Chipsmall

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With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

Panasonic
ideas for life

DIN48 SIZE ANALOG MULTIRANGE POWER OFF-DELAY TIMERS

PM4H-F

48
1.890

48
1.890

62.5
2.461

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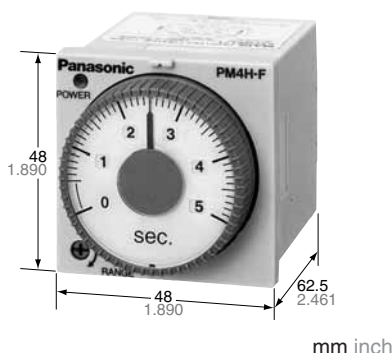
UL File No.: E122222
CSA File No.: LR39291

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 AC, 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 range		1s to 10s: 3 range switchable 1 min to 10 min: 3 range selectable		
Time accuracy *1	Operation time fluctuation		±0.3%		
	Setting error		±5% (Full-scale value)		
	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 −10 to +50°C +14 to +122°F)		
Contact	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)		
	Contact material		Au flash on Silver alloy		
Life	Mechanical (contact)		10^7		
	Electrical (contact)		10^5 (at rated control capacity)		
Electrical function	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	
	Max. temperature rise		55°C 131°F		
Mechanical function	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/s² (4 times on 3 axes)		
		Destructive	Min. 980m/s² (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, in rush 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
			3 selectable time ranges over 1 min to 10 min		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
					12V DC	8 pins	PM4HF8-M-DC12VW
					24V DC	8 pins	PM4HF8-M-DC24VW
			3 selectable time ranges over 1s to 10s	IP50	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		100 to 120V AC	8 pins	PM4HF8-M-AC120V
					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
PM4H-F8R	Power OFF-delay (with instantaneous reset)	Relay Timed-out 1 Form C	3 selectable time ranges over 1s to 10s	IP65	100 to 120V AC	8 pins	PM4HF8R-S-AC120VW
					200 to 240V AC	8 pins	PM4HF8R-S-AC240VW
					24V AC	8 pins	PM4HF8R-S-AC24VW
					12V DC	8 pins	PM4HF8R-S-DC12VW
					24V DC	8 pins	PM4HF8R-S-DC24VW
			3 selectable time ranges over 1 min to 10 min		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	8 pins	PM4HF8R-S-AC120V
					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
			3 selectable time ranges over 1 min to 10 min		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
					12V DC	8 pins	PM4HF8R-M-DC12V
					24V DC	8 pins	PM4HF8R-M-DC24V

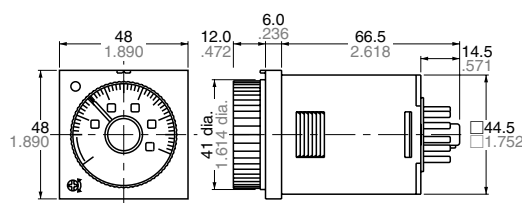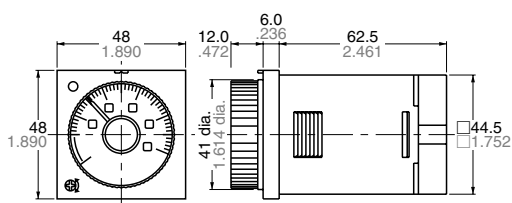| Type	Operation mode	Contact arrangement	Time range	Protective construction	Rated operating voltage	Terminal type	Part number
PM4H-F11R	Power OFF-delay (with instantaneous reset)	Relay Timed-out 2 Form C	3 selectable time ranges over 1s to 10s	IP65	100 to 120V AC	11 pins	PM4HF11R-S-AC120VW
						Screw 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)

48 1.890 / 48 1.890 / 12.0 .472 / 6.0 .236 / 62.5 2.461 / 41 dia. 1.614 dia. / □44.5 □1.752

• Pin type (Flush mount/surface mount)

48 1.890 / 48 1.890 / 12.0 .472 / 6.0 .236 / 66.5 2.618 / 14.5 .571 / 41 dia. 1.614 dia. / □44.5 □1.752
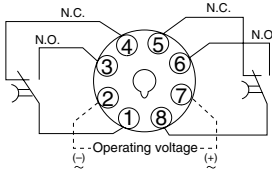
PM4H-F

Terminal layouts and Wiring diagrams

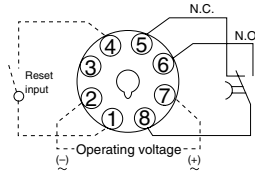**• PM4H-F8 (without reset input)**
Pin type
Time-out 2 Form C

Screw-tightening pin type
The PM4H-F11R should be used for the time-limit 2C.

