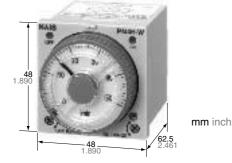
Panasonic

ideas for life

UL File No.: E122222 CSA File No.: LR39291



FEATURES

ANALOG MULTI-RANGE

CYCLIC TWIN TIMERS

DIN48 SIZE

- A single twin timer unit that repeats (variable) ON/OFF.
- Multiple ranges with a 0.1 s to 500 h time specification on a single unit.

PM4H-W

- The output ON/OFF operation is indicated by red and green LED's. It's easy to check the operation at a glance.
- The AC free power supply and shorter body make it easier to use.
- A new screw terminal type has been added to the conventional pin type. Wiring can be done easily with a screwdriver.

CHARACTERISTICS

Rated operating voltage 100 to 240V AC, 12V DC, 24V AC/DC, 48 to 125V DC Rated frequency S0/60Hz common (AC grav DC), 24V AC/DC, 48 to 125V DC Rated power consumption Approx. 10VA (100 to 240V AC) Approx. 25V (24) AC) Approx. 25V (24) AC) Output rating Operation mode SA250V AC (resister load) Operation fine fluctuation SA250V AC (resister load) Operation fine fluctuation 1s to 500n 16 time ranges witchable (T, T, time setting individually) Time range accuracy Note; Operation time fluctuation 1s to 500n 16 time ranges witchable (T, T, time setting individually) Time range error 1s to 500n 16 time ranges witchable (T, T, time setting individually) Time range of 0.10 to 450° C 1410 122°F) Temperature error 22% (at 20° Cambient temp, at the range of 0.10 to 450° C 1410 122°F) Temperature error 22% (at 20° Cambient temp, at the range of 0.20 to 450° C 1410 122°F) Contact resistance (Initial value) Machanical Contact resistance (Initial value) Machanical Contact resistance (Initial value) Machanical Contact resistance (Initial value) Between input and output Between input and output Between input and output Insulation resistance (Initial value) Between input and output Between input and output Breakdown votage (Initin	Item Type		Туре	PM4H-W		
Rating Approx. 10V (100 to 240V AC) Approx. 22V (2V AC) Output rating Approx. 2V (2V AC) Approx. 2V (2V AC) Approx. 2V (2V AC) Output rating 5A 250V AC (resistive load) Operation mode Cycle (OFF-start/Win Operation) Time range 1s to 500n 15 time ranges switchable (Tr, Ts time setting individually) Setting error ±0.5% (at the operating voltage changes between 85 to 110%) Time range ±0.5% (at the operating voltage changes between 85 to 110%) Setting error ±0.5% (at the operating voltage changes between 85 to 110%) Temperature error ±2% (at 20°C ambite temp, at the range 0 -10 to 50°C +14 to 122°F) Contact Contact material Silver alloy Contact contact (contact) Electrical (contact) 2×10° Life Electrical (contact) 2×10° Insulation resistance (initial value) Min. 100M2 At 20°C colitemp.) Between inverting voltage (at 20°C colitemp.) Between inverting voltage (at 20°C colitemp.) Between inverting voltage (at 10°C colitemp.) 2×10° Life Floritact value Silver alloy Kinstone Pinctional 10° (at rate dortod capacity) Insulation resistance (initial value) Silver allo		Rated operating voltage				
Rating Hating Rate power consumption Approx. 2.5VA (24 VC). Output rating Operation mode Approx. 2.5VA (24 VC). Approx. 2.5VA (24 VC). Output rating Operation mode SA 250V AC (resistive load) Operation mode Cyclic (PF-start/Twin operation) Time range 1s to 5001 f6 lime ranges switchable (T, Ts time setting individually) Setting error ±0.5% (at the operating voltage changes between 85 to 110%) Voltage error ±0.5% (at the operating voltage changes between 85 to 110%) Temperature error ±2% (at 20°C ambient temp. at the range of -0.10 to +50°C +14 to 122°F) Contact Contact resistance (Initial value) Max. 100m2 (at 1A 6V DC) Contact resistance (Initial value) Allowable operating voltage (at 20°C coll temp.) Electrical (contact) 2x10° 2x10° Life Insulation resistance (Initial value) Min. 100Mit Between contacts of ame pole Insulation resistance (Initial value) Min. 100Mit Between contacts of anne pole Insulation resistance Initial value 2.000Vms for 1min Between contacts of anne pole Insulation resistance Functional Min. 100Mit Between contacts of anne pole Insulation resistance F		Rated frequency				
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Operation time fluctuation ±0.3% (power off time change at the range of 0.3s to 1h) Setting error ±5% (Full-scale value) Voltage error ±5% (Full-scale value) Temperature error ±5% (Full-scale value) Contact Temperature error Contact arrangement Timed-out 2 Form C Contact resistance (initial value) Max. 100m2 (at 1A 6V DC) Contact resistance (initial value) Silver alloy Life Mechanical (contact) 2×10° Allowable operating voltage range 85 to 110% of rated operating voltage (at 20°C coll temp.) Between live and dead metal parts Between live and dead metal parts Insulation resistance (Initial value) Min. 100M2 Breakdown voltage (Initial value) 2,000Vrms for 1 min Between live and dead metal parts 2,000Vrms for 1 min Between ontacts of different poles (At 500V DC) Breakdown voltage (Initial value) 2,000Vrms for 1 min Between ontacts of different poles Min. power off time 300ms Max. temperature rise 55°C 131°F Vibration resistance Functional Destructive 10 to 55Hz: 1 cycle/min double amplitude of 0.5mm (10min on 3 axes)				Cyclic (OFF-start/Twin operation)		
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Image: Provide an analysis of the state and the		Voltage error		$\pm 0.5\%$ (at the operating voltage changes between 85 to 110%)		
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Atmospheric pressure 860 to 1,060hPa Ripple factor (DC type) 20% Protective construction IP65 on front panel (using rubber gasket ATC18002) <only for="" ip65="" type=""> Others Weight 120g 4.233 oz (Pin type)</only>		Ambient temperature		-10 to +50°C +14 to +122°F		
Condition Atmospheric pressure 860 to 1,060hPa Ripple factor (DC type) 20% Protective construction IP65 on front panel (using rubber gasket ATC18002) <only for="" ip65="" type=""> Others Weight 120g 4.233 oz (Pin type)</only>	Operating	erating Ambient humidity		Max. 85%RH		
Protective construction IP65 on front panel (using rubber gasket ATC18002) <only for="" ip65="" type=""> Others Weight 120g 4.233 oz (Pin type)</only>				860 to 1,060hPa		
Others Weight 120g 4.233 oz (Pin type)		Ripple factor (DC type)		20%		
Weight				IP65 on front panel (using rubber gasket ATC18002) <only for="" ip65="" type=""></only>		
130g 4.586 oz (Screw terminal type)	Others	Weight		120g 4.233 oz (Pin type)		
				130g 4.586 oz (Screw terminal type)		

