

184 986 → 185-061

03 061

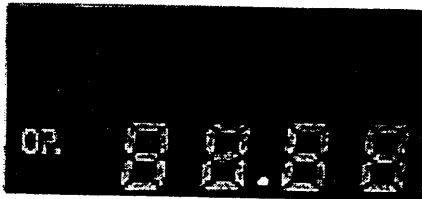
NAIS Matsushita
Automation
Controls



NAIS is the worldwide brand name of automation products.

Bright and Easy-to-Read Display

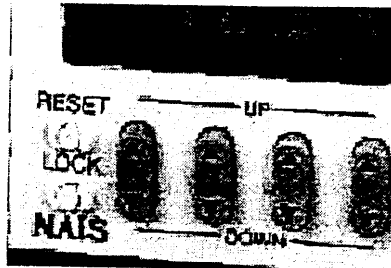
A brand new bright 2-color back light LCD display. The easy-to-read screen in any location makes checking and setting procedures a cinch.



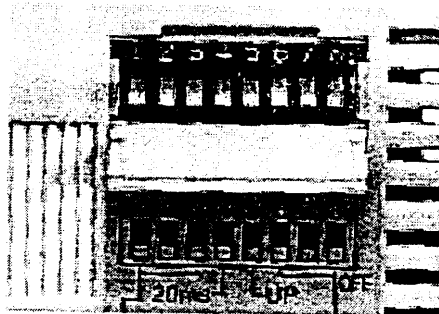
Simple Operation

Seesaw buttons make operating the unit even easier than before.

- Set the time at the front panel.

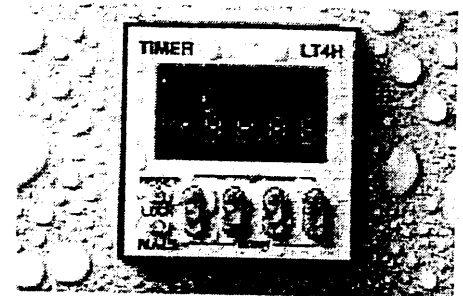


- Set the operation mode and time range at the DIP switches on the side panel.



Conforms to IP66's Weather Resistant Standards

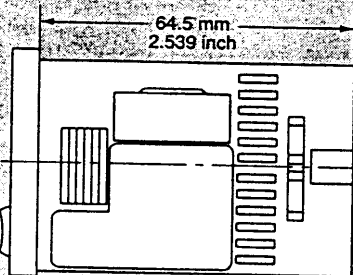
The water-proof panel keeps out water and dirt for reliable operation even in poor environments.



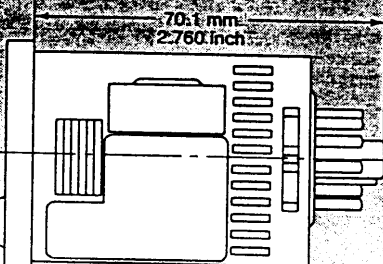
Short Body and Compact Size

With a short body of only 64.5 mm 2.539 inch (screw-down terminal type) or 70.1 mm 2.760 inch (pin type), it is easy to install in even narrow control panels.

- Screw-down terminal type



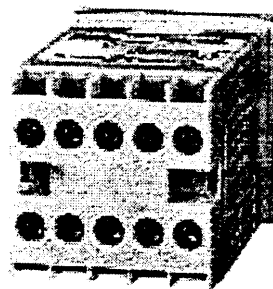
- Pin type



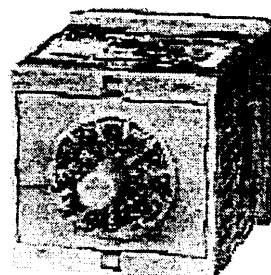
Screw terminal and Pin Type are Both Standard Options

The two terminal types are standard options to support either front panel installation or embedded installation.

- Screw terminal type

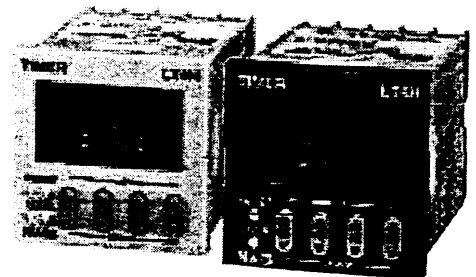


- Pin type



Changeable Panel Cover

Also offers a black panel cover to meet your design considerations.



Meets CE Requirements

Conforms with EMC directives (EN50081-2/EN50082-2) and low-voltage directives (VDE0435/Part 2021) for CE certification vital for use in Europe.

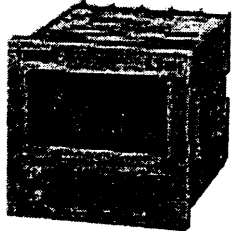
Low Price

All this at an affordable price to provide you with unmatched cost performance.

NAIS

DIN 48 SIZE DIGITAL TIMER

*Compact, Easy-to-read, Easy-to-use...
A digital timer made to meet the market's needs.*



Pin type



Screw terminal type

Features

- 1. Bright and Easy-to-Read Display**
A brand new bright 2-color back light LCD display. The easy-to-read screen in any location makes checking and setting procedures a cinch.
- 2. Simple Operation**
Seesaw buttons make operating the unit even easier than before.
- 3. Short Body of only 64.5 mm 2.539 inch (screw terminal type) or 70.1 mm 2.760 inch (pin type)**
With a short body, it is easy to install in even narrow control panels.
- 4. Conforms to IP66's Weather Resistant Standards**
The water-proof panel keeps out water and dirt for reliable operation even in poor environments.

5. Screw terminal and Pin Type are Both Standard Options

The two terminal types are standard options to support either front panel installation or embedded installation.

6. Changeable Panel Cover

Also offers a black panel cover to meet your design considerations.

