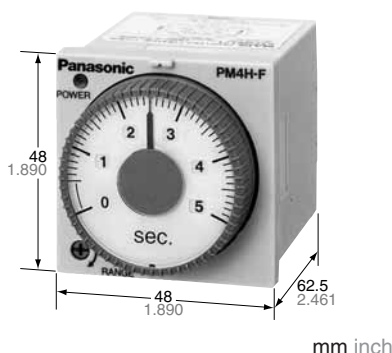


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**DIN48 SIZE ANALOG
MULTIRANGE POWER
OFF-DELAY TIMERS**

PM4H-F



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



Features

1. Switch operation times between three types of time ranges of 1 s to 10 s and 1 min to 10 min.
2. Instantaneous reset available.
3. The shorter body makes it easier to use.
4. Compliant with UL, CSA, CE and LLOYD.

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

Specifications

| Item | Type | PM4H-F8 | PM4H-F8R | PM4H-F11R |
|---------------------|---------------------------------------|--|---|--------------------|
| Rating | Rated operating voltage | 100 to 120V AC, 200 to 240V AC, 24V DC, 12V DC, 24V DC | | |
| | Rated frequency | 50/60Hz common (AC operating type) | | |
| | Rated power consumption | Approx. 1.6VA (100 to 120V AC, 200 to 240V AC), Approx. 2.3VA (24V AC) Approx. 1.1W (12V DC, 24V DC) | | |
| | Rated control capacity | 3A 250V AC (resistive load) | | |
| | Operation mode | Power OFF-delay | Power OFF-delay (with reset) | |
| Time accuracy *1 | Time range | 1s to 10s: 3 range switchable 1 min to 10 min: 3 range selectable | | |
| | Operation time fluctuation | ±0.3% | | |
| | Setting error | ±5% (Full-scale value) | | |
| | Voltage error | ±0.5% (at the operating voltage changes between 85 to 110%) | | |
| Contact | Temperature error | ±2% (at 20°C ambient temp. at the range of -10 to +50°C +14 to +122°F) | | |
| | Contact arrangement | Timed-out 2 Form C | Timed-out 1 Form C | Timed-out 2 Form C |
| | Contact resistance (Initial value) | Max. 100mΩ (at 1A 6V DC) | | |
| Life | Contact material | Au flash on Silver alloy | | |
| | Mechanical (contact) | 10 ⁷ | | |
| Electrical function | Electrical (contact) | 10 ⁵ (at rated control capacity) | | |
| | Allowable operating voltage range | 85 to 110% of rated operating voltage (at 20°C coil temp.), 90 to 110% (DC Type) | | |
| | Insulation resistance (Initial value) | Min. 100MΩ | Between live and dead metal parts Between input and output Between contacts of different poles (*3) (At 500V DC) Between contacts of same pole | |
| | Breakdown voltage (Initial value) | 1,500Vrms for 1 min Between live and dead metal parts 1,500Vrms for 1 min Between input and output 1,000Vrms for 1 min Between contacts of different poles (*3) 750Vrms for 1 min Between contacts of same pole | | |
| | Min. power supply width | s range type: 100ms min range type: 2s | | |
| | Min. reset time | 50ms | | |
| Mechanical function | Max. temperature rise | 55°C 131°F | | |
| | Vibration resistance | Functional | 10 to 55Hz: 1 cycle/min double amplitude of 0.25mm (10min on 3 axes) | |
| | | Destructive | 10 to 55Hz: 1 cycle/min double amplitude of 0.375mm (1hr on 3 axes) | |
| Shock resistance | Functional | Min. 98m/s ² (4 times on 3 axes) | | |
| | Destructive | Min. 980m/s ² (5 times on 3 axes) | | |
| Operating condition | Ambient temperature | -10 to +50°C +14 to +122°F | | |
| | Ambient humidity | 30 to 85%RH (non-condensing) | | |
| | Atmospheric pressure | 860 to 1,060hPa | | |
| | Ripple factor (DC type) | 20% | | |
| Others | Protective construction | IP65 on front panel (using rubber gasket ATC18002) <only for IP65 type> | | |
| | Weight | 100g 3.527 oz (Pin type), 110g 3.880 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.

2) For the 1s range, the tolerance for each specification becomes ±10ms. When the power goes on, inrush current (0.3A) flows. Cautions should be taken. The minimum power supplying time after forced reset input is 2s or more.

3) Between contacts of different pools for PM4H-F8, PM4H-F11R types only.