Notes: 1) Unless otherwise specified, the measurement conditions at the maximum scale time standard are specified to be the rated operating voltage (within 5% ripple factor for DC), 20°C 68°F ambient temperature, and 1s power off time.

2) For the 1s range, the tolerance for each specification becomes ± 10 ms.

PRODUCT TYPE

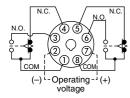
Туре	Operating mode	Contact arrangement	Time range	Protective structure	Rated Operating voltage	Terminal type	Part Number
PM4H-W Twin timer	Cyclic (OFF-start, Twin)	Relay Timed-out 2 Form C	16 selectable ranges (1s to 500h)	IP65	100 to 240V AC	8 pin	PM4HW-H-AC240VW
						Screw terminal	PM4HW-H-AC240VSW
					24V AC/DC	8 pin	PM4HW-H-24VW
						Screw terminal	PM4HW-H-24VSW
					12V DC	8 pin	PM4HW-H-DC12VW
						Screw terminal	PM4HW-H-DC12VSW
				IP50	100 to 240V AC	8 pin	PM4HW-H-AC240V
						Screw terminal	PM4HW-H-AC240VS
					24V AC/DC	8 pin	PM4HW-H-24V
						Screw terminal	PM4HW-H-24VS
					12V DC	8 pin	PM4HW-H-DC12V
					12V DC	Screw terminal	PM4HW-H-DC12VS

When ordering CE type, please order the Part No. with suffix CE. (e.g. PM4HW-H-AC240VWCE)

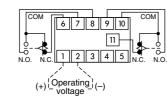
WIRING DIAGRAMS

Pin Type

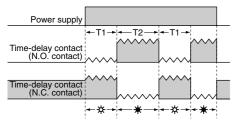
Cyclic timed-out relay contact: 2C



Screw terminal type Cyclic timed-out relay contact: 2C



OPERATION



- ☆: Output OFF indicator (red)
 ★: Output ON indicator (green)
 T1: OFF set time
 T2: ON set time

TIME RANGE

Scale	Time unit	sec	min	hrs	10h
1		0.1s to 1s	0.1 min to 1 min	0.1h to 1h	1.0h to 10h
5	Control time range	0.5s to 5s	0.5 min to 5 min	0.5h to 5h	5h to 50h
10		1.0s to 10s	1.0 min to 10 min	1.0h to 10h	10h to 100h
50		5s to 50s	5 min to 50 min	5h to 50h	50h to 500h

<PM4H-W>

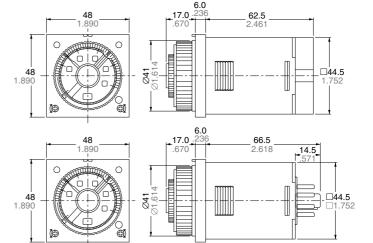
All types of PM4H-W timer have multi-time range.

