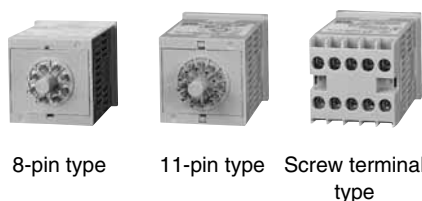
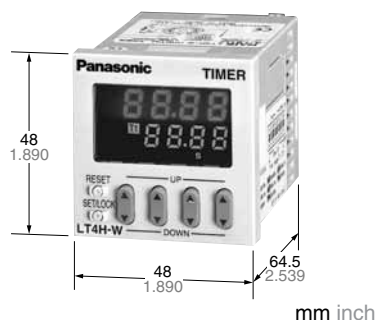


UL File No.: E122222
C-UL File No.: E122222



RoHS Directive compatibility information
<http://www.nais-e.com/>

Features

1. Wide time range

The operation time range covers from 0.01 sec. to 9999 hours.
The individual setting can be performed on each of 1 and 2 timers.

99.99s 99min59s 99h59min
999.9s 999.9min 999.9h
9999s 9999h

2. 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.

3. Simple Operation

Seesaw buttons make operating the unit even easier than before.

4. 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.

5. Conforms to IP66's Weather Resistant Standards

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

6. Screw terminal (M3.5) and Pin Types are Both Standard Options

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

7. Changeable Panel Cover

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

8. Compliant with UL, c-UL and CE.

9. Low Price

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

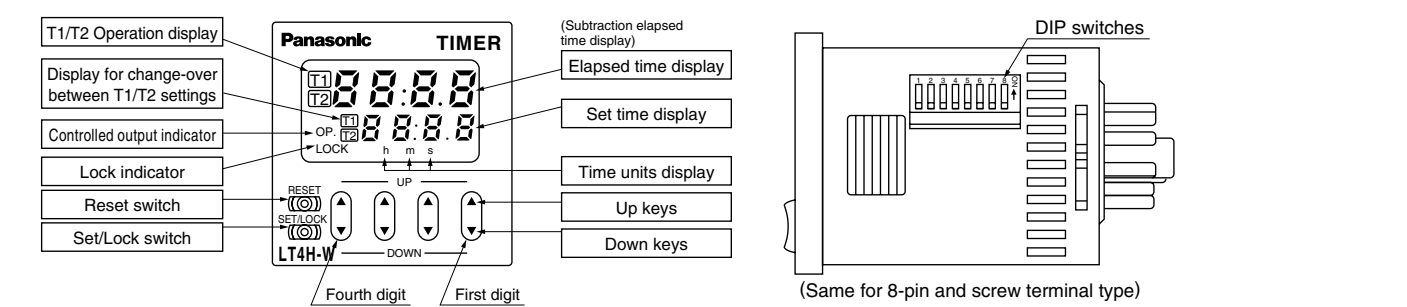
Product types

Time range	Operating mode	Output	Operating voltage	Power down insurance	Terminal type	Part number
99.99s 999.9s 9999s 99min59s 999.9min 99h59min 999.9h 9999h	Pulse input: • Delayed one shot • OFF-start flicker • ON-start flicker Integrating input: • Delayed one shot • OFF-start flicker • ON-start flicker	Relay (1 c)	100 to 240 V AC	Available	8 pins	LT4HW8-AC240V
					11 pins	LT4HW-AC240V
					Screw terminal	LT4HW-AC240VS
			24 V AC		8 pins	LT4HW8-AC24V
					11 pins	LT4HW-AC24V
					Screw terminal	LT4HW-AC24VS
		Transistor (1 a)	12 to 24 V DC		8 pins	LT4HW8-DC24V
					11 pins	LT4HW-DC24V
					Screw terminal	LT4HW-DC24VS
			100 to 240 V AC		8 pins	LT4HWT8-AC240V
					11 pins	LT4HWT-AC240V
					Screw terminal	LT4HWT-AC240VS
			24 V AC		8 pins	LT4HWT8-AC24V
					11 pins	LT4HWT-AC24V
					Screw terminal	LT4HWT-AC24VS
			12 to 24 V DC		8 pins	LT4HWT8-DC24V
					11 pins	LT4HWT-DC24V
					Screw terminal	LT4HWT-DC24VS

* A rubber gasket (ATC18002) and a mounting frame (AT8-DA4) are included.