PM4H-F

Time range

| Time range | Time range unit | s range type | min range type |
|------------|-----------------|--------------|-------------------|
| 1 | | 0.04s to 1s | 0.04 min to 1 min |
| 5 | | 0.2s to 5s | 0.2 min to 5 min |
| 10 | | 0.4s to 10s | 0.4 min to 10 min |

Product types

| Type | Operation mode | Contact arrangement | Time range | Protective construction | Rated operating voltage | Terminal type | Part number |
|----------------|--|--------------------------|---|-------------------------|---|---------------|-------------------|
| PM4H-F8 | Power OFF-delay (without reset) | Relay Timed-out 2 Form C | 3 selectable time ranges over 1s to 10s | IP65 | 100 to 120V AC | 8 pins | PM4HF8-S-AC120VW |
| | | | | | 200 to 240V AC | 8 pins | PM4HF8-S-AC240VW |
| | | | | | 24V AC | 8 pins | PM4HF8-S-AC24VW |
| | | | | | 12V DC | 8 pins | PM4HF8-S-DC12VW |
| | | | | | 24V DC | 8 pins | PM4HF8-S-DC24VW |
| | | | | | 100 to 120V AC | 8 pins | PM4HF8-M-AC120VW |
| | | | | | 200 to 240V AC | 8 pins | PM4HF8-M-AC240VW |
| | | | | | 24V AC | 8 pins | PM4HF8-M-AC24VW |
| | | | 3 selectable time ranges over 1 min to 10 min | IP65 | 12V DC | 8 pins | PM4HF8-M-DC12VW |
| | | | | | 24V DC | 8 pins | PM4HF8-M-DC24VW |
| | | | | | 100 to 120V AC | 8 pins | PM4HF8-S-AC120V |
| | | | | | 200 to 240V AC | 8 pins | PM4HF8-S-AC240V |
| | | | | | 24V AC | 8 pins | PM4HF8-S-AC24V |
| | | | | | 12V DC | 8 pins | PM4HF8-S-DC12V |
| | | | | | 24V DC | 8 pins | PM4HF8-S-DC24V |
| | | | | | 3 selectable time ranges over 1 min to 10 min | IP50 | 100 to 120V AC |
| 200 to 240V AC | 8 pins | PM4HF8-M-AC240V | | | | | |
| 24V AC | 8 pins | PM4HF8-M-AC24V | | | | | |
| 12V DC | 8 pins | PM4HF8-M-DC12V | | | | | |
| 24V DC | 8 pins | PM4HF8-M-DC24V | | | | | |
| 100 to 120V AC | 8 pins | PM4HF8-S-AC120VW | | | | | |
| 200 to 240V AC | 8 pins | PM4HF8-S-AC240VW | | | | | |
| 24V AC | 8 pins | PM4HF8-S-AC24VW | | | | | |
| PM4H-F8R | Power OFF-delay (with instantaneous reset) | Relay Timed-out 1 Form C | 3 selectable time ranges over 1s to 10s | IP65 | 12V DC | 8 pins | PM4HF8R-S-DC12VW |
| | | | | | 24V DC | 8 pins | PM4HF8R-S-DC24VW |
| | | | | | 100 to 120V AC | 8 pins | PM4HF8R-M-AC120VW |
| | | | | | 200 to 240V AC | 8 pins | PM4HF8R-M-AC240VW |
| | | | | | 24V AC | 8 pins | PM4HF8R-M-AC24VW |
| | | | | | 12V DC | 8 pins | PM4HF8R-M-DC12VW |
| | | | | | 24V DC | 8 pins | PM4HF8R-M-DC24VW |
| | | | | | 3 selectable time ranges over 1s to 10s | IP50 | 100 to 120V AC |
| | | | 200 to 240V AC | 8 pins | | | PM4HF8R-S-AC240V |
| | | | 24V AC | 8 pins | | | PM4HF8R-S-AC24V |
| | | | 12V DC | 8 pins | | | PM4HF8R-S-DC12V |
| | | | 24V DC | 8 pins | | | PM4HF8R-S-DC24V |
| | | | 100 to 120V AC | 8 pins | | | PM4HF8R-M-AC120V |
| | | | 200 to 240V AC | 8 pins | | | PM4HF8R-M-AC240V |
| | | | 24V AC | 8 pins | | | PM4HF8R-M-AC24V |
| | | | 3 selectable time ranges over 1 min to 10 min | IP50 | 12V DC | 8 pins | PM4HF8R-M-DC12V |
| 24V DC | 8 pins | PM4HF8R-M-DC24V | | | | | |

