer for desired delay, apply power to coil. Contacts transfer after preset time has elapsed, and remain in transferred position until timer is reset. Reset occurs with removal of power. |  |  |  |
| Interval ON<br>MODE B<br>Set timer for desired delay, apply power to coil. Contacts transfer immediately, and return to original position after preset time has elapsed. Reset occurs with removal of power. |  |  |  |
| Cycle OFF (OFF start)<br>MODE C<br>Set timer for desired delay, apply power to coil. First transfer of contacts occurs after preset delay has elapsed, after the next elapse of preset delay contacts return to original position. The timer now cycles between on and off as long as power is applied. The ratio is 1:1. Time Off = Time On |  |  |  |
| Cycle ON (ON start)<br>MODE D<br>Functions in same manner as Mode C, with the exception that first transfer of contacts occurs as soon as power is applied. The ratio is 1:1. Time Off = Time On |  |  |  |

## GT3A-4, -5, -6 (11-Pin)

# Four Selectable Operation Modes with Start, Gate, and Reset Inputs for External Control




| (1) Operation Mode | | Rated Voltage Code | Time Ranges | Output | Contact | Input | Part No. |
|---|---|---|---|---|---|---|---|
| A: ON Delay<br>C: Signal ON Delay | B: Cycle OFF<br>D: Signal OFF Delay | 100 to 240V AC | 0.1 sec to 180 hours<br>See Time Ranges for details | 240V AC, 5A<br>24V DC, 5A<br>(resistive load) | Delayed DPDT | Start Reset Gate | GT3A-4AF20 |
| | | 24V AC/24V DC | | | | | GT3A-4AD24 |
| A: Interval ON<br>C: Signal ON/OFF Delay | B: One-Shot Cycle,<br>D: Signal OFF Delay | 100 to 240V AC | | | | | GT3A-5AF20 |
| | | 24V AC/24V DC | | | | | GT3A-5AD24 |
| A: One-Shot<br>C: One-Shot | B: One-Shot ON Delay<br>D: Signal ON/OFF Delay | 100 to 240V AC | | | | | GT3A-6AF20 |
| | | 24V AC/24V DC | | | | | GT3A-6AD24 |

## Time Ranges

| (2) Range \ (3) Dial | 0 - 1 | 0 - 3 | 0 - 6 | 0 - 18 |
|---|---|---|---|---|
| 1S | 0.1 sec to 1 sec | 0.1 sec to 3 sec | 0.1 sec to 6 sec | 0.2 sec to 18 sec |
| 10S | 0.1 sec to 10 sec | 0.3 sec to 30 sec | 0.6 sec to 60 sec | 1.8 sec to 180 sec |
| 10M | 6 sec to 10 min | 18 sec to 30 min | 36 sec to 60 min | 108 sec to 180 min |
| 10H | 6 min to 10 hours | 18 min to 30 hours | 36 min to 60 hours | 108 min to 180 hours |

## Contact Ratings

| | | |
|---|---|---|
| Rated Load | | 240V AC/24V DC, 5A (resistive load) |
| Maximum Switching Power | | AC: 1200VA<br>DC: 120W |
| Maximum Switching Voltage | | 250V AC/150V DC |
| Maximum Switching Current | | 5A |
| Maximum Switching Frequency | | 600 operations/hour |
| Minimum Applicable Load | | 5V DC, 10 mA (reference value) |
| External Protection Element | | Fuse 250V, 5A |
| Life | Electrical | 100,000 operations minimum (rated load) |
| | Mechanical | 20,000,000 operations minimum |

## Input Specifications

| | | |
|---|---|---|
| Start Input | The start input initiates delayed operation and controls output status. | No-voltage contact inputs and NPN open collector transistor inputs are applicable.<br>24V DC, 1 mA maximum<br>Input response time:<br>50 ms maximum |
| Reset Input | When the reset input goes on (L level), the timer is reset to the original time (time at power-on). | |
| Gate Input | The time delay operation is suspended while the gate input is on (L level). | |

## General Specifications

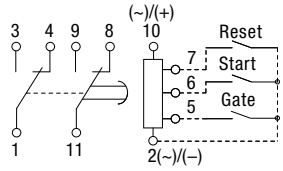
| | | |
|---|---|---|
| Operation System | | Solid-state CMOS circuitry |
| Operation | | Multi-mode with inputs (11 pins) |
| Time Range | | 0.1 sec to 180 hours |
| Pollution Degree | | 2 (IEC60664-1) |
| Overvoltage Category | | III (IEC60664-1) |
| Rated Voltage | AF20 | 100 to 240V AC (50/60Hz) |
| | AD24 | 24V AC (50/60Hz)/24V DC |
| Voltage Range | AF20 | 85 to 264V AC (50/60Hz) |
| | AD24 | 20.4 to 26.4V AC (50/60Hz)/21.6 to 26.4V DC |
| Reset Voltage | | Rated voltage × 10% minimum |
| Operating Temperature | | –10 to +50°C (no freezing) |
| Storage Temperature | | –30 to +70°C (no freezing) |
| Operating Humidity | | 35 to 85% RH (no condensation) |
| Storage Humidity | | 35 to 85% RH (no condensation) |
| Altitude | | 0 to 2000m (operation)<br>0 to 3000m (transportation) |
| Reset Time | | 60 ms maximum |
| Repeat Error | | ±0.2%, ±10 ms (Note) |
| Voltage Error | | ±0.2%, ±10 ms (Note) |
| Temperature Error | | ±0.2%, ±10 ms (Note) |
| Setting Error | | ±10% maximum |
| Insulation Resistance | | 100MΩ minimum (500V DC megger) |
| Dielectric Strength | | Between power and output terminals:<br>2000V AC, 1 minute<br>Between contacts of different poles:<br>2000V AC, 1 minute<br>Between contacts of the same pole:<br>1000V AC, 1 minute |
| Vibration Resistance | | Damage Limits: 10 to 55 Hz, amplitude 0.75 mm, 2 hours each in 3 directions<br>Operating extremes: 10 to 55 Hz, amplitude 0.41mm, 2 hour each in 3 directions |
| Shock Resistance | | Operating extremes: 98 m/s$^2$<br>Damage limits: 490 m/s$^2$<br>3 shocks each in 6 directions |
| Degree of Protection | | IP40 (timer), IP20 (socket) (IEC60529) |
| Power Consumption (Approx.) | AF20 | 2.2VA (100V AC/60Hz), 4.1VA (200V AC/60Hz) |
| | AD24 | 1.8VA (AC)/0.7W (DC) |
| Dimensions | | 40H × 36W × 72.2D mm |
| Weight (approx.) | | 80g |

Note: The largest value becomes the error against a preset value depending on the time range.

## Operation Chart

**GT3A-4** ☐

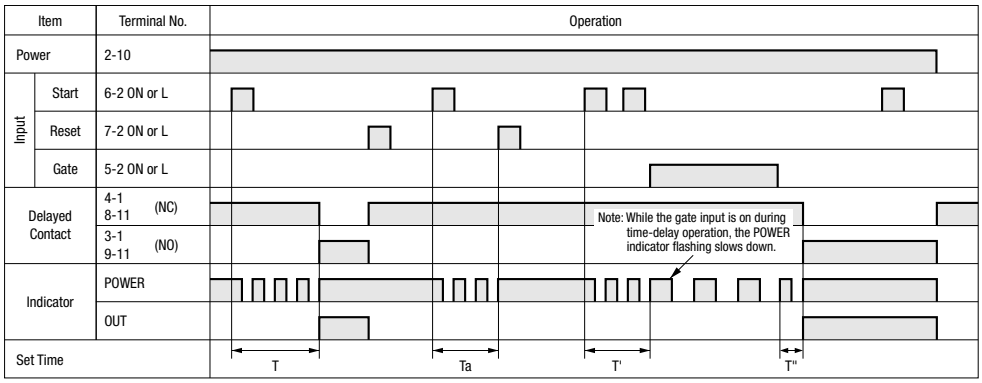
Note: While the gate input is on during time delay operation, the POWER indicator flashing slows down.

| Contact | Operation Chart<br>Delayed DPDT |
|---|---|
| Internal Connection / Operation Mode Selection |  <br>Note: T = Set time<br>Ta =Shorter than set time<br>T = T' + T" |

### On Delay

MODE A

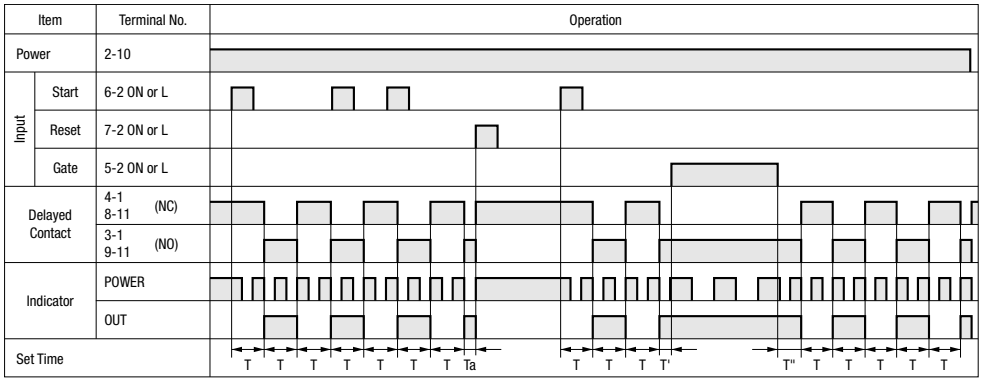
Power is applied to timer at all times. Set time for desired delay. When start input is supplied time delay starts, contacts transfer after preset time has elapsed. Contacts remain in transferred position until timer is reset.




### Cycle

MODE B

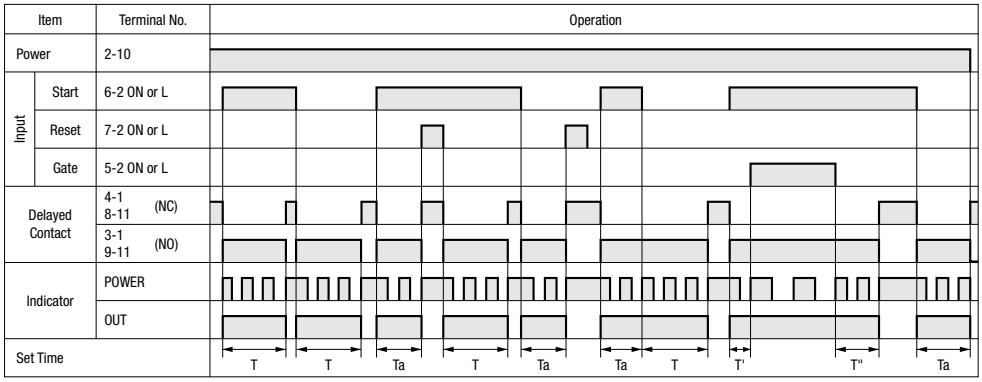
Power is applied to timer at all times. Set timer for desired delay, initiate start input. Contacts transfer after preset time has elapsed and remain in transferred position until preset time elapses a second time. The timer will now continue to cycle in above manner until reset applied.