LT4H-W

Part names



Specifications

Type			Relay output type		Transistor output type	
Item			AC type	DC type	AC type	DC type
Rating	Rated operating voltage		100 to 240 V AC, 24 V AC	12 to 24 V DC	100 to 240V AC, 24V AC	12 to 24 V DC
	Rated frequency		50/60 Hz common	—	50/60 Hz common	—
	Rated power consumption		Max. 10 V A	Max. 3 W	Max. 10 V A	Max. 3 W
	Rated control capacity		5 A, 250 V AC		100 mA, 30 V DC	
	Time range		99.99s, 999.9s, 9999s, 99min59s, 999.9min, 99h59min, 999.9h, 9999h (selected by DIP switch)			
	Time counting direction		Addition (UP)/Subtraction (DOWN) (2 directions selectable by DIP switch)			
	Operation mode		Pulse input: Delayed one shot, OFF-start flicker or ON-start flicker Integrating input: Delayed one shot, OFF-start flicker or ON-start flicker			
	Start/Reset/Stop input		Min. input signal width: 1 ms, 20 ms (2 directions by selected by DIP switch) (The 8 pin type does not have a stop input.)			
	Lock input		Min. input signal width: 20 ms (The 8-pin type does not have a lock input.)			
	Input signal		Open collector input Input impedance: Max. 1 kΩ; Residual voltage: Max. 2V Open impedance: 100 kΩ or less, Max. energized voltage: 40 V 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 input signal start Operating voltage: 85% to 110% Temperature: −10°C to +55°C +14°F to +131°F Min. input signal width: 1ms			
	Temperature error					
	Voltage error					
	Setting error					
Contact	Contact arrangement		Timed-out 1 Form C		Timed-out 1 Form A (Open collector)	
	Contact resistance (Initial value)		100 mΩ (at 1 A 6 V DC)		—	
	Contact material		Ag alloy/Au flash		—	
Life	Mechanical (contact)		Min. 2 × 10 ⁷ ope. (Except for switch operation parts)		—	
	Electrical (contact)		Min. 10 ⁵ ope. (At rated control voltage)		Min. 10 ⁷ ope. (At rated control voltage)	
Electrical	Allowable operating voltage range		85 to 110 % of rated operating voltage			
	Breakdown voltage (Initial value)		2,000 Vrms for 1 min: Between live and dead metal parts (11-pin type only) 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 (Pin type only) 2,000 Vrms for 1 min: Between input and output	
	Insulation resistance (Initial value)		Between live and dead metal parts Min. 100 MΩ: Between input and output (At 500V DC) Between contacts		Min. 100 MΩ: Between live and dead metal parts (At 500V DC) 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 (non-condensing)			
	Air pressure		860 to 1,060 h Pa			
	Ripple rate		—	20 % or less	—	20 % or less
Connection			8-pin/11-pin/screw terminal			
Protective construction			IP66 (front panel with rubber gasket)			