7. Conforms With EMC and Low Voltage Directives

Conforms with EMC directives (EN50081-2/EN50082-2) and low-voltage directives (VDE0435/Part 2021) for CE certification vital for use in Europe.

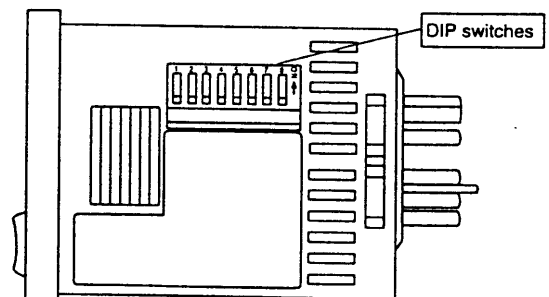
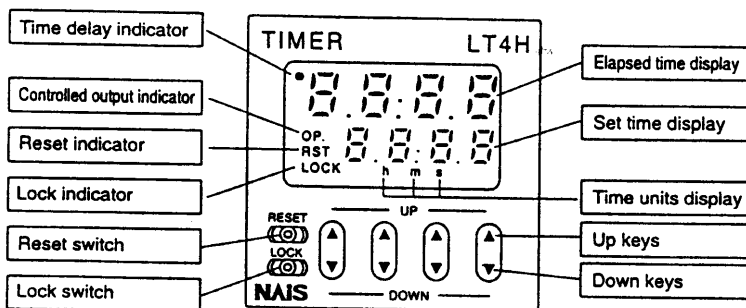
8. Low Price

All this at an affordable price to provide you with unmatched cost performance.

Product types

| Time range | Operation mode | Output | Operation voltage | Power down insurance | Terminal | Part No. |
|--|---|---------------------|-------------------|----------------------|----------|---------------|
| 9.999 s (0.001 s-) 99.99 s (0.01 s-) 999.9 s (0.1 s-) 9999 s (1 s-) 99 m 59 s (1 s-) 999.9 min (0.1 m-) 99 h 59 min (1 m-) 999.9 h (0.1 h-) | Power ON delay (1) Power ON delay (2) Signal ON delay Signal OFF delay Pulse One-shot Pulse ON-delay Signal Flicker Totalizing ON-delay (8 modes) | Relay (1 c) | 100-240 V AC | Available | 11 pin | LT4H-AC240V |
| | | | 12-24 V DC | | Screw | LT4H-AC240VS |
| | | | 100-240 V AC | | 11 pin | LT4H-DC24V |
| | | | 12-24 V DC | | Screw | LT4H-DC24VS |
| | | Transistor (1 a) | 100-240 V AC | | 11 pin | LT4HT-AC240V |
| | | | 12-24 V DC | | Screw | LT4HT-AC240VS |
| | | | | | 11 pin | LT4HT-DC24V |
| | | | | | Screw | LT4HT-DC24VS |

Part names



(Same for screw terminal type)

Specifications

| Item | Relay output type | | Transistor output type | |
|------------------------------|--|---|---|---|
| | AC type | DC type | AC type | DC type |
| Operating voltage | 100 to 240 V AC | 12 to 24 V DC | 100 to 240 V AC | 12 to 24 V DC |
| Frequency | 50/60 Hz common | — | 50/60 Hz common | — |
| Power consumption | Max. 10 V A | Max. 3 W | Max. 10 V A | Max. 3 W |
| Control capacity (resistive) | 3 A, 250 V AC | | 100 mA, 30 V DC | |
| Time range | 9.999 s, 99.99 s, 999.9 s, 9999 s, 99 min 59 s, 999.9 min, 99 h 59 min, 999.9 h (selected by DIP switch) | | | |
| Time counting direction | Addition (UP)/Subtraction (DOWN) (2 directions selectable by DIP switch) | | | |
| Operation mode | A (Power ON delay), A2 (Power ON delay), B (Signal ON delay), C (Signal OFF delay), D (Pulse one-shot), E (Self-hold), F (Flicker), G (Totalizing) (Selectable by DIP switch) | | | |
| Signal, Reset, Stop input | Min. input signal width: 1 ms, 20 ms (2 directions by selected by DIP switch) | | | |
| Lock input | Min. input signal width: 20 ms | | | |
| Input signal | Open collector input Input impedance: Max. 1 kΩ; Residual voltage: Max. 2 V Open impedance: 100kΩ or less, Max. energized voltage: 40V DC | | | |
| Indication | 7-segment LCD, Elapsed value (backlight red LED), Setting value (backlight yellow LED) | | | |
| Power failure memory method | EEP-ROM (Min. 10 ⁵ overwriting) | | | |
| Time accuracy (max.) | Operating time fluctuation | ± (0.005 % + 50 ms) in case of power on start ± (0.005 % + 20 ms) in case of reset or input signal start (at fixed power off time) | | |
| | Temperature error | | | |
| | Voltage error | | | |
| | Setting error | | | |
| | Power off time change error | | | |
| Contact | Contact arrangement | Timed-out 1 Form C | Timed-out 1 Form A (Open collector) | |
| | Initial contact resistance | 100 mΩ (at 1 A 6 V DC) | — | |
| | Contact material | Ag alloy/Au flash | — | |
| Life | Mechanical | 2.0 × 10 ⁷ ope. (Except for switch operation parts) | | — |
| | Electrical | 1.0 × 10 ⁶ ope. (At rated control voltage) | | 1.0 × 10 ⁷ ope. (At rated control voltage) |
| Electrical | Operating voltage range | 85 to 110 % of rated operating voltage | | |
| | Initial breakdown voltage | 2,000 Vrms for 1 min: Between live and dead metal parts 2,000 Vrms for 1 min: Between input and output 1,000 Vrms for 1 min: Between contacts | 2,000 Vrms for 1 min: Between live and dead metal parts 2,000 Vrms for 1 min: Between input and output | |
| | Initial insulation resistance (At 500 V DC) | Min. 100 MΩ: Between live and dead metal parts Between input and output Between contacts | Min. 100 MΩ: Between live and dead metal parts Between input and output | |
| | Operating voltage reset time | Max. 0.5 s | | |
| | Temperature rise | Max. 65° C (under the flow of nominal operating current at nominal voltage) | | |
| Mechanical | Vibration resistance | Functional | 10 to 55 Hz: 1 cycle/min single amplitude of 0.35 mm .014 inch (10 min on 3 axes) | |
| | | Destructive | 10 to 55 Hz: 1 cycle/min single amplitude of 0.75 mm .030 inch (1 h on 3 axes) | |
| | Shock resistance | Functional | Min. 98 m 321.522 ft./s ² (4 times on 3 axes) | |
| | | Destructive | Min. 294 m 964.567 ft./s ² (5 times on 3 axes) | |
| Operating conditions | Ambient temperature | -10° C to 55° C +14° F to +131° F | | |
| | Ambient humidity | Max. 85 % RH | | |
| | Air pressure | 860 to 1,060 h Pa | | |
| Connection | Ripple rate | — | 20 % or less | 20 % or less |
| Protective construction | 11-pin/screw terminal IP66 (front panel with rubber gasket) | | | |