### Signal ON/OFF Delay

MODE C

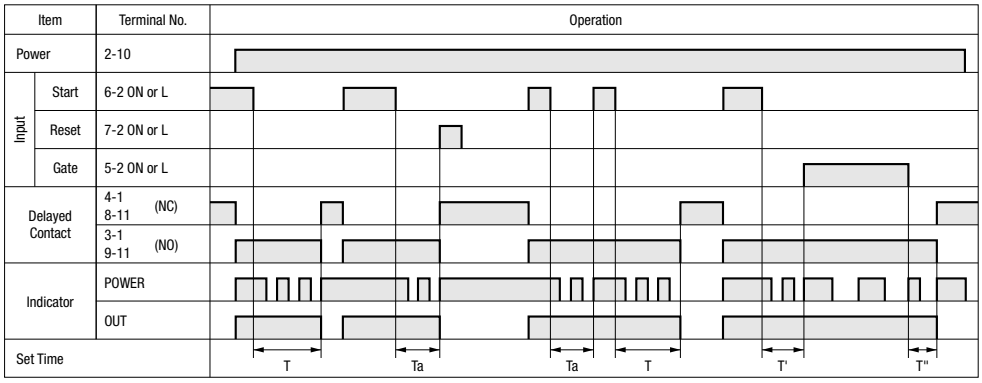
For this mode a maintained pushbutton is required for start input. Power is applied to timer at all times. Set timer for desired delay, initiate start input. Contacts will transfer immediately. After preset time (with start input still present) contacts will transfer back to original position. Remove start signal, at this time contacts will again transfer. Contacts will transfer to original position after preset time. Timer is reset by initiation of reset input.



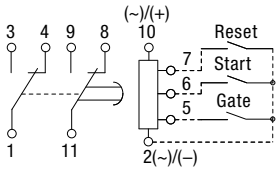

### Signal OFF Delay

MODE D

Power is applied to timer at all times. Set timer for desired delay, initiate start input. Contacts immediately transfer. When start input is removed time delay starts. After preset time contacts transfer back to original position. Timer is reset by initiation of reset input.



GT3A-5 ☐

| | Operation Chart |
|---|---|
| Contact | Delayed DPDT |
| Internal Connection / Operation Mode Selection |   Note: T = Set time<br>Ta = Shorter than set time<br>T = T' + T" |

## Interval ON

MODE A

Power is applied to timer at all times. Set timer for desired delay, initiate start input. Contacts immediately transfer. After preset delay contacts return to original position. Timer is reset by initiation of reset input.

| Item | | Terminal No. | Operation |
|---|---|---|---|
| Power | | 2-10 | |
| Input | Start | 6-2 ON or L | |
| | Reset | 7-2 ON or L | |
| | Gate | 5-2 ON or L | |
| Delayed Contact | | 4-1 8-11 (NC) | |
| | | 3-1 9-11 (NO) | |
| Indicator | | POWER | |
| | | OUT | |
| Set Time | | | T Ta T' T" |

## One-Shot Cycle

MODE B

Power is applied to timer at all times. Set timer for desired delay, initiate start input. After preset time has elapsed contacts will transfer. Contacts will transfer to their original position after preset time elapses a second time. Timer is reset by initiation of reset input.

| Item | | Terminal No. | Operation |
|---|---|---|---|
| Power | | 2-10 | |
| Input | Start | 6-2 ON or L | |
| | Reset | 7-2 ON or L | |
| | Gate | 5-2 ON or L | |
| Delayed Contact | | 4-1 8-11 (NC) | |
| | | 3-1 9-11 (NO) | |
| Indicator | | POWER | |
| | | OUT | |
| Set Time | | | T T T Ta T' T" T |

## Signal ON/OFF Delay

MODE C

For this mode a maintained pushbutton is required for start input. Power is applied to timer at all times. Set timer for desired delay, initiate start input. Contacts will transfer immediately. After preset time (with start input still present) contacts will transfer back to original position. Remove start signal, at this time contacts will again transfer. Contacts will transfer to original position after preset time. Timer is reset by initiation of reset input.

| Item | | Terminal No. | Operation |
|---|---|---|---|
| Power | | 2-10 | |
| Input | Start | 6-2 ON or L | |
| | Reset | 7-2 ON or L | |
| | Gate | 5-2 ON or L | |
| Delayed Contact | | 4-1 8-11 (NC) | |
| | | 3-1 9-11 (NO) | |
| Indicator | | POWER | |
| | | OUT | |
| Set Time | | | T T Ta T Ta Ta T T' T" Ta |

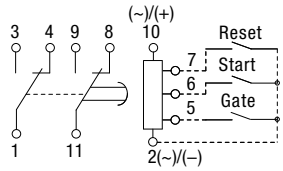
## Signal OFF Delay

MODE D

Power is applied to timer at all times. Set timer for desired delay, initiate start input. Contacts immediately transfer. When start input is removed time delay starts. After preset time contacts transfer back to original position. Timer is reset by initiation of reset input.

| Item | | Terminal No. | Operation |
|---|---|---|---|
| Power | | 2-10 | |
| Input | Start | 6-2 ON or L | |
| | Reset | 7-2 ON or L | |
| | Gate | 5-2 ON or L | |
| Delayed Contact | | 4-1 8-11 (NC) | |
| | | 3-1 9-11 (NO) | |
| Indicator | | POWER | |
| | | OUT | |
| Set Time | | | T Ta Ta T T' T" |

GT3A-6 ☐

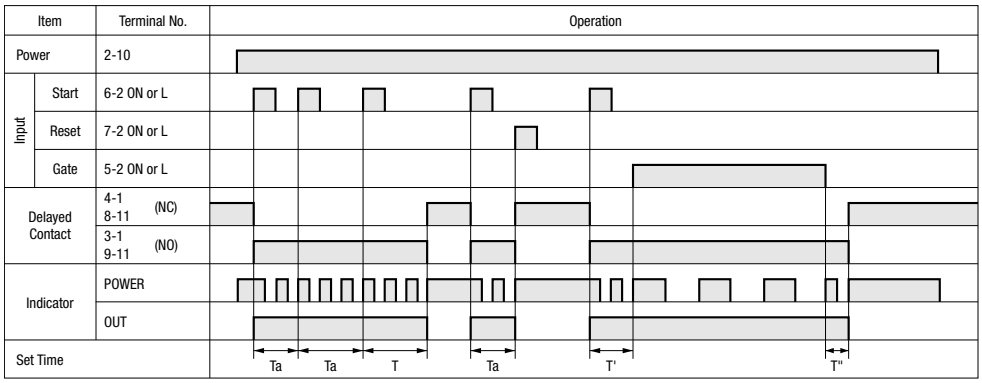
| | Operation Chart |
|---|---|
| Contact | Delayed DPDT |
| Internal Connection / Operation Mode Selection |  Note: T = Set time, Ta = Shorter than set time, T = T' + T" |



## One Shot

MODE A

Power is applied to timer at all times. Set timer for desired delay, initiate start input. Contacts immediately transfer. After preset time has elapsed contacts transfer back to original position. Reset occurs with initiation of reset input.

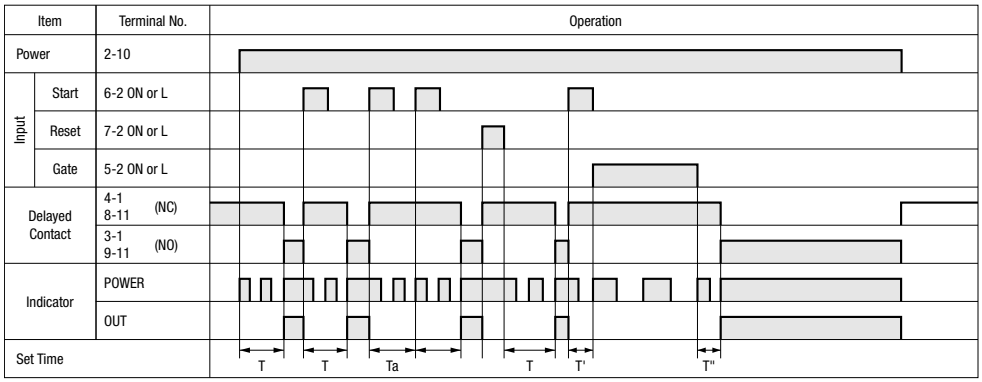




## One Shot ON Delay

MODE B

Set timer for desired delay. When power is applied preset time begins and contacts transfer after preset time has elapsed (no start input needed at this time). Start input is now supplied, this causes the contacts to transfer back to original position. Contacts will remain in this position for preset time, after which they will transfer again. Contacts will now remain in this position until: reset, start input is applied again or power is removed.

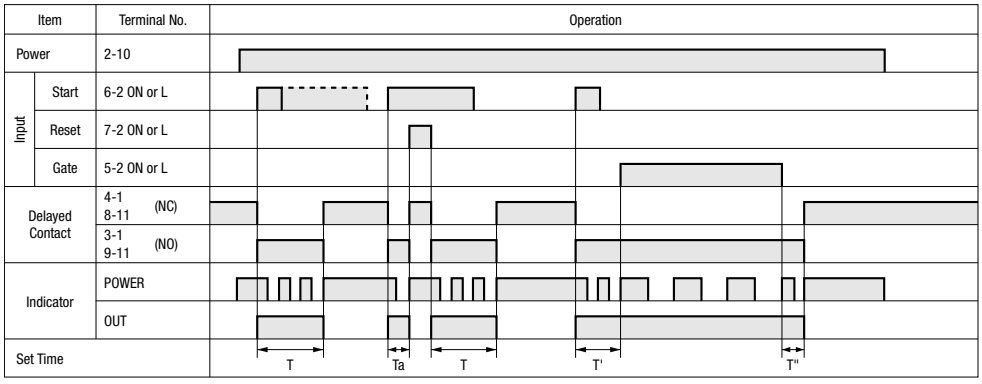




## One Shot

MODE C

Power is applied to timer at all times. Set timer for desired delay, initiate start input. Contacts immediately transfer. After preset time has elapsed contacts transfer back to original position. Reset occurs with initiation of reset input.