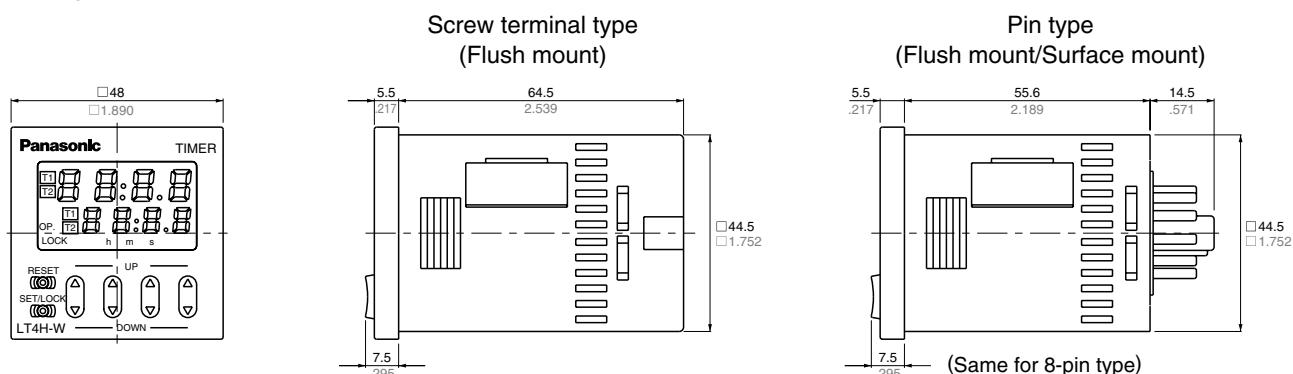
Applicable standard

Safety standard	EN61812-1	Pollution Degree 2/Overvoltage Category II
EMC	(EMI)EN61000-6-4 Radiation interference electric field strength Noise terminal voltage (EMS)EN61000-6-2 Static discharge immunity RF electromagnetic field immunity EFT/B immunity Surge immunity Conductivity noise immunity Power frequency magnetic field immunity Voltage dip/Instantaneous stop/Voltage fluctuation immunity	EN55011 Group1 ClassA EN55011 Group1 ClassA EN61000-4-2 4 kV contact 8 kV air EN61000-4-3 10 V/m AM modulation (80 MHz to 1 GHz) 10 V/m pulse modulation (895 MHz to 905 MHz) EN61000-4-4 2 kV (power supply line) 1 kV (signal line) EN61000-4-5 1 kV (power line) EN61000-4-6 10 V/m AM modulation (0.15 MHz to 80 MHz) EN61000-4-8 30 A/m (50 Hz) EN61000-4-11 10 ms, 30% (rated voltage) 100 ms, 60% (rated voltage) 1,000 ms, 60% (rated voltage) 5,000 ms, 95% (rated voltage)

Dimensions

• LT4H-W digital timer

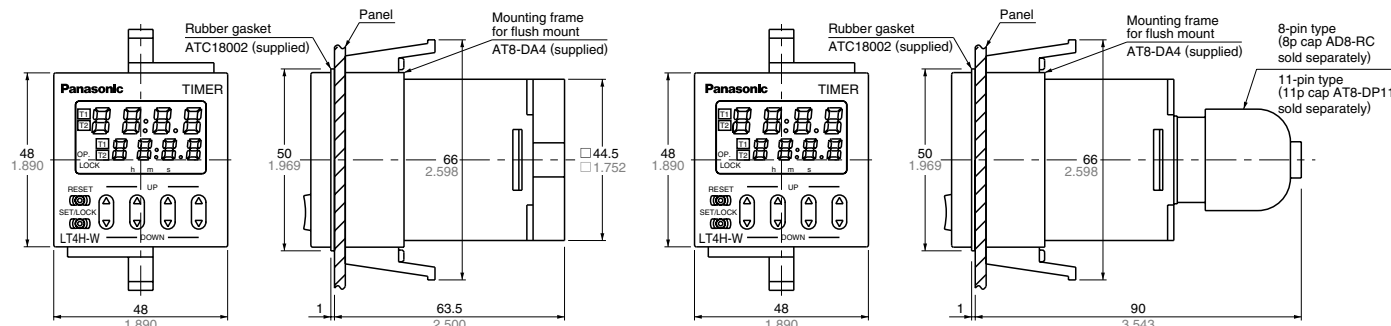
(units: mm inch)
Tolerance: $\pm 1.0 \pm .039$



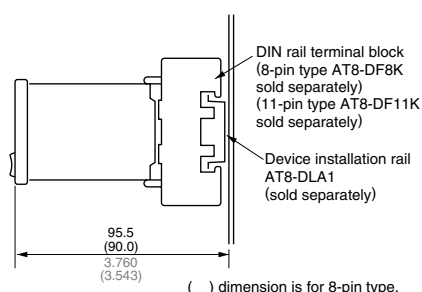
• Dimensions for flush mount (with adapter installed)

Screw terminal type

Pin type

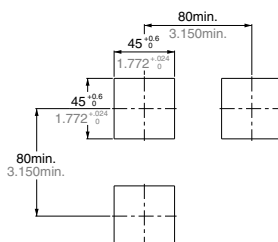


• Dimensions for front panel installations

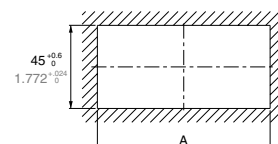


• Installation panel cut-out dimensions

The standard panel cut-out dimensions are shown below. Use the mounting frame (AT8-DA4) and rubber gasket (ATC18002).



• For connected installations



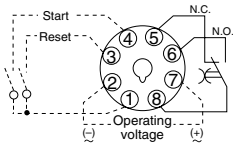
When n timers are continuously installed, the dimension (A) is calculated according to the following formula (n: the number of the timers to be installed):
 $A = (48 \times n - 2.5) \text{ mm}$ $A = (1.890 \times n - .098) \text{ inch}$

- Note) 1: The installation panel thickness should be between 1 and 5 mm (.039 and .197 inch).
 2: For connected installations, the waterproofing ability between the unit and installation panel is lost.