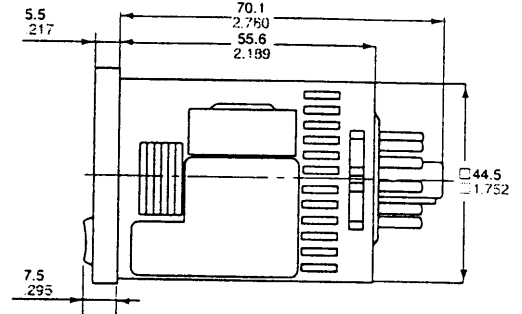
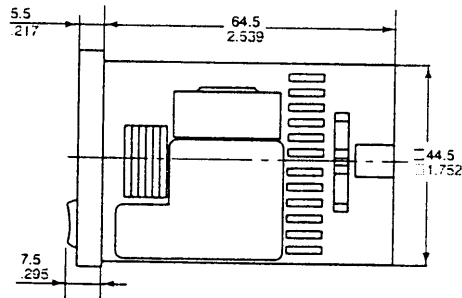
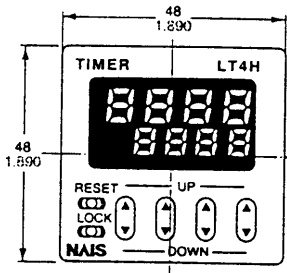
LT4H Digital Timer

Dimensions (units: mm inch)

• LT4H digital timer

Screw-down terminal type
(embedded installation)

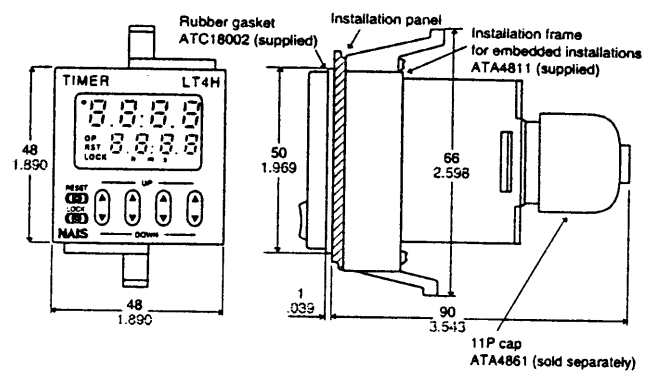
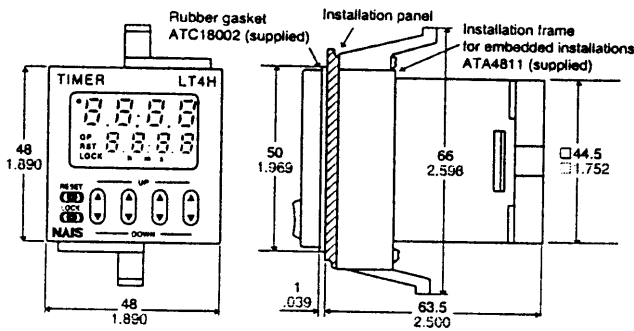
Pin type (embedded installation/
front panel installation)



• Dimensions for embedded installation (with adapter installed)

Screw-down terminal type

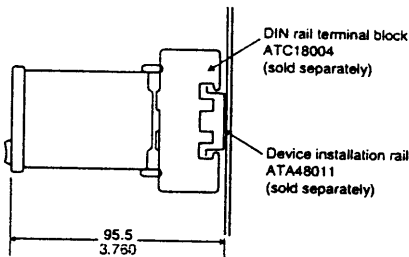
Pin type



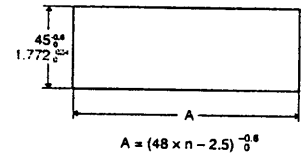
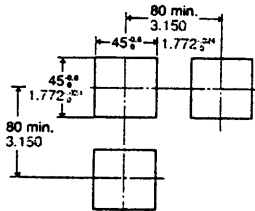
• Dimensions for front panel installations

• Installation panel cut-out dimensions

• For connected installations



The standard panel cut-out dimensions are shown below. Use the installation frame (ATA4811) and rubber gasket (ATC18002).



Note 1: The installation panel thickness should be between 1 and 5 mm (.039 and .197 inch).

Note 2: For connected installations, the waterproofing ability between the unit and installation panel is lost.