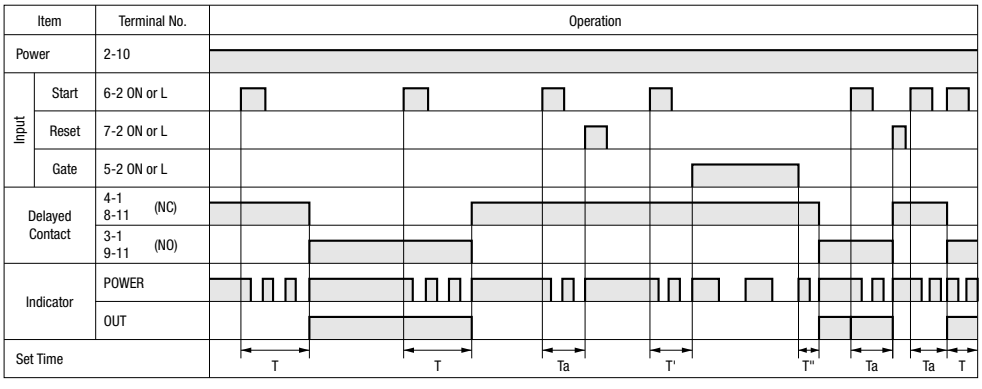




## Signal ON/OFF Delay

MODE D

For this mode a maintained pushbutton is required for start input. Power is applied to timer at all times. Set timer for desired delay, initiate start input. Contacts will transfer immediately. After preset time (with start input still present) contacts will transfer back to original position. Remove start signal, at this time contacts will again transfer. Contacts will transfer to original position after preset time. Timer is reset by initiation of reset input.



## GT3F-1/GT3F-2 (8-Pin)

### Specifically designed for Power OFF Delay. Reset Inputs are available.

GT3F-1 ☐
GT3F-2 ☐


POWER Indicator
Setting Knob
(1) Dial Selector
0-1, 0-3, 0-18, 0-60
(2) Time Range Selector
1s, 10s

| (1) Operation Mode | Rated Voltage Code | Time Ranges | Output | Contact | Input | Part No. |
|---|---|---|---|---|---|---|
| Power OFF Delay | 100 to 240V AC | 0.1 sec to 600 sec | 250V AC/24V DC, 5A | Delayed SPDT | Reset | GT3F-1AF20 |
| | 24V AC/24V DC | | | | | GT3F-1AD24 |
| | 100 to 240V AC | | 250V AC/24V DC, 3A | Delayed DPDT | Without | GT3F-2AF20 |
| | 24V AC/24V DC | | | | | GT3F-2AD24 |

### Time Ranges

**GT3F-1/GT3F-2**

| (2) Range \ (3) Dial | 0 - 1 | 0 - 3 | 0 - 18 | 0 - 60 |
|---|---|---|---|---|
| 1S | 0.1 sec to 1 sec | 0.1 sec to 3 sec | 0.2 sec to 18 sec | 0.6 sec to 60 sec |
| 10S | 0.1 sec to 10 sec | 0.3 sec to 30 sec | 1.8 sec to 180 sec | 6 sec to 600 sec |

| | |
|---|---|
| Timeout Repeat Cycle | 3 sec minimum |
| Reset Input Repeat Cycle | 3 sec minimum |

### Contact Ratings

| Model | | GT3F-1 | GT3F-2 |
|---|---|---|---|
| Rated Load | | 250V AC/24V DC, 5A (resistive load) | 250V AC/24V DC, 3A (resistive load) |
| Minimum Switching Power | | AC: 1250VA DC: 150W | AC: 750VA DC: 90W |
| Minimum Switching Voltage | | 250V AC/125V DC | |
| Minimum Switching Current | | 5A | 3A |
| Maximum Switching Frequency | | 1800 operations/hour | |
| Minimum Applicable Load | | 5V DC, 10 mA | 5V DC, 100 mA |
| External Protection Element | | Fuse 250V, 5A | Fuse 250V, 3A |
| Life | Electrical | 100,000 operations minimum (rated load) | |
| | Mechanical | 3,000,000 operations minimum | |

### Input Specifications

| | |
|---|---|
| Reset Input | The contact is reset by turning the reset input on (L level). No-voltage contact input and NPN open collector transistor input are applicable.<br>6V DC, 0.6 mA maximum<br>Input Response Time (AC):<br>ON: 50 ms maximum<br>OFF: 1 sec maximum |

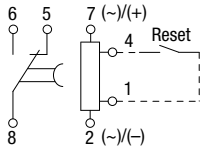
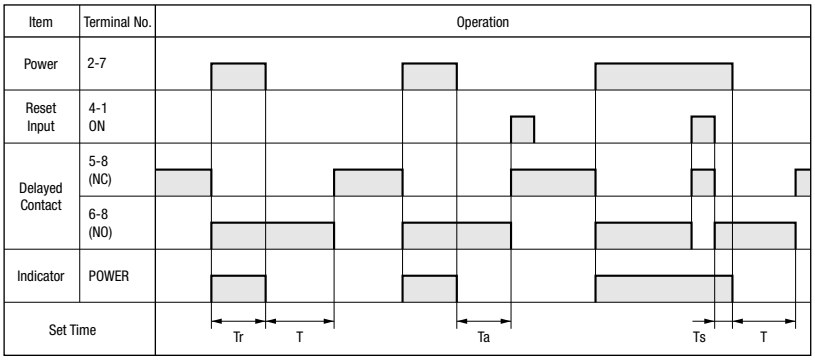
### General Specifications

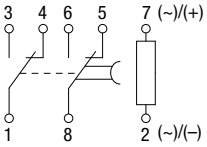
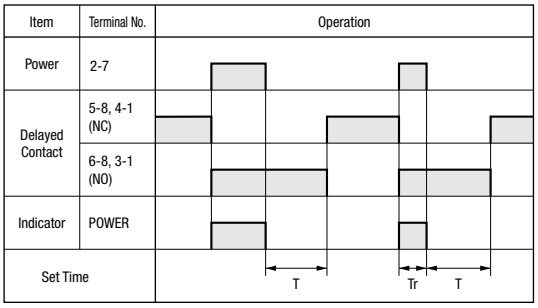
| | | |
|---|---|---|
| Operation System | | Solid-state CMOS circuitry |
| Operation | | Power OFF delay |
| Time Range | | 0.1 sec to 600 hours |
| Pollution Degree | | 2 (IEC60664-1) |
| Overvoltage Category | | III (IEC60664-1) |
| Rated Voltage | AF20 | 100 to 240V AC (50/60Hz) |
| | AD24 | 24V AC (50/60Hz)/24V DC |
| Voltage Range | AF20 | 85 to 264V AC (50/60Hz) |
| | AD24 | 20.4 to 26.4V AC (50/60Hz)/21.6 to 26.4V DC |
| Time Delay Operation Start Voltage | | Rated Voltage × 10% minimum |
| Minimum Power Application Time (Note 1) | | 0.4 sec (time range: 180 sec or less)<br>1 sec (time range: 600 sec) |
| Operating Temperature | | –10 to +50°C (no freezing) |
| Storage Temperature | | –30 to +70°C (no freezing) |
| Operating Humidity | | 35 to 85% RH (no condensation) |
| Storage Humidity | | 35 to 85% RH (no condensation) |
| Altitude | | 0 to 2000m (operation)<br>0 to 3000m (transportation) |
| Repeat Error | | ±0.2%, ±10 ms (Note 2) |
| Voltage Error | | ±0.2%, ±10 ms (Note 2) |
| Temperature Error | | ±0.2%, ±10 ms (Note 2) |
| Setting Error | | ±10% |
| Insulation Resistance | | 100 MΩ min. (500V DC megger) |
| Dielectric Strength | | Between power and output terminals: 2000V AC, 1 minute<br>Between contacts of different poles: 2000V AC, 1 minute<br>Between contacts of the same pole: 1000V AC, 1 minute |
| Vibration Resistance | | Damage limits/operating extremes: 10 to 55Hz, amplitude 0.75 mm, 2 hours each in 3 directions |
| Shock Resistance | | Operating extremes: 98 m/s², Damage limits: 490 m/s², 3 shocks each in 6 directions |
| Degree of Protection | | IP40 (timer), IP20 (socket) (IEC60529) |
| Power Consumption (approx.) | AF20 | 1.1 VA (100V AC/60Hz), 2.3 VA (200V AC/60Hz) |
| | AD24 | 0.7 VA (AC)/0.2W (DC) |
| Dimensions | | 40H × 36W × 72.2D mm |
| Weight (approx.) | | GT3F-1: 77g; GT3F-2: 79g |

Note 1: An inrush current flows during minimum power application time.
AF20: Approx. 0.4A, AD24: Approx. 1.2A

Note 2: The largest value becomes the error against a preset value depending on the time range.

## Operation Chart

<table>
<tr><th>Contact</th><th>Internal Connection</th><th>Operation Chart (Note 1)</th></tr>
<tr>
<td>GT3F-1<br><br>Delayed SPDT Output<br>with Reset Input</td>
<td> 
</td>
<td> 

T = Set time<br>
Ta = Shorter than set time<br>
Ts = 1 sec<br>
Tr = Minimum power application time<br>
• 0.4 sec (time range: 180 sec or less)<br>
• 1 sec (time range: 600 sec or less)<br>
• When power turns on, the NO output contact goes on. When a preset time has elapsed after the power has been turned off, the NO output contact goes off.<br>
• The contact is reset by turning the reset input on.</td>
</tr>
<tr>
<td>GT3F-2<br><br>Delayed DPDT Output</td>
<td> 
</td>
<td> 

T = Set time<br>
Tr = Minimum power application time<br>
• 0.4 sec (time range: 180 sec or less)<br>
• 1 sec (time range: 600 sec or less)<br>
• When power turns on, the NO output contact goes on. When a preset time has elapsed after the power has been turned off, the NO output contact goes off.</td>
</tr>
</table>

Note 1: GT3F timers use a latching relay for the output relay. Therefore, if it is dropped or shock is applied during transportation or handling, the output may not be in the initial state. Be sure to check the output status with a tester and if it is not in the initial state, turn the power on/off and reset the set time.