| Type | Operation mode | Contact arrangement | Time range | Protective construction | Rated operating voltage | Terminal type | Part number |
|-----------|--|--------------------------|---|-------------------------|-------------------------|--------------------|---------------------|
| PM4H-F11R | Power OFF-delay (with instantaneous reset) | Relay Timed-out 2 Form C | 3 selectable time ranges over 1s to 10s | IP65 | 100 to 120V AC | 11 pins | PM4HF11R-S-AC120VW |
| | | | | | | Screw terminal | PM4HF11R-S-AC120VSW |
| | | | | | 200 to 240V AC | 11 pins | PM4HF11R-S-AC240VW |
| | | | | | | Screw terminal | PM4HF11R-S-AC240VSW |
| | | | | | 24V AC | 11 pins | PM4HF11R-S-AC24VW |
| | | | | | | Screw terminal | PM4HF11R-S-AC24VSW |
| | | | | 12V DC | 11 pins | PM4HF11R-S-DC12VW | |
| | | | | | Screw terminal | PM4HF11R-S-DC12VSW | |
| | | | | 24V DC | 11 pins | PM4HF11R-S-DC24VW | |
| | | | | | Screw terminal | PM4HF11R-S-DC24VSW | |
| | | | | IP50 | 100 to 120V AC | 11 pins | PM4HF11R-S-AC120V |
| | | | | | | Screw terminal | PM4HF11R-S-AC120VS |
| | | | 200 to 240V AC | | 11 pins | PM4HF11R-S-AC240V | |
| | | | | | Screw terminal | PM4HF11R-S-AC240VS | |
| | | | 24V AC | | 11 pins | PM4HF11R-S-AC24V | |
| | | | | | Screw terminal | PM4HF11R-S-AC24VS | |
| | | | 12V DC | 11 pins | PM4HF11R-S-DC12V | | |
| | | | | Screw terminal | PM4HF11R-S-DC12VS | | |
| | | | 24V DC | 11 pins | PM4HF11R-S-DC24V | | |
| | | | | Screw terminal | PM4HF11R-S-DC24VS | | |
| | | | 3 selectable time ranges over 1 min to 10 min | IP65 | 100 to 120V AC | 11 pins | PM4HF11R-M-AC120VW |
| | | | | | | Screw terminal | PM4HF11R-M-AC120VSW |
| | | | | | 200 to 240V AC | 11 pins | PM4HF11R-M-AC240VW |
| | | | | | | Screw terminal | PM4HF11R-M-AC240VSW |
| 24V AC | 11 pins | PM4HF11R-M-AC24VW | | | | | |
| | Screw terminal | PM4HF11R-M-AC24VSW | | | | | |
| 12V DC | 11 pins | PM4HF11R-M-DC12VW | | | | | |
| | Screw terminal | PM4HF11R-M-DC12VSW | | | | | |
| 24V DC | 11 pins | PM4HF11R-M-DC24VW | | | | | |
| | Screw terminal | PM4HF11R-M-DC24VSW | | | | | |
| IP50 | 100 to 120V AC | 11 pins | | PM4HF11R-M-AC120V | | | |
| | | Screw terminal | | PM4HF11R-M-AC120VS | | | |
| | 200 to 240V AC | 11 pins | PM4HF11R-M-AC240V | | | | |
| | | Screw terminal | PM4HF11R-M-AC240VS | | | | |
| | 24V AC | 11 pins | PM4HF11R-M-AC24V | | | | |
| | | Screw terminal | PM4HF11R-M-AC24VS | | | | |
| 12V DC | 11 pins | PM4HF11R-M-DC12V | | | | | |
| | Screw terminal | PM4HF11R-M-DC12VS | | | | | |
| 24V DC | 11 pins | PM4HF11R-M-DC24V | | | | | |
| | Screw terminal | PM4HF11R-M-DC24VS | | | | | |

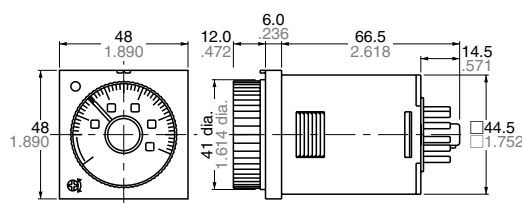
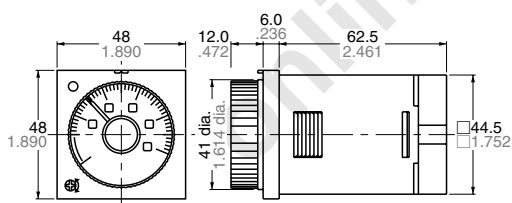
Dimensions

mm inch

Tolerance: ±0.5 ±.020

• Screw terminal type (Flush mount)

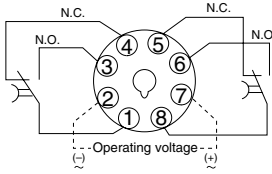
• Pin type (Flush mount/surface mount)



PM4H-F

Terminal layouts and Wiring diagrams

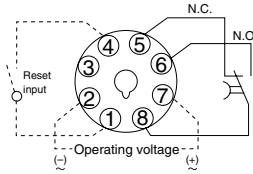
- **PM4H-F8 (without reset input)**
Pin type
Time-out 2 Form C



Screw-tightening pin type

The PM4H-F11R should be used for the time-limit 2C.