Terminal layout and wiring

• Pin type

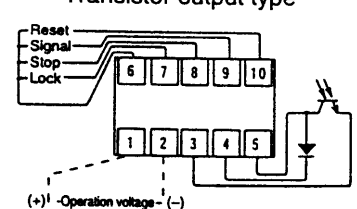
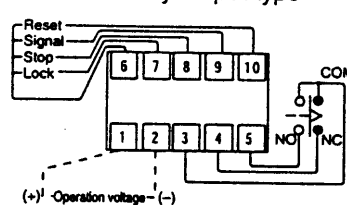
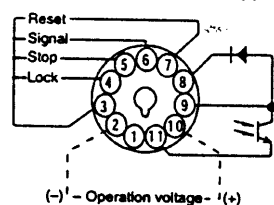
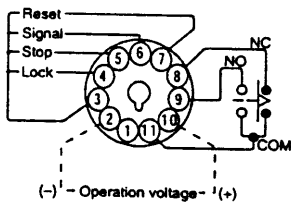
• Screw-down terminal type

Relay output type

Transistor output type

Relay output type

Transistor output type



Setting the operation mode, timer range, and time

Setting procedure 1) Setting the operation mode and timer range

Set the operation mode and timer range with the DIP switches on the side of the unit.

DIP switches

| Item | DIP switch | | |
|------|--|----------|-------------|
| | OFF | ON | |
| 1 | Refer to table 1 | | |
| 2 | | | |
| 3 | | | |
| 4 | Minimum input reset, signal, and stop signal width | 20 ms | 1 ms |
| 5 | Time delay direction | Addition | Subtraction |
| 6 | Refer to table 2 | | |
| 7 | | | |
| 8 | | | |

Table 1: Setting the operation mode

| DIP switch No. | | | Operation mode |
|----------------|-----|-----|------------------------|
| 1 | 2 | 3 | |
| ON | ON | ON | A: Power on delay |
| OFF | OFF | OFF | A2: Power on delay |
| ON | OFF | OFF | B: Signal on delay |
| OFF | ON | OFF | C: Signal off delay |
| ON | ON | OFF | D: Pulse One shot |
| OFF | OFF | ON | E: Pulse On delay |
| ON | OFF | ON | F: Signal Flicker |
| OFF | ON | ON | G: Totalizing On delay |

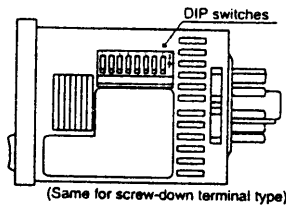


Table 2: Setting the timer range

| DIP switch No. | | | Timer range |
|----------------|-----|-----|---------------------------|
| 6 | 7 | 8 | |
| ON | ON | ON | 0.001 s to 9.999 s |
| OFF | OFF | OFF | 0.01 s to 99.99 s |
| ON | OFF | OFF | 0.1 s to 999.9 s |
| OFF | ON | OFF | 1 s to 9999 s |
| ON | ON | OFF | 0 min 01 s to 99 min 59 s |
| OFF | OFF | ON | 0.1 min to 999.9 min |
| ON | OFF | ON | 0 h 01 min to 99 h 59 min |
| OFF | ON | ON | 0.1 h to 999.9 h |

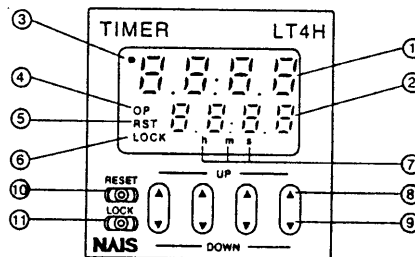
Note: Set the DIP switches before installing the unit.

Setting procedure 2) Setting the time

Set the set time with the keys on the front of the unit.

Front display section

- ① Elapsed time display
- ② Set time display
- ③ Time delay indicator
- ④ Controlled output indicator
- ⑤ Reset indicator
- ⑥ Lock indicator
- ⑦ Time units display



- ⑧ UP keys
Changes the corresponding digit of the set time in the addition direction (upwards)
- ⑨ DOWN keys
Changes the corresponding digit of the set time in the subtraction direction (downwards)
- ⑩ RESET switch
Resets the elapsed time and the output
- ⑪ LOCK switch
Locks the operation of all keys on the unit

• Changing the set time

1. It is possible to change the set time with the up and down keys even during time delay with the timer. However, be aware of the following points.

1) If the set time is changed to less than the elapsed time with the time delay set to the addition direction, time delay will continue until the elapsed time reaches full scale, returns to zero, and then reaches the new set time. If the set time is changed to a time above the elapsed time, the time delay will continue until the elapsed time reaches the new set time.

2) If the time delay is set to the subtraction direction, time delay will continue until "0" regardless of the new set time.

2. If the set time is changed to "0," the unit will operate differently depending on the operation mode.

1) If the operation mode is set to A (power on delay) or A2 (power on delay), the output will turn on when the power supply is turned on. However, the output

will be off while reset is being input.

2) In the other modes, the output turns on when the signal is input. When the operation mode is C (signal off delay), D (one shot), or F (flicker), only when the signal input is on does the output turn on. Also, when the reset is being input, the output is off.