## GT3S-1/GT3S-2 (8-Pin)

### Star-Delta Output Mode



| (1) Operation Mode | Rated Voltage | Time Range | Output | Contact | Part No. |
|---|---|---|---|---|---|
| Star-Delta | 100 to 240V AC | Star: 0.05 to 100 sec<br>Star-Delta switching time<br>0.05 sec<br>0.10 sec<br>0.25 sec<br>0.50 sec | 250V AC/<br>30V DC, 5A<br>(resistive load) | Star: Delayed SPST-NO<br>Delta: Delayed SPST-NO | GT3S-1AF20 |
| | | | | Star: Delayed SPST-NO<br>Delta: Delayed SPST-NO<br>Instantaneous SPST-NO | GT3S-2AF20 |

### Time Ranges

| ① Star Dial Selector | | ② Star-Delta Switching Time Selector | |
|---|---|---|---|
| Dial | Time Range | Indication | Time |
| 0 – 5 | 0.05 sec – 5 sec | 0.05 | 0.05 sec |
| 0 – 10 | 0.1 sec – 10 sec | 0.1 | 0.1 sec |
| 0 – 50 | 0.5 sec – 50 sec | 0.25 | 0.25 sec |
| 0 – 100 | 1 sec – 100 sec | 0.5 | 0.5 sec |

### Contact Ratings

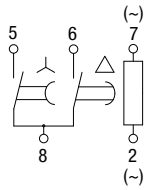
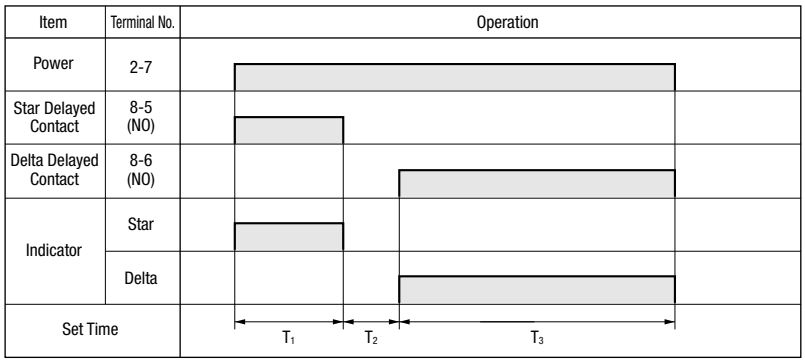
| | | |
|---|---|---|
| Rated Load | | 250V AC/30V DC, 5A (resistive load)<br>250V AC, 1.5A/30V DC, 2A (inductive load) |
| Maximum Switching Power | | AC: 1250VA<br>DC: 150W |
| Maximum Switching Voltage | | 250V AC/125V DC |
| Maximum Switching Current | | 5A |
| Maximum Switching Frequency | | 600 operations/hour |
| Minimum Applicable Load | | 5V DC, 100mA (reference value) |
| External Protection Element | | Fuse 250V, 5A |
| Life | Electrical | 100,000 operations minimum (rated load) |
| | Mechanical | 20,000,000 operations minimum |

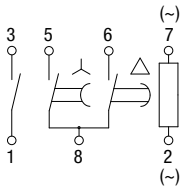
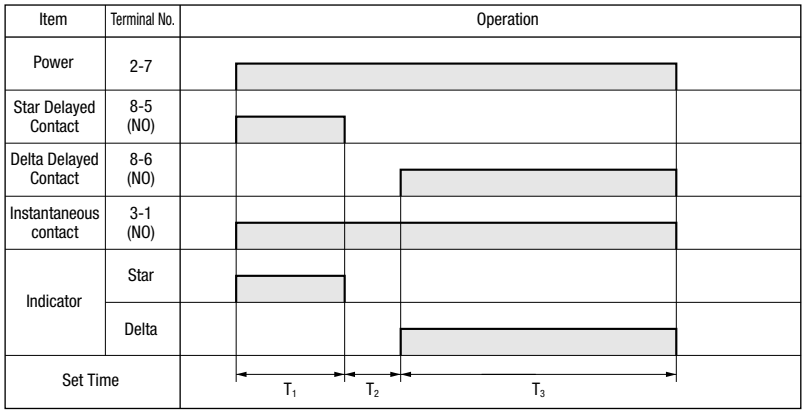
### General Specifications

| | | |
|---|---|---|
| Operation System | Solid-state CMOS circuitry | |
| Operation | Star-delta | |
| Time Range | Star side: 0.05 sec to 100 sec<br>Star delta switching time: 0.05, 0.1, 0.25, 0.5 sec | |
| Pollution Degree | 2 (IEC60664-1) | |
| Overvoltage Category | III (IEC60664-1) | |
| Rated Voltage | 100 to 240V AC (50/60Hz) | |
| Voltage Range | 85 to 264V AC (50/60Hz) | |
| Reset Voltage | Rated Voltage × 10% minimum | |
| Operating Temperature | −10 to +50°C (no freezing) | |
| Storage Temperature | −30 to +70°C (no freezing) | |
| Operating Humidity | 35 to 85% RH (no condensation) | |
| Storage Humidity | 35 to 85% RH (no condensation) | |
| Altitude | 0 to 2000m (operation)<br>0 to 3000m (transportation) | |
| Reset Time | 500 ms maximum | |
| Repeat Error | ±0.2%, ±10 ms (Note) | |
| Voltage Error | ±0.2%, ±30 ms (Note) | |
| Temperature Error | ±0.2%, ±10 ms (Note) | |
| Setting Error | ±10% maximum | |
| Insulation Resistance | 100 MΩ minimum (500V DC megger) | |
| Dielectric Strength | Between power and output terminals:<br>2000V AC, 1 minute<br>Between contacts of different poles:<br>2000V AC, 1 minute<br>Between contacts of the same pole:<br>1000V AC, 1 minute | |
| Vibration Resistance | Damage limits/operating extremes:<br>10 to 55 Hz, amplitude 0.75 mm,<br>2 hours each in 3 directions | |
| Shock Resistance | Operating extremes: 98 m/s$^2$,<br>Damage limits: 490 m/s$^2$,<br>3 shocks each in 6 directions | |
| Degree of Protection | IP40 (timer), IP20 (socket) (IEC60529) | |
| Power Consumption (approx.) | GT3S-1AF20 | GT3S-2AF20 |
| | 2.3VA (100V AC/60Hz) | 2.3VA (100V AC/60Hz) |
| | 4.0VA (200V AC/60Hz) | 3.8VA (200V AC/60Hz) |
| Dimensions | 40H × 36W × 72.2D mm | |
| Weight (approx.) | GT3S-1AF20 | GT3S-2AF20 |
| | 68g | 75g |

Note: The largest value becomes the error against a preset value depending on the time range.

## Operation Chart

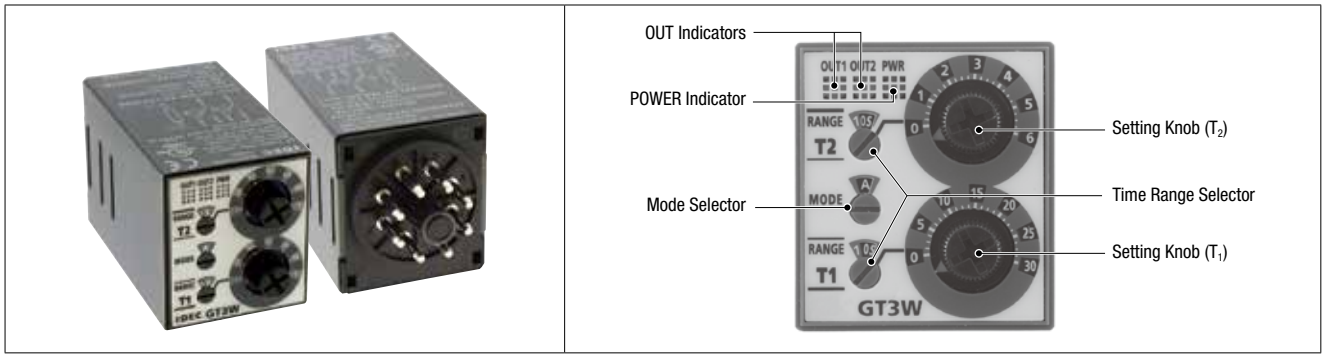
<table>
<tr><th>Contact</th><th>Internal Connection</th><th>Operation Chart</th></tr>
<tr>
<td>GT3S-1<br>Star : Delayed SPST-NO<br>Delta: Delayed SPST-NO</td>
<td> 
</td>
<td>


The star delayed contact goes on when power is turned on and goes off after a set time for the star contact ($T_1$).<br>The delta contact goes on after star-delta switching time ($T_2$) and goes off when power is turned off.<br>• $T_1$ = Star ON time (Set Time), $T_2$ = Star-delta swithing time, $T_3$ = Star ON time
</td>
</tr>
<tr>
<td>GT3S-2<br>Star : Delayed SPST-NO<br>Delta: Delayed SPST-NO<br>Instantaneous SPST-NO</td>
<td> 
</td>
<td>


• The star delayed contact goes on when power is turned on and goes off after a set time for the star contact ($T_1$).<br>The delta contact goes on after star-delta switching time ($T_2$) and goes off when power is turned off.<br>• Instantaneous contact goes on when power is turned on and goes off when power is turned off.<br>• $T_1$ = Star ON time (Set Time), $T_2$ = Star-delta swithing time, $T_3$ = Star ON time
</td>
</tr>
</table>

## GT3W-A11, -A13, -A31, A33

# Multi-range Twin-Timer with 8 operation modes




| (1) Operation Mode | Rated Voltage | Time Ranges | | Part No. |
|---|---|---|---|---|
| | | $T_1$ | $T_2$ | |
| Sequential Start<br>Coarse/Fine Adjustment<br>Instantaneous Cycle<br>Cycle<br>Cycle Inversion<br>Interval ON<br>Interval ON Delay<br>Sequential Interval | 100 to 240V AC | 0.1 sec to 6 hours | 0.1 sec to 6 hours | GT3W-A11AF20N |
| | 24V AC/24V DC | | | GT3W-A11AD24N |
| | 100 to 240V AC | | 0.1 sec to 300 hours | GT3W-A13AF20N |
| | 24V AC/24V DC | | | GT3W-A13AD24N |
| | 100 to 240V AC | 0.1 sec to 300 hours | 0.1 sec to 6 hours | GT3W-A31AF20N |
| | 24V AC/24V DC | | | GT3W-A31AD24N |
| | 100 to 240V AC | | 0.1 sec to 300 hours | GT3W-A33AF20N |
| | 24V AC/24V DC | | | GT3W-A33AD24N |

## Time Ranges

| 0.1 sec to 6 hours | | | 0.1 sec to 300 hours | | |
|---|---|---|---|---|---|
| Time Range Selector | Scale | Time Range | Time Range Selector | Scale | Time Range |
| 1S | 0 - 1 | 0.1 sec to 1 sec | 1S | 0 - 3 | 0.1 sec to 3 sec |
| 10S | | 0.3 sec to 10 sec | 1M | | 3.8 sec to 3 min |
| 10M | | 15 sec to 10 min | 1H | | 3.8 min to 3 hours |
| 1S | 0 - 6 | 0.1 sec to 6 sec | 1S | 0 - 30 | 0.6 sec to 30 sec |
| 10S | | 1.3 sec to 60 sec | 1M | | 38 sec to 30 min |
| 1M | | 7.5 sec to 1 min | 1H | | 38 min to 30 hours |
| 10M | | 75 sec to 60 min | 10H | | 6.3 hours to 300 hours |
| 1H | | 7.5 min to 6 hours | | | |