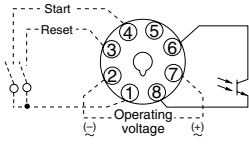
Terminal layouts and Wiring diagrams

• 8-Pin type

Relay output type

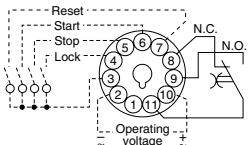


Transistor output type

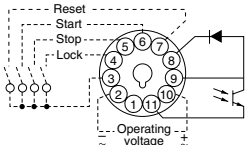


• 11-Pin type

Relay output type

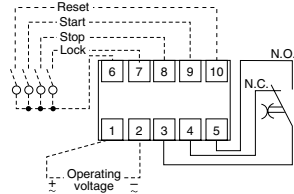


Transistor output type

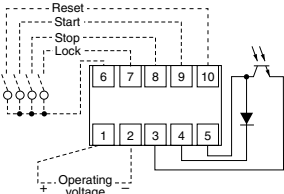


• Screw terminal type

Relay output type



Transistor output type



Note) For connecting the output leads of the transistor output type, refer to 5) Transistor output on page 48.

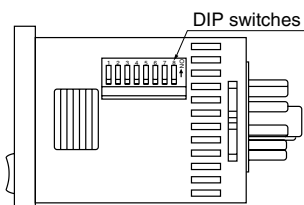
Setting the operation mode and time range

Setting procedure 1) Setting the time range (Timer T₁/Timer T₂)

Set the time range with the DIP switches on the side of the LT4H-W timer.

	Item	DIP switch	
		OFF	ON
1	Time range (Timer T ₁)	Refer to table 1	
2			
3			
*4	Minimum input reset, start, and stop signal width	20 ms	1 ms
5	Time delay direction	Addition	Subtraction
6	Time range (Timer T ₂)	Refer to table 2	
7			
8			

* The 8-pin type does not have the stop input, so that the dip switch can be changed over between reset and start inputs. The signal range of the lock input is fixed (minimum 20 ms).



(same for screw terminal type and 8-pin type.)

Table 1: Setting the time range (Timer T₁)

DIP switch No.			Time range
1	2	3	
ON	ON	ON	0.01 s to 99.99 s
OFF	OFF	OFF	0.1 s to 999.9 s
ON	OFF	OFF	1 s to 9999 s
OFF	ON	OFF	0 min 01 s to 99 min 59 s
ON	ON	OFF	0.1 min to 999.9 min
OFF	OFF	ON	0 h 01 min to 99 h 59 min
ON	OFF	ON	0.1 h to 999.9 h
OFF	ON	ON	1 h to 9999 h

Table 2: Setting the time range (Timer T₂)

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

Notes: 1) Set the DIP switches before installing the timer.

2) When the DIP SW setting is changed, turn off the power once.

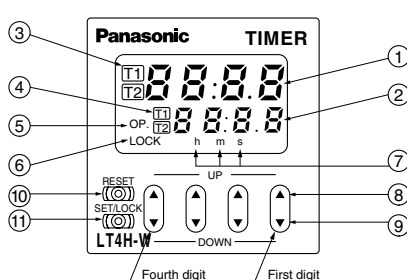
3) The DIP switches are set as ON before shipping.

Setting procedure 2) Setting the operation mode

Set the operation mode with the keys on the front of the LT4H-W timer.

Front display section

- ① Elapsed time display
- ② Set time display
- ③ T₁/T₂ operation indicator
- ④ T₁/T₂ setting value selectable indicator
- ⑤ Controlled output 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 SET/LOCK switch
Changes over the display between T₁/T₂ settings, sets the operation mode, checks the operation mode and locks the operation of each key (such as up, down or reset key).

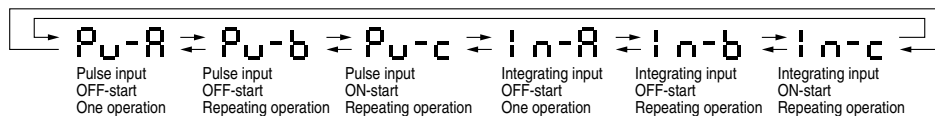
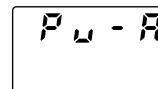
1) Setting or changing the operation mode

(1) When the UP or DOWN key at the first digit is pressed with the SET/LOCK switch pressed, the mode is changed over to the setting mode.