Operation mode

T: Set time t1, t2, t3, ta<T

| Operation type | Explanation | Time chart | | | | | | |
|------------------------------------|--|------------|---|---|-----|-----|-----|--|
| <p>Power on delay</p> <p>(A)</p> | <ul style="list-style-type: none"> Set the operation mode section of the DIP switches (no.'s 1, 2, and 3) on the side of the timer as shown. <table border="1" data-bbox="630 219 810 286"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>ON</td><td>ON</td><td>ON</td></tr> </table> Clears elapsed time value and starts time delay at power ON. After timer completion, stops at the display of the set value (addition), or stops at "0" (subtraction). Ignores signal input. Stops delay time operation at stop ON. Restarts delay time operation at stop OFF. | 1 | 2 | 3 | ON | ON | ON | |
| 1 | 2 | 3 | | | | | | |
| ON | ON | ON | | | | | | |
| <p>Power on delay</p> <p>(A2)</p> | <ul style="list-style-type: none"> Set the operation mode section of the DIP switches (no.'s 1, 2, and 3) on the side of the timer as shown. <table border="1" data-bbox="630 689 810 757"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>OFF</td><td>OFF</td><td>OFF</td></tr> </table> Elapsed time value does not clear at power ON. (power outage countermeasure function) The output remains ON even after the power is cut and restarted. After timer completion, stops at the display of the set value (addition), or stops at "0" (subtraction). Ignores signal input. Stops delay time operation at stop ON. Restarts delay time operation at stop OFF. | 1 | 2 | 3 | OFF | OFF | OFF | |
| 1 | 2 | 3 | | | | | | |
| OFF | OFF | OFF | | | | | | |
| <p>Signal on delay</p> <p>(B)</p> | <ul style="list-style-type: none"> Set the operation mode section of the DIP switches (no.'s 1, 2, and 3) on the side of the timer as shown. <table border="1" data-bbox="630 1160 810 1227"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>ON</td><td>OFF</td><td>OFF</td></tr> </table> Clears elapsed time value at power ON. Time delay starts at signal ON and elapsed time value or output resets at signal OFF. Instantaneous time delay start at reset OFF and power ON while signal is ON. Stops delay time operation at stop ON. Restarts delay time operation at stop OFF. In order to have the time delay start at power ON or reset at power OFF, short out the signal input beforehand. | 1 | 2 | 3 | ON | OFF | OFF | |
| 1 | 2 | 3 | | | | | | |
| ON | OFF | OFF | | | | | | |
| <p>Signal off delay</p> <p>(C)</p> | <ul style="list-style-type: none"> Set the operation mode section of the DIP switches (no.'s 1, 2, and 3) on the side of the timer as shown. <table border="1" data-bbox="630 1630 810 1697"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>OFF</td><td>ON</td><td>OFF</td></tr> </table> Clears elapsed time value at power ON. Output control ON at signal ON and time delay start at signal OFF. Elapsed time value clears when signal goes ON again during time delay. Stops delay time operation at stop ON. Restarts delay time operation at stop OFF. | 1 | 2 | 3 | OFF | ON | OFF | |
| 1 | 2 | 3 | | | | | | |
| OFF | ON | OFF | | | | | | |

| Operation type | Explanation | Time chart | | | | | | |
|---------------------------------------|--|------------|---|---|-----|-----|-----|--|
| <p>Pulse On delay</p> <p>(D)</p> | <ul style="list-style-type: none"> Set the operation mode section of the DIP switches (no.'s 1, 2, and 3) on the side of the timer as shown. <table border="1" data-bbox="651 226 836 286"> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>ON</td> <td>ON</td> <td>OFF</td> </tr> </table> Clears elapsed time value at power ON. Time delay starts and output control ON at signal ON. Ignores signal input during time delay. Stops delay time operation at stop ON. Restarts delay time operation at stop OFF. | 1 | 2 | 3 | ON | ON | OFF | |
| 1 | 2 | 3 | | | | | | |
| ON | ON | OFF | | | | | | |
| <p>Pulse On delay</p> <p>(E)</p> | <ul style="list-style-type: none"> Set the operation mode section of the DIP switches (no.'s 1, 2, and 3) on the side of the timer as shown. <table border="1" data-bbox="651 696 826 757"> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>OFF</td> <td>OFF</td> <td>ON</td> </tr> </table> Clears elapsed time value at power ON. Time delay starts at signal ON. Ignores signal input during time delay. Stops delay time operation at stop ON. Restarts delay time operation at stop OFF. In order to have the time delay start at power ON or reset at power OFF, short out the signal input beforehand. | 1 | 2 | 3 | OFF | OFF | ON | |
| 1 | 2 | 3 | | | | | | |
| OFF | OFF | ON | | | | | | |
| <p>Signal Flicker</p> <p>(F)</p> | <ul style="list-style-type: none"> Set the operation mode section of the DIP switches (no.'s 1, 2, and 3) on the side of the timer as shown. <table border="1" data-bbox="651 1160 815 1220"> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>ON</td> <td>OFF</td> <td>ON</td> </tr> </table> Clears elapsed time value at power ON. Time delay starts at signal ON. Ignores signal input during time delay. Output control reverses, elapsed time value clears, and timer delay starts at timer completion. Stops delay time operation at stop ON. Restarts delay time operation at stop OFF. In order to have the time delay start at power ON or reset at power OFF, short out the signal input beforehand. | 1 | 2 | 3 | ON | OFF | ON | |
| 1 | 2 | 3 | | | | | | |
| ON | OFF | ON | | | | | | |
| <p>Totalizing On delay</p> <p>(G)</p> | <ul style="list-style-type: none"> Set the operation mode section of the DIP switches (no.'s 1, 2, and 3) on the side of the timer as shown. <table border="1" data-bbox="651 1624 805 1684"> <tr> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>OFF</td> <td>ON</td> <td>ON</td> </tr> </table> Elapsed time value does not clear at power ON. (power outage countermeasure function) The output remains ON even after the power is cut and restarted. Stops delay time operation at stop ON. Restarts delay time operation at stop OFF. | 1 | 2 | 3 | OFF | ON | ON | |
| 1 | 2 | 3 | | | | | | |
| OFF | ON | ON | | | | | | |

LT4H Digital Timer

Precautions during usage

1. Terminal wiring

1) When wiring the terminals, refer to the terminal layout and wiring diagrams and be sure to perform the wiring properly without errors.

2) For embedded installation applications, the screw-down terminal type is recommended. When using the pin type, use the 11P cap (ATA4861). Do not solder directly to the unit's round pins.

For front panel installation applications, use the 11-pin type DIN rail terminal block (ATC18004).

3) After turning the unit off, make sure that any resulting induced voltage or residual voltage is not applied to power supply terminals 2 through 10 (pin type) or 1 and 2 (screw-down terminal type). (If the power supply wire is wired parallel to the high voltage wire or power wire, an induced voltage may be generated between the power supply terminals.)