## Contact Ratings

| | | |
|---|---|---|
| Rated Load | | 240V AC, 3A (resistive load)<br>120V AC/ 30V DC, 5A (resistive load) |
| Maximum Switching Power | | AC: 960VA<br>DC: 120W |
| Maximum Switching Voltage | | 250V AC/150V DC |
| Maximum Switching Current | | 5A |
| Maximum Switching Frequency | | 600 operations/hour |
| Minimum Applicable Load | | 5V DC, 10mA (reference value) |
| External Protection Element | | Fuse 250V, 5A |
| Life | Electrical | 100,000 operations minimum (rated load) |
| | Mechanical | 20,000,000 operations minimum |

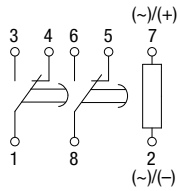
## General Specifications

| | | |
|---|---|---|
| Operation System | | Solid-state CMOS circuitry |
| Operation | | Multi-Mode |
| Time Range | | 0.1 sec to 300 hours |
| Pollution Degree | | 2 (IEC60664-1) |
| Overvoltage Category | | III (IEC60664-1) |
| Rated Range | AF20 | 100 to 240V AC (50/60Hz) |
| | AD24 | 24V AC (50/60Hz)/ 24V DC |
| Voltage Range | AF20 | 85 to 264V AC (50/60Hz) |
| | AD24 | 20.4 to 26.4V AC (50/60Hz)/21.6 to 26.4V DC |
| Reset Voltage | | Rated voltage × 10% minimum |
| Operating Temperature | | −10 to +50°C (no freezing) |
| Storage Temperature | | −30 to +70°C (no freezing) |
| Operating Humidity | | 35 to 85% RH (no condensation) |
| Storage Humidity | | 35 to 85% RH (no condensation) |
| Altitude | | 0 to 2000m (operation)<br>0 to 3000m (transportation) |
| Reset Time | | 60 ms maximum |
| Repeat Error | | ±0.2%, ±10 ms (Note) |
| Voltage Error | | ±0.2%, ±10 ms (Note) |
| Temperature Error | | ±0.6%, ±10 ms (Note) |
| Setting Error | | ±10% |
| Insulation Resistance | | 100 MΩ minimum (500V DC megger) |
| Dielectric Strength | | Between power and output terminals:<br>2000V AC, 1 minute<br>Between contacts of different poles:<br>2000V AC, 1 minute<br>Between contacts of the same pole:<br>750V AC, 1 minute |
| Vibration Resistance | | Damage limits/operating extremes:<br>10 to 55Hz, amplitude 0.75 mm,<br>2 hours each in 3 directions |
| Shock Resistance | | Operating extremes: 98 m/s$^2$<br>Damage limits: 490 v<br>3 shocks each in 6 directions |
| Degree of Protection | | IP40 (timer), IP20 (socket) (IEC60529) |
| Power Consumption (approx.) | AF20 | 2.6VA (100V AC /60Hz), 5.1VA (200V AC /60Hz) |
| | AD24 | 1.8VA (AC)/0.9W (DC) |
| Dimensions | | 40H × 36W × 70.0D mm |
| Weight (approx.) | | 73g |

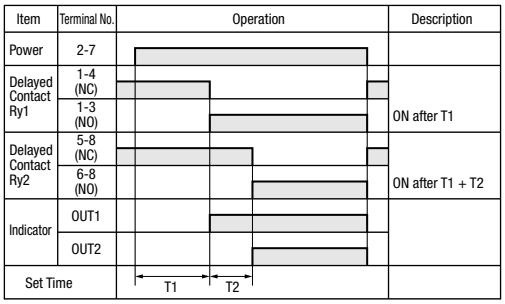
Note: The largest value becomes the error against a preset value depending on the time range.

## Operation Chart

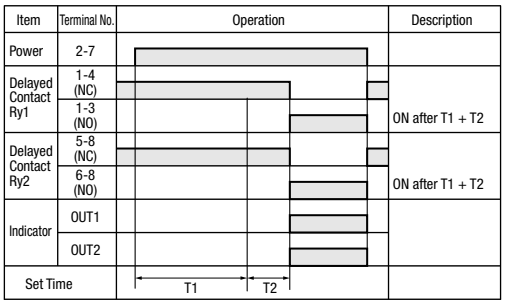
| Operation Mode Selection / Internal Connection | Operation Chart |
|---|---|
| Contact | Delayed SPDT + Delayed SPDT |



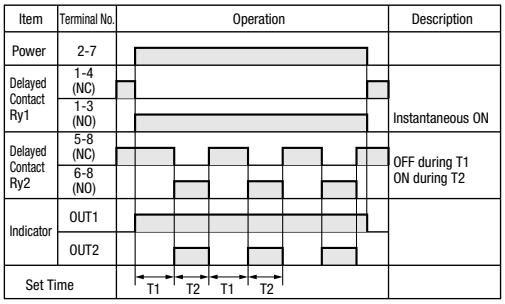

### A — Sequential Start



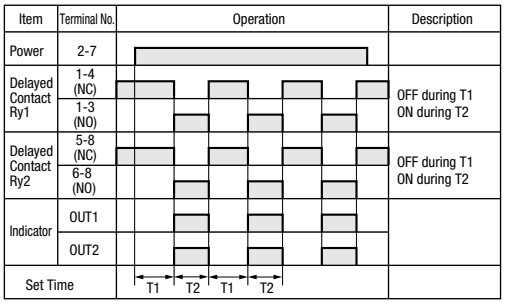

### B — Coarse/Fine Adjustment



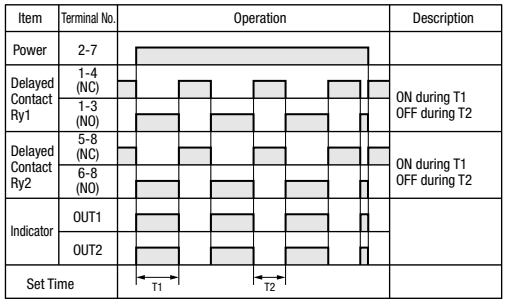

### C — Instantaneous Cycle



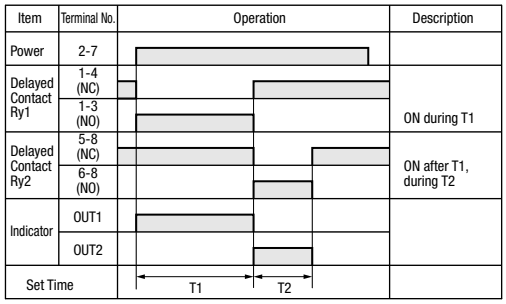

### D — Cycle



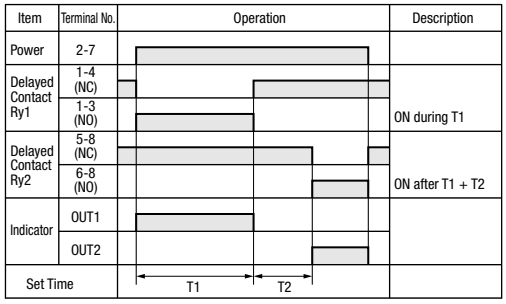

### E — Cycle Inversion



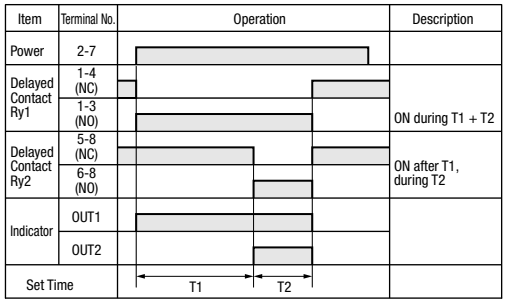

### F — Interval ON




### G — Interval ON Delay




### H — Sequential Interval



## Applicable Sockets & Hold-Down Springs (Optional)

### DIN Rail Mount Socket

| Item | | Part No. | Ordering No. | Applicable Timer | Package Quantity | Remarks |
|---|---|---|---|---|---|---|
| Socket | 8-Pin Screw Terminal | **SR2P-06B** | SR2P-06B | GT3A-1/2/3, GT3F, GT3S, GT3W | 1 | Hold-down spring: SFA-202 (2 pcs.) |
| | 11-Pin Screw Terminal | **SR3P-05B** | SR3P-05B | GT3A-4/5/6 | 1 | Hold-down spring: SFA-203 (2 pcs.) |
| | | **SR3P-06B** | SR3P-06B | | 1 | Hold-down spring: SFA-202 (2 pcs.) |
| | | **SR3P-05C** | SR3P-05C | | 1 | Finger-safe |
| Hold-Down Spring | | **SFA-202** | SFA-202PN20 | — | 10 sets (20 pcs) | For SR2P-06A/SR3P-06A (2 pcs/set) |
| | | **SFA-203** | SFA-203PN20 | — | 10 sets (20 pcs) | For SR3P-05A (2 pcs/set) |

Note: All are UL recognized, CSA certified, and TÜV approved.

SR2P-06B

SR3P-05B

SR3P-06B

SFA-202 (2 pcs/set)

SFA-203 (2 pcs/set)

### Panel Mount Socket

| Item | | Part No. | Ordering No. | Applicable Timer | Package Quantity | Remarks |
|---|---|---|---|---|---|---|
| Socket | 8-Pin Solder Terminal | **SR2P-511** | SR2P-511 | GT3A-1/2/3, GT3F, GT3S, GT3W | 1 | — |
| | 11-Pin Solder Terminal | **SR3P-511** | SR3P-511 | GT3A-4/5/6 | 1 | — |
| Hold-Down Spring | | **SFA-402** | SFA-402PN10 | — | 10 | For SR2P-511/SR3P-511 |

Note: SR2P-511 and SR3P-511 are UL recognized and CSA certified.

SR2P-511

SR3P-511

SFA-402

### Panel Mount Adapter and wiring Socket Adapter

Package Quantity: 1

| Item | | Part No. |
|---|---|---|
| DIN 48mm Square Panel Mount Adapter  | Color: Gray | RTB-G01 |
| | Color: Beige | RTB-M01 |
| | Color: Black | RTB-B01 |
| Wiring Socket Adapter | 8-Pin Solder Terminal | SR6P-S08 |
| | 8-Pin Screw Terminal | SR6P-M08G |
| | 11-Pin Solder Terminal | SR6P-S11 |
| | 11-Pin Screw Terminal | SR6P-M11G |

- Finger-safe 11-pin screw wiring socket adapter (Part No.: SR6P-C11) is also available.