16 time ranges are selectable.

1s to 500h (Max. range) is controlled.

DIMENSIONS

mm inch



MODES & TIME SETTING

1) Operation mode setting [PM4H-A] 8 operation modes are selectable with operation mode selector.

Turn the operation mode selector with screw driver.

Operation mode is shown up through the window above the mode selector. The marks are (M), (E), (B), (B), (B), (B), (B), (B), (C). Turn the mode selector to the mark until you can check by clicking sound. Confirm the mode selector position if it is

correct.

If the position is not stable, the timer might mis-operate.

2) Time setting [common]

16 time ranges are selectable between 1s to 500h.

Turn the time range selector with the screw driver.

Clockwise turning increases the time range, and Counter-clockwise turning decrease the time range.

Confirm the range selector position if it is correct.

3) Time setting [common]

To set the time, turn the set dial to a desired time within the range. Instantaneous output will be on when the dial is set to "0".

When the instantaneous output is used, the dial should be set under "0" range. (Instantaneous output area)

When power supply is on, the time

range, setting time and operation mode cannot be changed.

Turn off the power supply or a reset signal is applied to set the new operation mode.



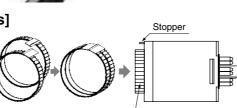
How to use "Stop ring" [PM4H series] 1) Fixed time setting Set the desired time and put 2 stop rings together.

Insert the rings into stopper to fix the time.

2) Fixed time range setting

Example: Time range 20s to 30s.

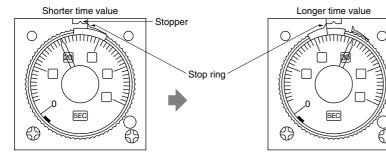
 Shorter time value setting Set the dial to 20s. Place the stop ring at the right side of stopper.

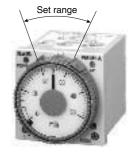


Set dial

 2 Longer time value setting Set the dial to 30s.
 Place the stop ring at the left side of stopper.

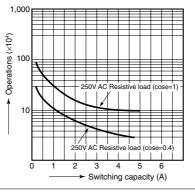
Stop ring (2 pcs)



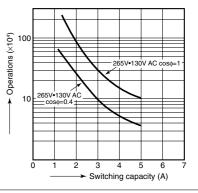


DATA ■ Load control life

• Load life curve (PM4H-A, PM4H-S, PM4H-W)



• Load life curve (PM4H-M)



CAUTIONS

1. Terminal connections

1) Refer to wiring diagram before terminal connections.

2) Use the screw terminal type for flush mounting.

For using 8 pin type, use the timer with screw terminal socket (AT8-RR) or 8 pin cap (AD8-RC).

For using 11 pin type, use the timer with 11 pin cap (AT8-DP11).

Do not solder directly the pin of the timer for connection.

3) The connection to power supply

100 to 240V AC, 24V AC type

Туре	Pin	Screw terminal	
PM4H-A PM4H-F11R	Connect the terminal 2-10 to the power source.		
PM4H-S PM4H-M PM4H-W PM4H-SD PM4H-F8 PM4H-F8R	Connect the terminal (2)-(7) to the power source.	Connect the terminal z-x to the power source.	

DC type

Туре	Pin	Screw terminal	
PM4H-A PM4H-F11R	Connect the terminal ② to negative (–), the terminal ⑩ to positive (+).	Connect the terminal x to	
PM4H-S PM4H-M PM4H-W PM4H-F8 PM4H-F8R	Connect the terminal ② to negative (–), the terminal ⑦ to positive (+).	negative (–), the terminal z to positive (+).	

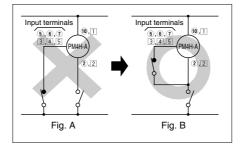
Prevent inductive or residual voltages generating between the power supply terminals after the power is off. (If the power supply cables are routed parallel to the high voltage or power cables, an inductive voltage will be generated between the power supply terminals.)

On the DC type, keep the voltage within the allowable operating voltage range with ripple rate of 20% or less.

Apply the power supply voltage at once through the switch or relay contacts. If the voltage is gradually applied, the timer may time up or power supply reset may not operate regardless of setting time. 4) The control output load must be less than the rated load capacity of the relay contacts.

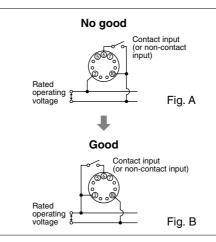
2. Input connections

1) If the circuits is connected as in Fig. A, the internal circuits must be broken. Be sure to connect the circuit as in Fig. B. Especially, for customer who has been used PM48A (Conventional type), be sure to check if the new circuit for PM4H timer is corrected as in Fig. B.