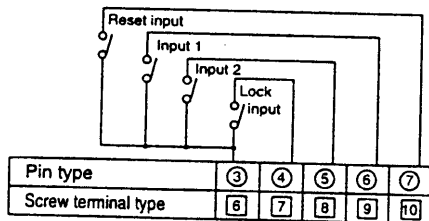
4) Have the power supply voltage pass through a switch or relay so that it is applied at one time. If the power supply is applied gradually, the counting may malfunction regardless of the settings, the power supply reset may not function, or other such unpredictable occurrence may result.

2. Input and output

1) Signal input type

(1) Contact point input

Use highly reliable metal plated contacts. Since the contact point's bounce time leads directly to error in the timer operations, use contacts with as short a bounce time as possible. Also, select a



minimum input signal width of 20 ms.

(2) Non-contact point input

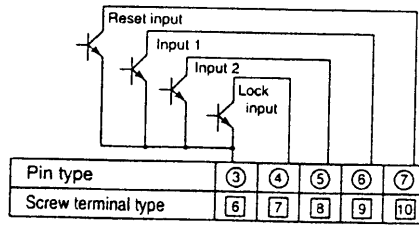
Connect with an open collector. Use transistors whose characteristics satisfy the criteria given below.

$V_{CE0} = 20 \text{ V min.}$

$I_C = 20 \text{ mA min.}$

$I_{CBO} = 6 \mu\text{A max.}$

Also, use transistors with a residual voltage of less than 2 V when the



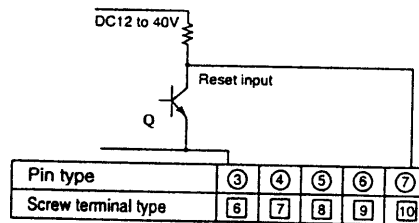
transistor is on.

* The short-circuit impedance should be less than 1 kW.

[When the impedance is 0 W, the current coming from the signal input and stop input terminals is approximately 12 mA, and from the reset input and lock input terminals is approximately 1.5 mA.]

Also, the open-circuit impedance should be more than 100 kW.

* As shown in the diagram below, from a non-contact point circuit (proximity switches, photoelectric switches, etc.) with a power supply voltage of between 12 and 40 V, the signal can be input without using an open collector transistor. In the case of the diagram below, when the non-contact point transistor Q switches from off to on (when the signal voltage goes from

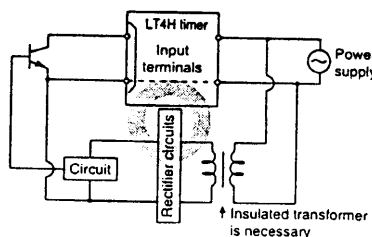


(The above example is for reset input)

high to low), the signal is input.

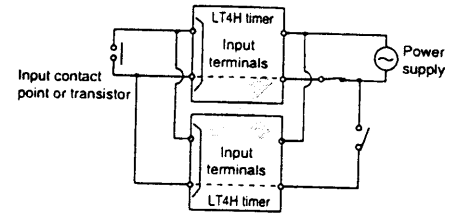
2) The input and output specifications change depending on the DIP switch settings. Therefore, before making any connections, be sure to confirm the operation mode and operation conditions currently set.

3) For the power supply of the input device, use a single-phase or double-phase insulated power transformer. The second-phase side must not be



grounded.

4) Since the power supply circuitry does not contain a transformer, be aware that it is not possible for simultaneous input from an input contact point or transistor to a LT4H timer with independent power

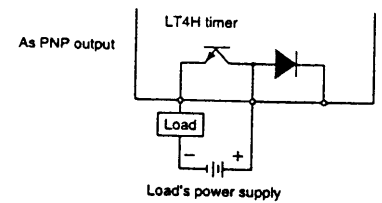
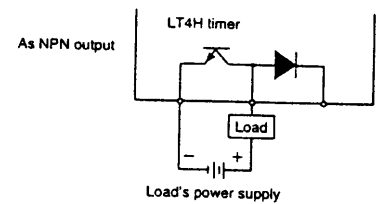


supply operation.

5) The input signal is applied by the shorting of each input terminal with the common terminal (terminal 3 for pin types, and terminal 6 for screw-down terminal types). Never connect other terminals or voltages higher than DC 40 V, because it may destroy the internal circuitry.

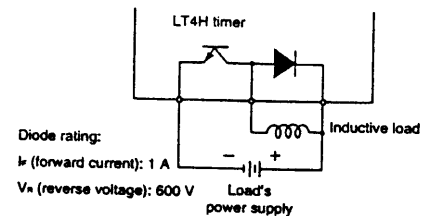
6) Transistor output

(1) Since the transistor output is insulated from the internal circuitry by a photocoupler, it can be used as an NPN



output or PNP (equal value) output.

(2) Use the diode connected to the output transistor's collector for absorbing



the reverse voltage from induced loads.

7) When wiring, use shielded wires or metallic wire tubes, and keep the wire lengths as short as possible.

8) For the load of the controlled output, make sure that it is lower than the rated control capacity.

9) Turning on and off the power supply while operating in A2* (Power on delay) or G (Integration) will result in a timer error to be generated due to the characteristics of the internal circuitry. Therefore, use the signal input or stop input.

* Not related to the signal input.

10) When controlling the timer by turning on the power supply, use only A (Power on delay) or A2 (Power on delay). Use of other modes in this situation will result in timer errors. When using the other modes, control the timer with the signal input or stop input.