(8-pin Wiring Socket Adapter)
SR6P-S08

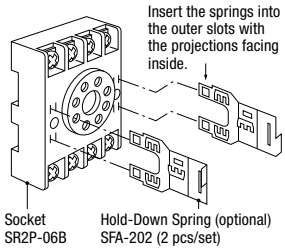
(11-pin Wiring Socket Adapter)
SR6P-S11

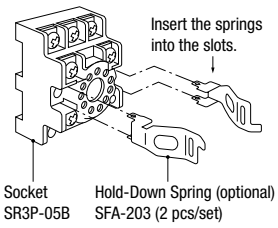
(8-pin Screw Wiring Socket Adapter)
SR6P-M08G

(11-pin Screw Wiring Socket Adapter)
SR6P-M11G

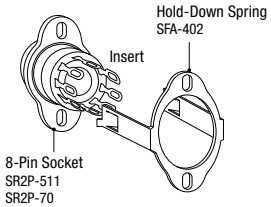
### Installation of Hold-Down Springs

(DIN Rail Mount Socket)




(Panel Mount Socket)




Note: Once installed into the socket, the hold-down springs cannot be removed.

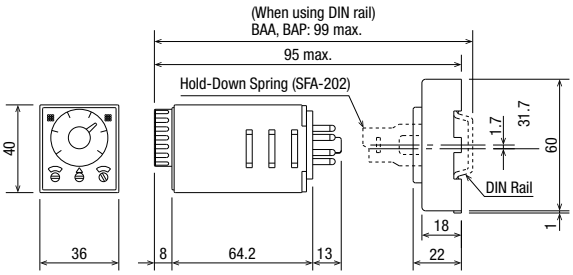
## Dimensions

All dimensions in mm.

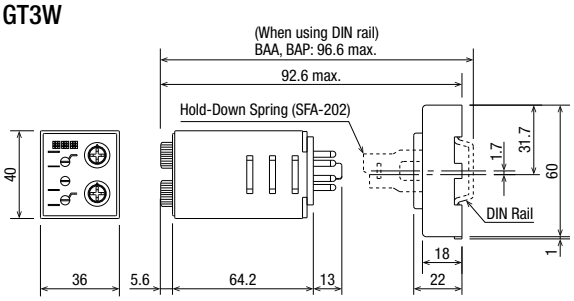
### When Using DIN Rail Mount Socket

#### GT3A-1, -2, -3/GT3F/GT3S (8-pin)

(SR2P-06B Socket)



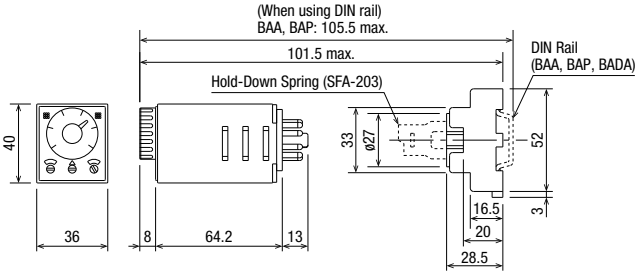

#### GT3W



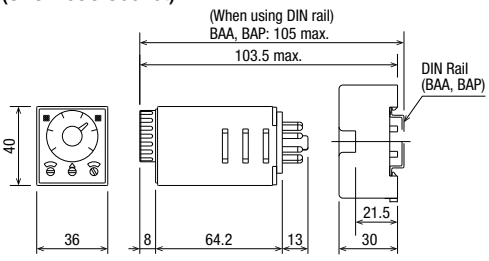

- Calculate the dimensions for mounting, referring to the diagrams of SR2P-06A on Relay Sockets catalog.

#### GT3A-4, -5, -6 (11-pin)

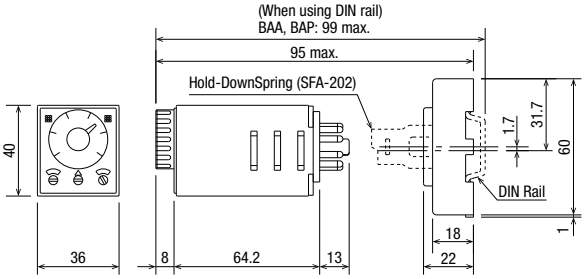
(SR3P-05B Socket)




(SR3P-05C Socket)

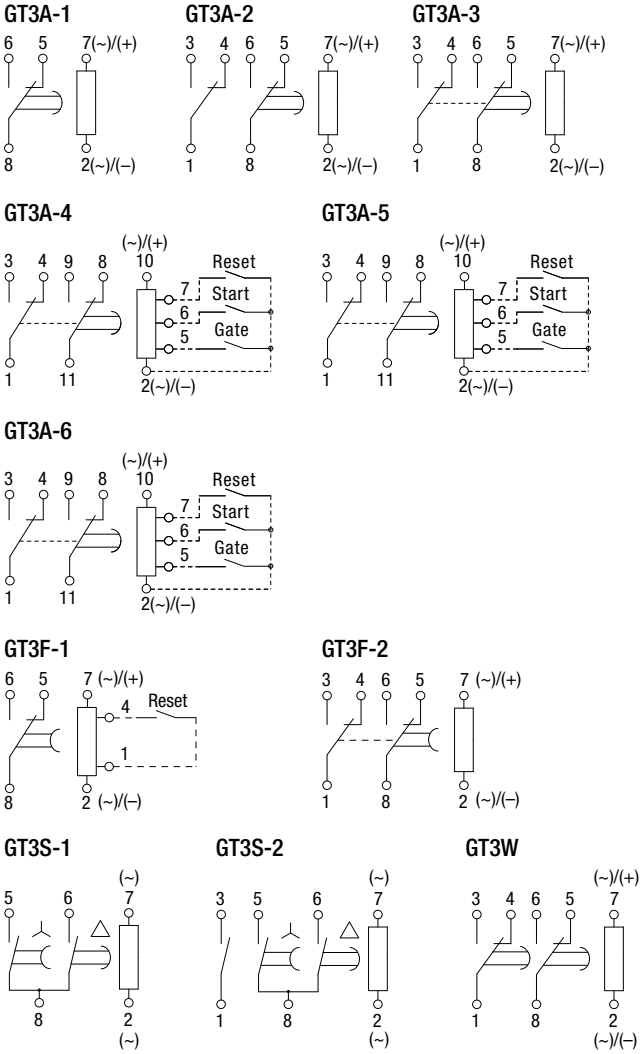



(SR3P-06B Socket)




- Calculate the dimensions for mounting, referring to the diagrams in Relay Sockets catalog for SR3P-05A, SR3P-05C, and SR3P-06A.

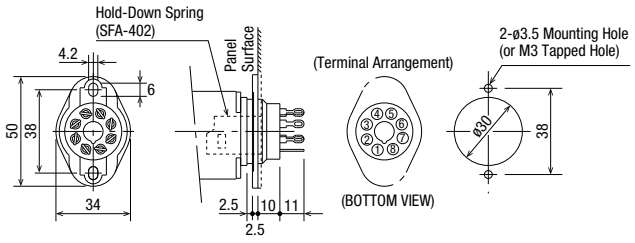
### [Internal Connections]




### When Using Panel Mount Socket

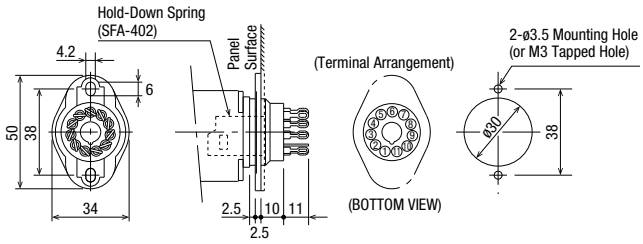
#### GT3A-1, -2, -3/GT3F/GT3S/GT3W (8-pin)

(SR2P-511 Socket)




#### GT3A-4, -5, -6

(SR3P-511 Socket)



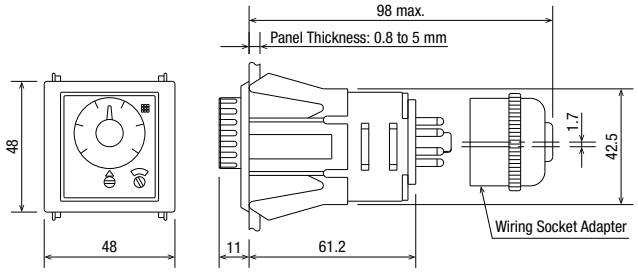
## Dimensions

All dimensions in mm.

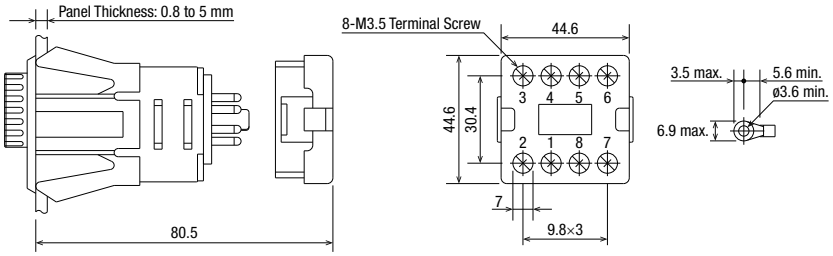
### All GT3 Series

**When using DIN 48mm-square Panel Mount Adapter**

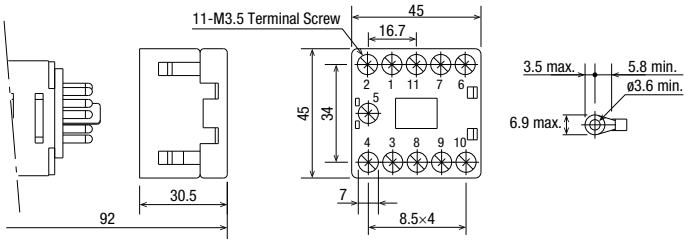
(For 8-pin solder wiring socket adapter: SR6P-S08 and 11-pin solder wiring socket adapter: SR6P-S11)



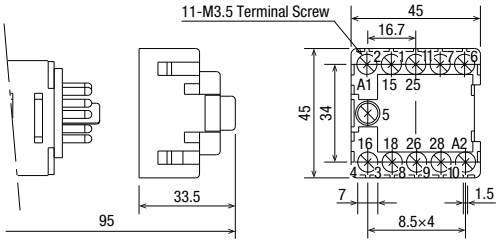

(8-pin Screw Terminal Wiring Socket Adapter: SR6P-M08G)




(11-pin Screw Terminal Wiring Socket Adapter: SR6P-M11G)

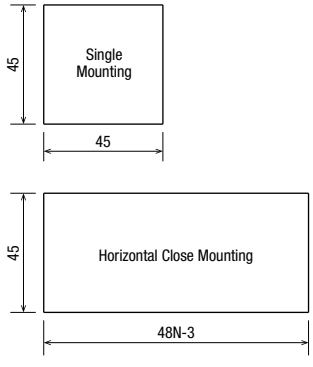



(Finger-safe 11-pin Screw Terminal Wiring Socket Adapter: SR6P-C11)




Finger-safe structure complies with VDE 0106 T.100.