(2) Now release the SET/LOCK switch.

(3) The operation mode in the setting mode is changed over sequentially in the left or right direction by pressing the UP or DOWN key at the first digit, respectively.

Ex: Setting operation mode display (PULSE-A example)



(4) The operational mode displayed at present is set by pressing the RESET switch, and the display returns to the normal condition.

2) Setting (changing) the time

(1) Pressing the SET/LOCK key switches the set value display between T₁ and T₂. Display the timer (T₁ or T₂) which is to be set (or changed).

(2) After displaying the timer (T₁ or T₂) which is to be set, press the UP or DOWN key to change the time.

• Checking the operation mode

When the UP or DOWN key at the second digit is pressed with the SET/LOCK switch pressed, the operational mode can be checked.

The display returns to the normal condition after indicating the operational mode for about two seconds. (While the display indicates the operational mode for about two seconds, the other indicators continue to operate normally.)

• Setting the lock

When the UP or DOWN key at the fourth digit is pressed with the SET/LOCK switch pressed, all keys on the unit are locked. The timer does not accept any of UP, DOWN and RESET keys.

To release the lock setting, press the UP or DOWN key at the fourth digit again with the set/lock switch pressed.

* Operational mode, adding and subtracting and minimum input signal range cannot be set at T₁ and T₂, respectively.

• Changing over the T₁/T₂ setting display

The T₁/T₂ setting display is changed over by pressing the SET/LOCK switch. (This operation gives no effect on the other operations. The set time and elapsed time (residual time) at T₁ are linked with those at T₂.)

• 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) When the set times at T₁ and T₂ are set to 0, the output becomes ON only while the start input is carried out. However, while the reset input is carried out, the output becomes OFF.

OPERATION MODE

	PULSE : Pulse input	INTEGRATION : Integrating input
A Delayed one shot	PULSE A OFF-start/1 operation $t_1 < T_1$, $t_2 < T_2$ • Elapsed value cleared when power is turned on. • Time limit start initiated when start input goes on; start input ignored if time limit interval is in progress. • Elapsed value cleared when one operation has been completed.	INTEGRATION A OFF-start/1 operation $t_1 < T_1$, $t_2 < T_2$ • Elapsed value not cleared when power is turned on (power failure backup function). • When power is turned back on, same status is maintained for output as that previous to power going off. • Elapsed value cleared when one operation has been completed.
B OFF-start flicker	PULSE B OFF-start/repeating operation $t_1 < T_1$, $t_2 < T_2$ • Elapsed value cleared when power is turned on. • Time limit start initiated when start input goes on; start input ignored if time limit interval is in progress.	INTEGRATION B OFF-start/repeating operation $t_1 < T_1$, $t_2 < T_2$ • Elapsed value not cleared when power is turned on (power failure backup function). • When power is turned back on, same status is maintained for output as that previous to power going off.
C ON-start flicker	PULSE C ON-start/repeating operation $t_1 < T_1$, $t_2 < T_2$ • Elapsed value cleared when power is turned on. • Time limit start initiated when start input goes on; start input ignored if time limit interval is in progress.	INTEGRATION C ON-start/repeating operation $t_1 < T_1$, $t_2 < T_2$ • Elapsed value not cleared when power is turned on (power failure backup function). • When power is turned back on, same status is maintained for output as that previous to power going off.
Remarks and notes	• The pulse input mode starts the operation by starting the start input. • When using the unit by starting it with the power on, short-circuit the start terminal (8-pin: ① to ④, 11-pin: ③ to ⑥ and screw terminal: ⑥ to ⑨).	• The integrating input mode is operated by the integrated time of the start input. In other word, the timer operates only when the start input is performed. • When the elapsed value is cleared by the reset input, the output is reset. • When using the unit by starting it with the power on, short-circuit the start terminal (8-pin: ① to ④, 11-pin: ③ to ⑥ and screw terminal: ⑥ to ⑨).
	• Each signal input such as start, reset, stop and lock inputs is applied by short-circuiting its input terminal and common terminal (8-pin type: terminal ①, 11-pin type: terminal ③ and screw terminal: terminal ⑥) respectively. • The 8-pin type does not have a stop input or lock input.	