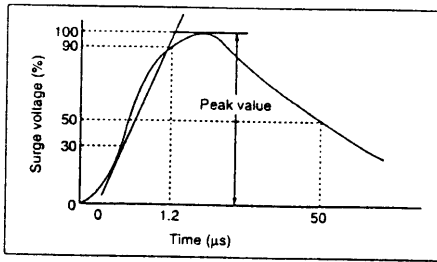
3. Conditions of usage

- 1) Avoid locations subject to flammable or corrosive gases, excessive dust, oil, vibrations, or excessive shocks.
- 2) Since the cover of the unit is made of polycarbonate resin, avoid contact with or use in environments containing methyl alcohol, benzene, thinners, and other organic solvents; and ammonia, caustic sodas, and other alkaline substances.
- 3) If power supply surges exceed the values given below, the internal circuits may become damaged. Be sure to use surge absorbing element to prevent this from happening.

| Operating voltage | Surge voltage (peak value) |
|-------------------|----------------------------|
| AC type | 6,000V |
| DC type | 1,000V |

• Surge wave form

[$\pm (1.2 \times 50)$ ms uni-polar full wave voltage]



4) Regarding external noise, the values below are considered the noise-resistant voltages. If voltages rise above these values, malfunctions or damage to the internal circuitry may result, so take the necessary precautions.

| | Power supply terminals | | Input terminals |
|---------------|------------------------|---------|-----------------|
| | AC type | DC type | |
| Noise voltage | 1,500V | 1,000V | 600V |

Noise wave form (noise simulator)

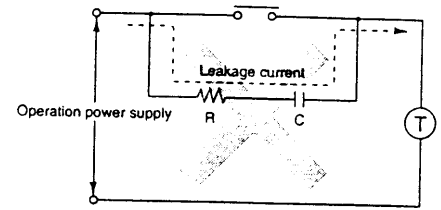
Rise time: 1 ns

Pulse width: 1 ms, 50 ns

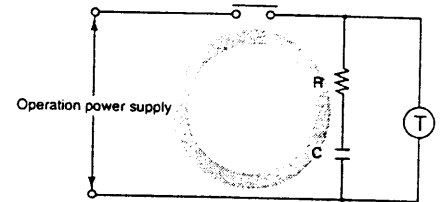
Polarity: \pm

Cycle: 100 cycles/second

5) When connecting the operation power supply, make sure that no leakage current enters the counter. For example, when performing contact protection, if set up like that of diagram A, leaking current will pass through C and R, enter the unit, and cause incorrect operation. Diagram B shows the correct setup.

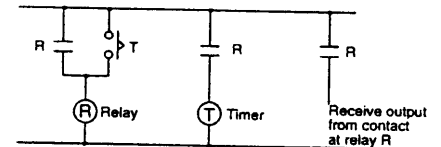


(Fig. A)



(Fig. B)

6) Long periods of continuous operation in the count-up completed condition (one month or more) will result in the weakening of the internal electrical components from the generated heat and, therefore, should be avoided. If you do plan to use the unit for such continuous operation, use in conjunction with a relay as shown in the diagram below.



4. Self-diagnosis function

If a malfunction occurs, one of the following displays will appear.

| Display | Contents | Output condition | Restoration procedure | Preset values after restoration |
|---------|----------------------------------|------------------|--|---|
| ET-00 | Malfunctioning CPU. | OFF | Enter reset, RESET key, or restart unit. | The values at start-up before the CPU malfunction occurred. |
| ET-01 | Malfunctioning memory. See note. | | | 0 |

Note: Includes the possibility that the EEPROM's life has expired.

5. CE Marking Certification

1) EMC directive (89/336/EEC)

As a timer unit, the LT4H series conforms to EMC directives. Applicable standards are EN50081-2 and EN50082-2.

2) Low voltage directive (73/23/EEC)

In order to satisfy VDE0435/Part 2021, be sure to adhere to the following installation conditions and precautions.

(1) The timer uses a non-transformer power supply and the power supply and input signal terminals are not insulated.

• When a sensor is connected to the input circuit, install double insulation on the sensor side.

• With contact-point inputting, use double-insulated relays, etc.

(2) Always connect loads insulated with basic insulation specifications to the output contact points. The timer unit is also insulated with basic insulation specifications. The combination of the two satisfies VDE, which calls for double insulation.

(3) For the applied power supply, use one protected by an over-current protection device that conforms with EN/IEC standards (i.e. 250 V, 1 A fuse).

(4) During installation, always use a terminal block or the appropriate sockets. Do not touch the terminals, or other part of the timer unit while it is on. Before installation or removal of the unit, first verify that no voltage is being applied to any of the terminals.

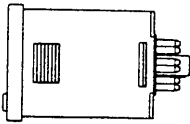
(5) Do not use the timer in a safety circuit. When the unit is being used in a circuit such as a heater circuit, install a protection circuit on the machine side.

LT4H Digital Timer

INSTALLATIONS

1. Surface mount

1) Use the pin type timer.



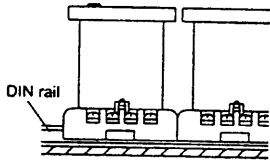
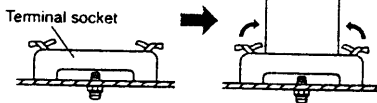
2) Put the terminal socket on the board directly or put it on the DIN rail (Fig. 1)

3) Insert the timer into the terminal socket and fix it with clip. (Fig. 2)

4) On DIN rail mounting, mount the timer on the DIN rail tightly.

(Fig. 1)

(Fig. 2)



5) Pin type is connected with terminal socket ATC18004.

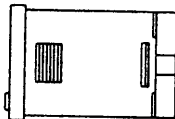
6) DIN rail (AT8-DLA1) is also available (1m).

2. Flush mount

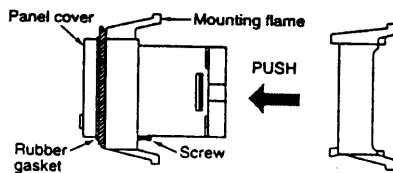
1) Use the built-in screw terminal type for flush mount. (Mounting frame and rubber gasket are provided when timer is shipped.)