(Mounting Hole Layout)




Tolerance: +0.5 to 0
N: No. of timers mounted

## ⚠ Safety Precautions

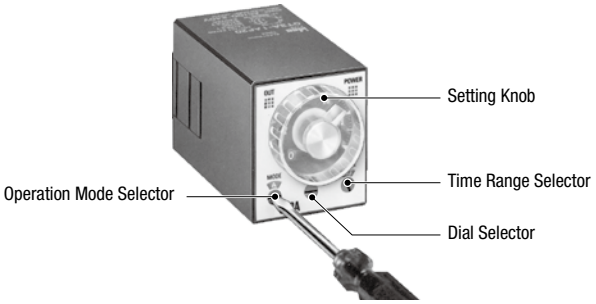
- Be sure to turn off power before mounting, removal, wiring, maintenance and inspection. Otherwise, electric shock or fire may occur.
- Be sure to use timers within rated specification values. Otherwise electric shock or fire may occur.
- Be sure to use wires to meet voltage and current requirements and tighten M3.5 terminal screws to a torque of 1.0 to 1.3 N·m. Be sure to solder the terminals correctly. Loose terminal screws or incomplete soldering may cause abnormal heat and fire.

## Instructions

### Mode Setting

**GT3A only**

The operation mode can be selected from A, B, C, and D modes using the Operation Mode Selector. The operation mode is changed from A to B, C, and D in turn by turning the Operation Mode Selector clockwise using a flat screwdriver 4 mm wide maximum and the selected mode is displayed in the window. Since this selector does not turn infinitely, turn the selector clockwise when Mode A is displayed and counterclockwise when Mode D is displayed.




**Mode Code and Operation Mode**

| Part No. / MODE Code | GT3A-1, -2, -3 | GT3A-4 | GT3A-5 | GT3A-6 |
|---|---|---|---|---|
| A | ON Delay | ON Delay | Interval ON | One-Shot |
| B | Interval ON | Cycle | One Shot Cycle | One-Shot ON Delay |
| C | Cycle | Signal ON/OFF Delay | Signal ON/OFF Delay | One-Shot |
| D | Cycle ON | Signal OFF Delay | Signal OFF Delay | Signal ON/OFF Delay |

### Time Range Setting

The time range is calibrated at its maximum time scale, therefore, it is desirable to use the timer at a setting as close to its maximum time scale as possible for accurate time delay. For a more accurate time delay, adjust the setting knob by measuring the operating time before application.

**1. GT3A (Multi-Mode Analog Setting)**

Time range can be selected from 1S, 10S, 10M, and 10H by turning the Time Range Selector with a flat screwdriver 4 mm wide maximum. The four different ranges of 0 to 1, 0 to 3, 0 to 6, and 0 to 18 are displayed in the six windows by turning the Dial Selector, allowing for selecting the best suited scale. Since the selectors do not turn infinitely, turn the selectors clockwise when 1S or 0-1 is displayed and counterclockwise when 10H or 0-18 is displayed.

**Time Range Determined by Time Range Selector and Dial Selector**

| Dial Selector / Time Range | 0 - 1 | 0 - 3 | 0 - 6 | 0 - 18 |
|---|---|---|---|---|
| 1S | 0.1 sec to 1 sec | 0.1 sec to 3 sec | 0.1 sec to 6 sec | 0.2 sec to 18 sec |
| 10S | 0.1 sec to 10 sec | 0.3 sec to 30 sec | 0.6 sec to 60 sec | 1.8 sec to 180 sec |
| 10M | 6 sec to 10 min | 18 sec to 30 min | 36 sec to 60 min | 108 sec to 180 min |
| 10H | 6 min to 10 hours | 18 min to 30 hours | 36 min to 60 hours | 108 min to 180 hours |

The set time is selected by turning the setting knob.

[Setting Examples]

- When the setting knob is set at 1.5, with dial 0-3 and time range 10S selected, then the set time is 15 sec (1.5 × 10S).
- When the setting knob is set at 0.2, with dial 0-1 and time range 10H selected, then the set time is 2 hours (0.2 × 10H).

**2. GT3F (OFF Delay)**

The time range of GT3F-1 and GT3F-2 can be selected between 1S and 10S with the Time Range Selector by using a flat screw driver. The selected time range (0-1, 0-3, 0-18, or 0-60) is displayed in the six windows of the Setting Knob by turning Dial Selector which allows to set the scale. Note that the switches do not turn infinitely.

**Time Range Determined by Time Range Selector and Dial Selector**

| (1) Dial / (2) Range | 0 – 1 | 0 – 3 | 0 – 18 | 0 – 60 |
|---|---|---|---|---|
| 1S | 0.1 sec to 1 sec | 0.1 sec to 3 sec | 0.2 sec to 18 sec | 0.6 sec to 60 sec |
| 10S | 0.1 sec to 10 sec | 0.3 sec to 30 sec | 1.8 sec to 180 sec | 6 sec to 600 sec |

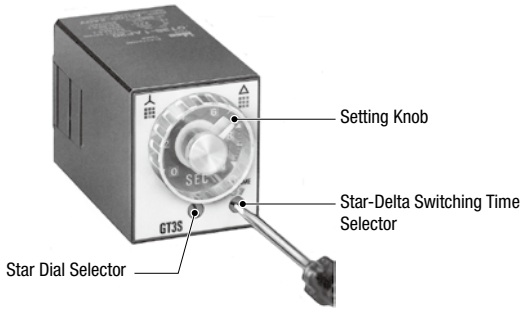
The set time is selected by turning the Setting Knob.

[Setting Examples]

- When the setting knob is set at 2.5, with dial 0-3 and range 1S selected, then the set time is 2.5 sec (2.5 × 1S).
- When the setting knob is set at 15, with dial 0-18 and range 10S selected, then the set time is 150 sec (15 × 10S).

## Instructions

### 3. GT3S (Star-Delta)




The scale range on the star side can be selected from four different ranges of 0 to 5, 0 to 10, 0 to 50, and 0 to 100 displayed in the six windows by turning the Star Dial Selector. Note that the selectors does not turn infinitely.

**Time Range Determined by Time Range Selector and Dial Selector**

| Star Dial Selector | | Star-Delta Switching Time Selector | |
|---|---|---|---|
| Dial | Time Range | Indication | Time |
| 0 – 5 | 0.05 sec – 5 sec | 0.05 | 0.05 sec |
| 0 – 10 | 0.1 sec – 10 sec | 0.1 | 0.1 sec |
| 0 – 50 | 0.3 sec – 50 sec | 0.25 | 0.25 sec |
| 0 – 100 | 1 sec – 100 sec | 0.5 | 0.5 sec |

The Star ON time is selected by turning the Setting Knob.

[Setting Examples]

- If the setting knob is set at 8, with Star Dial Selector 0-10 and Star-Delta switching time 0.1S selected, the Star ON time ($T_1$) is 8 sec and the Star-Delta switching time ($T_2$) is 0.1 sec.

### 4. GT3W [Twin-Timer]

Use a flat screwdriver with a diameter of 4 mm maximum to turn Time Range Selector and gain time range as shown in the table below. Note that the selectors do not turn infinitely.

**Time Range Determined by Time Range Selector and Dial Selector**

| 0.1 sec to 6 hours | | | 0.1 sec to 300 hours | | |
|---|---|---|---|---|---|
| Time Range Selector | Scale | Time Range | Time Range Selector | Scale | Time Range |
| 1S | 0 – 1 | 0.1 sec to 1 sec | 1S | 0 – 3 | 0.1 sec to 3 sec |
| 10S | | 0.3 sec to 10 sec | 1M | | 3.8 sec to 3 min |
| 10M | | 15 sec to 10 min | 1H | | 3.8 min to 3 hours |
| 1S | 0 – 6 | 0.1 sec to 6 sec | 1S | 0 – 30 | 0.6 sec to 30 sec |
| 10S | | 1.3 sec to 60 sec | 1M | | 38 sec to 30 min |
| 1M | | 7.5 sec to 1 min | 1H | | 38 min to 30 hours |
| 10M | | 75 sec to 60 min | 10H | | 6.3 hours to 300 hours |
| 1H | | 7.5 min to 6 hours | | | |

Note: No blank time range can be set.

## Selector Setting

- Use a flat screwdriver with a diameter of 4 mm maximum to turn the selector. Turn the selector until it clicks. Otherwise, malfunction may occur. Also, do not rotate the selector forcibly since the selector does not turn infinitely.
- Since changing the setting during operation may cause malfunction, turn power off before changing the setting.

## Power

- Since DC types have a polarity in their power supply connection, connect the power according to wiring diagram.
- Since AC type GT3A, GT3S, and GT3W comprise a capacitive load, the SSR dielectric strength should be two or more times as large as the power voltage when switching the timer power using an SSR.

## Wiring

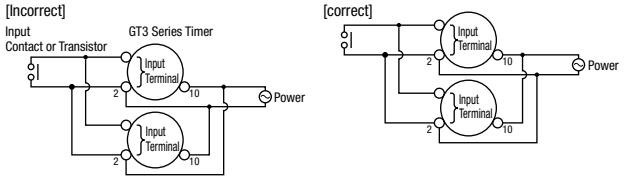
The GT3F, consisting of a high-impedance circuit, may not be reset due to the influence of an inductive voltage or residual voltage caused by a leakage current. In not reset, connect an RC filter or bleeder resistor between power terminals so that the voltage between power terminals can be reduced to less than 15% of the rated voltage.

## Instructions

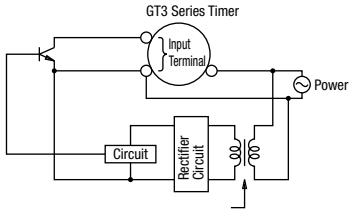
### Inputs of GT3A and GT3F

To avoid electric shock, do not touch the input signal terminal during power voltage application.

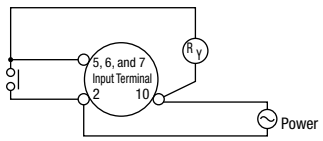
- When connecting the input signal terminals of two or more GT3A timers to the same contact or transistor, the input terminals of the same number should be connected. (Connect Terminals No. 2 in common.)
- Never apply the input signals to two or more GT3F timers using the same contact or transistor.



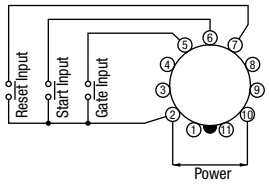

- In a transistor circuit for controlling input signals with its primary and secondary power circuits isolated, do not ground the secondary circuit.



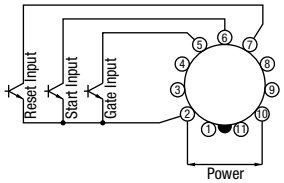

- Do not connect input signal terminals of the GT3A timer to other terminals than No. 2. Never apply voltage to input signal terminals. Otherwise, the internal circuit may be damaged.