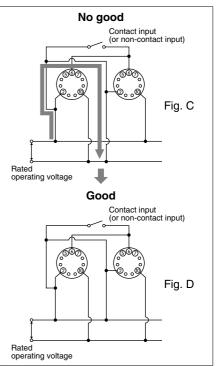
2) Since the PM4H timers use a transformerless power supply system, the input equipment must use the power supply transformer in which the secondary side is not grounded with the primary and secondary sides insulated, in order to prevent interference of the power supply circuit when connecting the external input circuit.

Be sure not to use an autotransformer. 3) Be sure not to use terminal (1) as the common terminal of the operation signal as shown in Fig. A. Otherwise, the internal circuit of the timer may be damaged. Use terminal (2) as the common terminal as shown in Fig. B.



4) When one input signal is simultaneously applied to more than one timer, be sure to avoid the wiring shown in Fig. C. Otherwise, the short-circuit current will flow and cause damage. Be sure to align the polarity of the power supply as shown in Fig. D.

Notes for PM4H series



5) Terminal (2)-(6) (screw terminal (2)-(3)) should be connected as the operation signal input. Connect terminals (2)-(7) (screw terminal (2)-(4)) for reset signal input. Connect terminals (2)-(5) (screw terminal (2)-(5)) for stop signal input. Be sure not to connect with other terminals and apply excessive voltage. The internal circuit will be damaged.

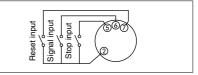
6) The input wiring other than the power supply circuit should avoid these conditions, high-voltage wiring and parallel wiring with power wire. Wire in short with using the sealed-wire or metal wiring tube.

7) For operation signal, reset and stop input, use gold-plated contact with high reliability. Since contact bouncing causes errors in the operation, use an input contact less bounce time.

8) Keep the minimum signal input time over 0.05 s.

3. Input signal conditions

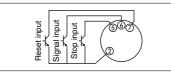
1) Connections of contact input



Use gold-plated contacts with high-reliability. The bounce time at the contacts causes errors in the timer operation time. Accordingly, use signal input contact whose bounce time is short. The resistance when shorted should be less than $1k\Omega$, and when open resistance should be more than $100k\Omega$.

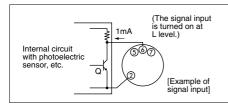
Notes for PM4H series

2) Connections of non-contact input (open-collector)



Apply the open-collector connection. The characteristics of the transistor used must be $V_{CEO}=10V$ or more, $I_C=10mA$ or more, and $I_{CBO}=6\mu A$ or less. Additionally, the input impedance must be $1k\Omega$ or less, and the residual voltage must be 0.6V or less.

3) Voltage input



Even if the open collector is not used, input is also possible from the non-contact circuit of 6 to 30V DC. In this case, the signal input is turned on when the signal is turned from H to L.

The residual voltage must be 0.6V or less when Q is on. On the AC type, an insulated transformer is required as the power supply for the photoelectric sensor, etc. (power supply for the input devices).

Note: Keep the minimum input signal time of each signal to 0.05s or more.

4. Power off time

Keep 0.1s (-A, -S, -M type), 0.5s (-SD/ SDM type), 0.3s (-W type) or more for the power off time after time cycle is completed.

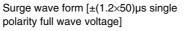
5. Cautions [Common]

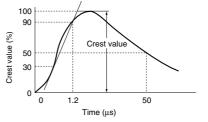
1. Prevent using the timer in such places where flammable or corrosive gas is generated, a lot of dust exists, oil is splashed or considerable shock and vibration occur.

2. Since the main body cover is made of polycarbonate resin, prevent contact with organic solvents such as methyl alcohol, benzine and thinner, or strong alkali materials such as ammonia and caustic soda.

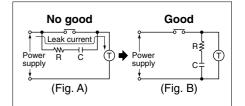
3. External surge protection may be required if the following values are exceeded. Otherwise, the internal circuit will be damaged.

Operation voltage	Surge voltage
100 to 240V AC 100 to 120V AC 200 to 240V AC 48 to 125V DC	4,000V
12V DC, 24V DC 24V AC 24V AC/DC	500V





4. For connecting and disconnecting operating voltage to the timer, a circuit should be used to prevent the flow of leakage current. For example, a circuit for contact protection as shown in Fig. A will permit leakage current to flow through R and C, causing erroneous operation of the timer. Instead, the circuit shown in Fig. B should be used.



5. In order to maintain the characteristics of the timer, long continuous current flow through the timer, causing generation of heat internally should be avoided because of the degradation it can cause. For such long continuous operation, the circuit shown below should be used.