When the pin type is used, accessories (AT8-DA4 and ATC18002) are required.

2) Insert the timer into the panel cut and



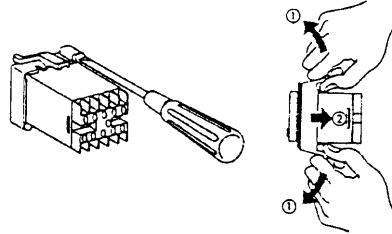
slide the mounting frame from the back. Push the mounting frame over the timer to tighten the screw. Fasten in place with the screws provided.



3) ① When the water-protected type is used, confirm the conditions with which timer with rubber gasket and panel are attached tightly.

② Mounting without panel cover and rubber gasket will be less water-resistant.

4) Loosen the screws on the mounting frame, spread the edge of frame and remove it.



5) Refer to the terminal wiring diagram, wire the terminals correctly.

6) Panel cutout dimensions

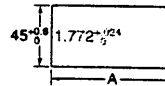
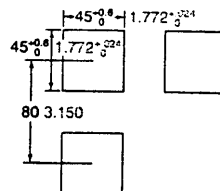
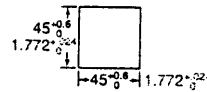
The standard panel cutout dimensions are shown below. (Panel thickness: 1 to 5mm .039 to .197 inch)

7) Although the timers can be mounted adjacent to each other, it is recommended to arrange the mounting holes as shown in the figure to facilitate attaching and detaching the mounting frame.

When the front protective cover is used, cut a hole using these dimensions.

8) Adjacent mounting of PM4H timers can be accomplished. The front protective cover cannot be used for this type of mounting. (panel thickness: 1 to 5mm .039 to .197 inch)

The standard dimension for A when n units (n ≤ 5) are mounted adjacently.



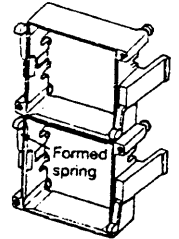
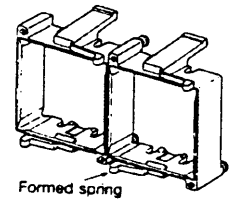
$$A = (48 \times n - 2.5) \pm 0.6 \text{ (mm)}$$

$$A = (1.890 \times n - 2.5) \pm 0.024 \text{ (inch)}$$

If six or more units are to be mounted, measure the actual dimensions and cut the panel accordingly.


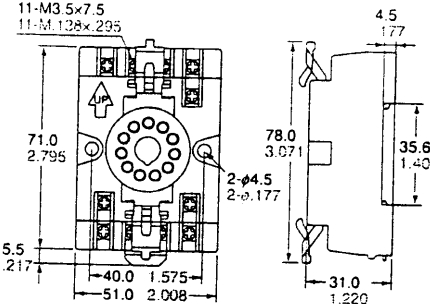
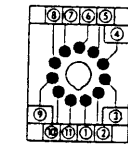
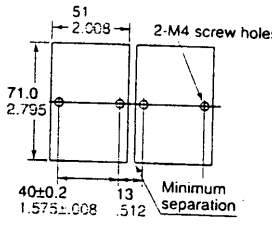
When lining up the timers horizontally, set the frames in such a position so the formed spring areas are at the top and bottom.

When lining up the timers vertically, set the frames in such a position as the formed spring areas are at the right and left.



ACCESSORIES


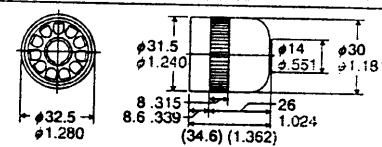
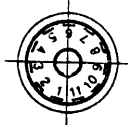
mm inch

| Type | Appearance | Dimensions | Terminal wiring (TOP VIEW) | Mounting hole dimensions |
|---------------|--|--|---|---|
| LT4H (11 pin) | <ul style="list-style-type: none"> DIN rail socket (11 pin)  <p>ATC18004</p> |  |  <p>Note: Terminal No. on the main body are identical to those on the terminal socket.</p> |  |

Note: Terminal No. on the main body are identical to those on the terminal socket.

Tolerance: $\pm 1 \pm .039$

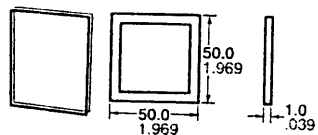
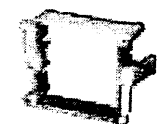
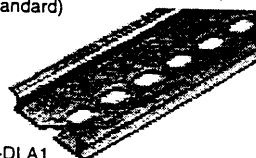
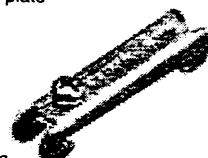
SOCKETS

| Type | Screw terminal | Dimensions | Terminal wiring (TOP VIEW) | Mounting hole dimensions |
|---------------|---|--|---|--------------------------|
| LT4H (11 pin) | <ul style="list-style-type: none"> 11 pin cap  <p>ATA4861</p> |  |  | |

Note: Terminal No. on the main body are identical to those on the terminal socket.

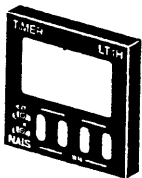
Tolerance: $\pm 1 \pm .039$

MOUNTING PARTS

| | | | |
|---|---|---|--|
| <ul style="list-style-type: none"> Rubber gasket  <p>ATC18002</p> | <ul style="list-style-type: none"> Mounting frame  <p>AT8-DA4</p> | <ul style="list-style-type: none"> Mounting rail (Applicable for DIN, IEC standard)  <p>AT8-DLA1</p> | <ul style="list-style-type: none"> Fastening plate  <p>ATA4806</p> |
|---|---|---|--|

ACCESSORIES

- Panel cover (Black)



ATL58011

© 1997 Matsushita Automation Controls Group Europe

PDF-File generated December 5th, 1997

Data published may change due to technical improvements