- Do not connect input signal terminals of the GT3F timer to other terminals than No. 2. Never apply voltage to input signal terminals. Otherwise, the internal circuit may be damaged.
- Input signal lines must be made as short as possible and installed away from power cables and power lines. Shielded wires or a separate conduit should be used for input wiring.
- For contact input, use reliable gold-plated contacts to make sure that the residual voltage is less than 1V when the contacts are closed.

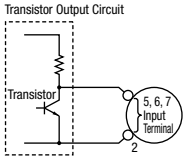



- For transistor input, use transistors with following specifications; $V_{CE}$ = 40V, $V_{CES}$ = 1V or less, $I_C$ = 50mA or more, $I_{CBO}$ = 50µA or less. The resistance should be less than 1kΩ when the transistor is on. When the output transistor switches on, a signal is inputted to the timer.




#### GT3A

Transistor output equipment such as proximity switches and photoelectric switches can input signals if they are voltage/current output type, power voltage ranges from 18 to 30V, and residual voltage is 1V. When the signal voltage switches from H to L, a signal is inputted to the timer.




#### GT3F

Do not input signals using transistor output equipment of a voltage/current output type. Otherwise, the internal circuit may be damaged.

### Minimum Power Application Time

If the power application time to the GT3F is shorter than the minimum power application time, the output relay may not operate or the timer may operate faster than the preset time.

### Time Range Setting

Repeat error is calibrated at its maximum time scale, therefore, it is desirable to use the timer at a setting as close to its maximum time scale as possible for accurate time delay. For a more accurate time delay, adjust the setting knob by measuring the operating time before application.

### Time Accuracy

#### Repeat Error

This indicates variance of operation time when operation is repeated under the same conditions. The variance is calculated from the following formula and the measurements should be done 5 times at least.

$$= \pm \frac{1}{2} \times \frac{\text{Max. measured value} - \text{Min. measured value}}{\text{Maximum scale value}} \times 100\ (\%)$$

#### Voltage Error

This indicates the variance of operation time when the voltage at operation current varies within allowable voltage variance.

$$= \pm \frac{Tv - Tr}{Tr} \times 100\ (\%)$$

Tv: Average of measured operation time values at voltage V
Tr: Average of measured operation time values at the raged voltage

#### Temperature Error

This indicates the influence caused by the change in temperature during operation within operating temperature. This is shown with the variance of operation time.

$$= \pm \frac{Tv - Tr}{Tr} \times 100\ (\%)$$

Tv: Average of measured operation time values at voltage V
Tr: Average of measured operation time values at the raged voltage

#### Setting Error

This indicates the deviation, range, and gap between actual operation time and that on scale.

$$= \pm \frac{\text{Average of measured values} - \text{Set value}}{\text{Maximum scale value}} \times 100\ (\%)$$

Ex.)
GT3 setting error: ±10%
When the maximum scale value is 10 sec. and setting time is 1 to 3 sec., the setting error ia ±1 sec. and operating time is 1 to 3 sec. When setting a value near the lower limit, be sure to confirm the actual operating time.

## Instructions

### Load Current

The rated current of the contact (or control output) should not be exceeded. Especially for inductive, capacitive, and incandescent lamp loads, the inrush current as large as a few to several tens times the rated current may cause welded contacts and other troubles. The amount of inrush current as well as steady-state current must be taken into consideration.

### Contact Protection

Switching an inductive load generates a counter-electromotive force in the coil. The counter emf will cause arcing, which may shorten the contact life. Application of a protection circuit is recommended for contact protection.

### Rest Time

When turning power off after time-out or during operation, allow a rest time longer than the reset time to restart. (Each model has a different reset time.)

### Continuous Energizing

Continuous energizing for a long period of time may damage the electrical characteristics of the timer because of internal heating. Use an additional relay to the output circuit and refrain from continuous energizing of the timer.

### Dielectric Strength Test

When performing an insulation resistance or dielectric-strength test on control panels containing timers, make sure that the dielectric strength of the timer is not exceeded. In case the dielectric strength is exceeded, remove the timers from the panels.

### Operating Environment

**Temperature and Humidity**

Use the timer within the operating temperature and operating humidity ranges and prevent freezing and condensation. After storing below the operation temperature, leave the timer at room temperature for a sufficient period of time before use.

**Environment**

Prevent a corrosive gas such as sulfurous or ammonia gas, organic solvents (alcohol, benzine, thinner, etc.), strong alkaline substances or strong acids from touching to the timer, and do not use the timer in such an environment. Keep the timer from water splashes or steam.

**Vibration and Shock**

Since excessive vibrations or shocks cause the output contacts to open, the timer should be used within the operating extremes of vibration and shock resistance. Use of hold-down springs is recommended for secure mounting on sockets.

**Noise and Static Charge**

Check the operation of the timer before using in an environment with a lot of noise. Install the input signal source, input signal wiring and timer away from noise source and high-voltage wire with noise as much as possible. Also, in case of using the timer under the environment with multiple static charge (pipe transportation of molding material, power/liquid material, etc.), place the timer away from such static charge source as well.

### Others

- The GT3F does not read the preset values of each selector after power is turned off. Note that minimizing the preset time does not shorten the delay time after power is turned off.
- To make a sequence circuit by connecting timers and relays, check the timer operation sufficiently in consideration of the reset time of the timer.
- Storage temperature should range from -30°C to +70°C. If the product has been stored at a temperature below -10°C, leave the product at room temperatures for more than 3 hours before using.
- Do not remove the housing.
- In the GT3F timers, latching relay is used for output relay. Shocks such as dropping during transportation or handling may cause the output to be different from the initial value. Be sure to check the output status using a tester.
  Check the output status with a tester. If it is not in the initial state, turn the power on/off and reset the set time.

# Ordering Terms and Conditions

Thank you for using IDEC Products.

By purchasing products listed in our catalogs, datasheets, and the like (hereinafter referred to as "Catalogs") you agree to be bound by these terms and conditions. Please read and agree to the terms and conditions before placing your order.

## 1. Notes on contents of Catalogs

(1) Rated values, performance values, and specification values of IDEC products listed in this Catalog are values acquired under respective conditions in independent testing, and do not guarantee values gained in combined conditions.
Also, durability varies depending on the usage environment and usage conditions.

(2) Reference data and reference values listed in Catalogs are for reference purposes only, and do not guarantee that the product will always operate appropriately in that range.

(3) The specifications / appearance and accessories of IDEC products listed in Catalogs are subject to change or termination of sales without notice, for improvement or other reasons.

(4) The content of Catalogs is subject to change without notice.

## 2. Note on applications

(1) If using IDEC products in combination with other products, confirm the applicable laws / regulations and standards.
Also, confirm that IDEC products are compatible with your systems, machines, devices, and the like by using under the actual conditions. IDEC shall bear no liability whatsoever regarding the compatibility with IDEC products.

(2) The usage examples and application examples listed in Catalogs are for reference purposes only. Therefore, when introducing a product, confirm the performance and safety of the instruments, devices, and the like before use. Furthermore, regarding these examples, IDEC does not grant license to use IDEC products to you, and IDEC offers no warranties regarding the ownership of intellectual property rights or non-infringement upon the intellectual property rights of third parties.

(3) When using IDEC products, be cautious when implementing the following.

i. Use of IDEC products with sufficient allowance for rating and performance

ii. Safety design, including redundant design and malfunction prevention design that prevents other danger and damage even in the event that an IDEC product fails

iii. Wiring and installation that ensures the IDEC product used in your system, machine, device, or the like can perform and function according to its specifications

(4) Continuing to use an IDEC product even after the performance has deteriorated can result in abnormal heat, smoke, fires, and the like due to insulation deterioration or the like. Perform periodic maintenance for IDEC products and the systems, machines, devices, and the like in which they are used.

(5) IDEC products are developed and manufactured as general-purpose products for general industrial products. They are not intended for use in the following applications, and in the event that you use an IDEC product for these applications, unless otherwise agreed upon between you and IDEC, IDEC shall provide no guarantees whatsoever regarding IDEC products.

i. Use in applications that require a high degree of safety, including nuclear power control equipment, transportation equipment (railroads / airplanes / ships / vehicles / vehicle instruments, etc.), equipment for use in outer space, elevating equipment, medical instruments, safety devices, or any other equipment, instruments, or the like that could endanger life or human health

ii. Use in applications that require a high degree of reliability, such as provision systems for gas / waterworks / electricity, etc., systems that operate continuously for 24 hours, and settlement systems

iii. Use in applications where the product may be handled or used deviating from the specifications or conditions / environment listed in the Catalogs, such as equipment used outdoors or applications in environments subject to chemical pollution or electromagnetic interference
If you would like to use IDEC products in the above applications, be sure to consult with an IDEC sales representative.

## 3. Inspections

We ask that you implement inspections for IDEC products you purchase without delay, as well as thoroughly keep in mind management/maintenance regarding handling of the product before and during the inspection.

## 4. Warranty

(1) Warranty period

The warranty period for IDEC products shall be one (1) year after purchase or delivery to the specified location. However, this shall not apply in cases where there is a different specification in the Catalogs or there is another agreement in place between you and IDEC.

(2) Warranty scope

Should a failure occur in an IDEC product during the above warranty period for reasons attributable to IDEC, then IDEC shall replace or repair that product, free of charge, at the purchase location / delivery location of the product, or an IDEC service base. However, failures caused by the following reasons shall be deemed outside the scope of this warranty.

i. The product was handled or used deviating from the conditions / environment listed in the Catalogs

ii. The failure was caused by reasons other than an IDEC product

iii. Modification or repair was performed by a party other than IDEC

iv. The failure was caused by a software program of a party other than IDEC

v. The product was used outside of its original purpose

vi. Replacement of maintenance parts, installation of accessories, or the like was not performed properly in accordance with the user's manual and Catalogs

vii. The failure could not have been predicted with the scientific and technical standards at the time when the product was shipped from IDEC

viii. The failure was due to other causes not attributable to IDEC (including cases of force majeure such as natural disasters and other disasters)

Furthermore, the warranty described here refers to a warranty on the IDEC product as a unit, and damages induced by the failure of an IDEC product are excluded from this warranty.

## 5. Limitation of liability

The warranty listed in this Agreement is the full and complete warranty for IDEC products, and IDEC shall bear no liability whatsoever regarding special damages, indirect damages, incidental damages, or passive damages that occurred due to an IDEC product.

## 6. Service scope

The prices of IDEC products do not include the cost of services, such as dispatching technicians. Therefore, separate fees are required in the following cases.

(1) Instructions for installation / adjustment and accompaniment at test operation (including creating application software and testing operation, etc.)

(2) Maintenance inspections, adjustments, and repairs

(3) Technical instructions and technical training

(4) Product tests or inspections specified by you

The above content assumes transactions and usage within your region. Please consult with an IDEC sales representative regarding transactions and usage outside of your region. Also, IDEC provides no guarantees whatsoever regarding IDEC products sold outside your region.


# IDEC CORPORATION

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