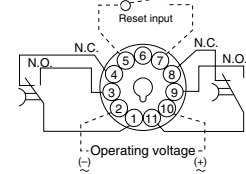
- **PM4H-F8R (with reset input)**
Pin type
Time-out 1 Form C, with reset input



Screw-tightening pin type

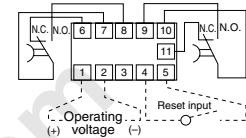
The PM4H-F11R should be used for the time-limit 1C and to connect reset input.

- **PM4H-F11R (with reset input)**
Pin type
Time-out 2 Form C, with reset input



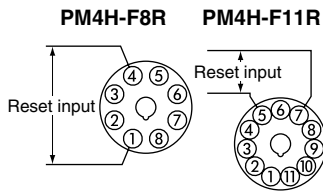
Screw terminal type

Time-out 2 Form C, with reset input



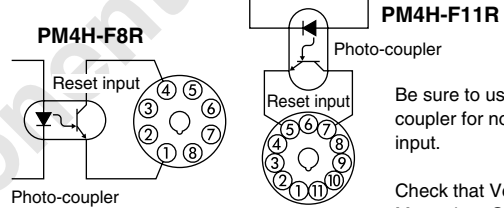
PM4H-F (with reset) input conditions

1. Contact input (pin type example)



Use a contact with good contact reliability for the input. Contact bounce can lead to erroneous operation of the timer, so use a contact with short bounce time. Make the resistance between terminals for a short circuit less than 1k-ohms. Make the resistance between terminals for an open circuit greater than 100k-ohms.

2. Non-contact input (pin type example)

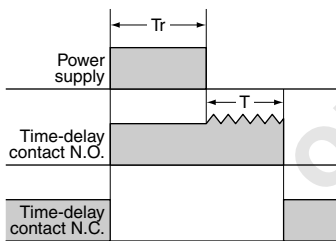


Be sure to use a photo-coupler for non-contact input.

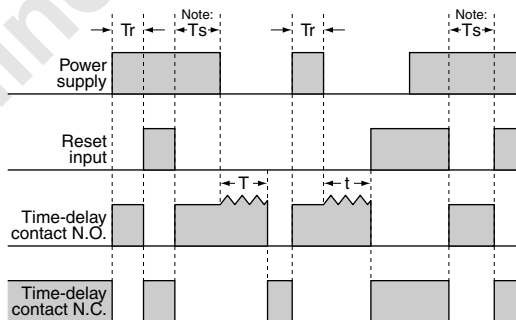
Check that $V_{ce} = 0.6V$ Max. when ON.

Operation

- **PM4H-F8 (without reset input)**



- **PM4H-F8R/F11R (with reset input)**



t_c : Time setting

T_r : Minimum power supply application time

Note: T_s : Min. 2s (Time to restart operation after reset input is set to OFF: both second type and minute type)

PM4H SERIES MODES AND TIME SETTING

1. Operation method

1) Operation mode setting [PM4H-A type]

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 (ON), (FL), (FO), (OF), (SF), (OS), (PF), (OC).
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 range setting [PM4H series 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.
If the position is not stable, the timer might mis-operate.



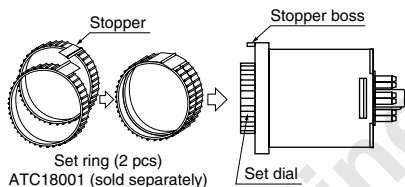
3) Time setting [common]

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

2. How to use "Set ring" [PM4H series common]

1) Fixed time setting

Set the desired time and put 2 set rings together.
Insert the rings into stopper to fix the time.

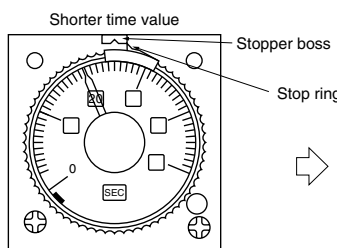


2) Time range setting

Example: Time range 20s to 30s.

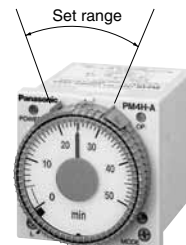
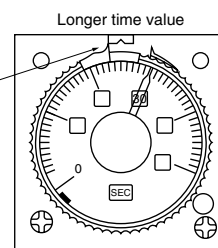
① Shorter time value setting

Set the dial to 20s.
Place the stop ring at the right side of stopper.



② Longer time value setting

Set the dial to 30s.
Place the stop ring at the left side of stopper.



Note) The stoppers for the lower limit setting set ring and the upper limit setting set ring face the opposite directions.

Applicable standard (PM4H series common)

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