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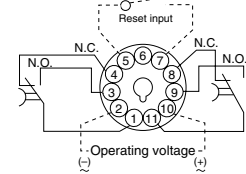Time-out 1 Form C, with reset input

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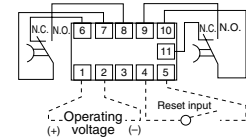The PM4H-F11R should be used for the time-limit 1C and to connect reset input.

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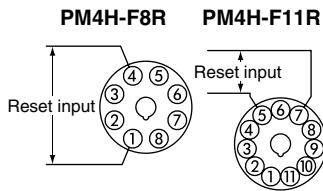Pin type
Time-out 2 Form C, with reset input

Screw terminal type
Time-out 2 Form C, with reset input

PM4H-F (with reset) input conditions

1. Contact input (pin type example)

PM4H-F8R   PM4H-F11R

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.
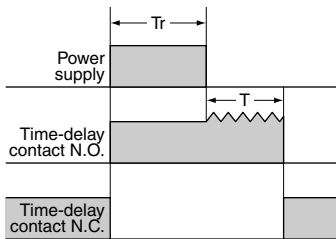
2. Non-contact input (pin type example)

PM4H-F8R   PM4H-F11R
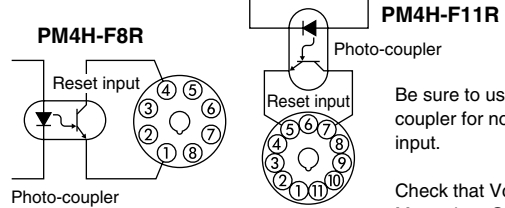
Photo-coupler

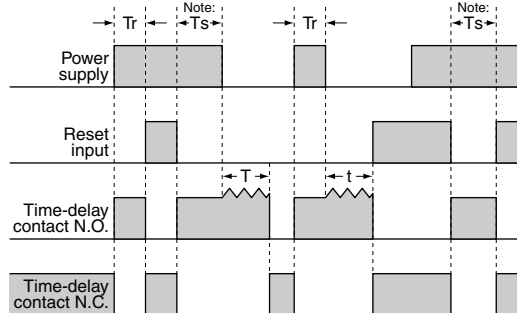Be sure to use a photo-coupler for non-contact input.

Check that Vce = 0.6V Max. when ON.

Operation

• PM4H-F8 (without reset input)

• PM4H-F8R/F11R (with reset input)

t<T: Time setting
Tr: Minimum power supply application time
Note: Ts: 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 ⓄN, ⒻL, ⒻO, ⒻI, ⓈF, ⓄS, Ⓕ2, Ⓞ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 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.

Stopper   Stopper boss

Set ring (2 pcs)   Set dial
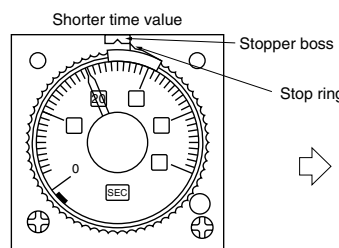ATC18001 (sold separately)
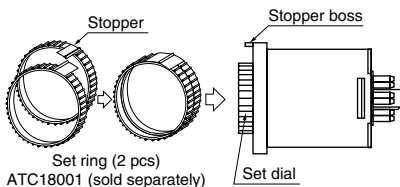
2) Time range setting
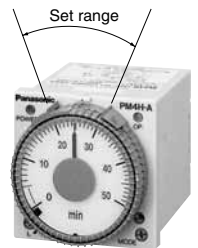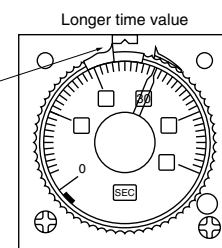Example: Time range 20s to 30s.

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.

Shorter time value   Stopper boss   Longer time value   Set range

Stop ring

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	EN55011 Group1 ClassA
	Noise terminal voltage	EN55011 Group1 ClassA
	(EMS)EN61000-6-2	
	Static discharge immunity	EN61000-4-2 4 kV contact
		8 kV air
	RF electromagnetic field immunity	EN61000-4-3 10 V/m AM modulation (80 MHz to 1 GHz)
		10 V/m pulse modulation (895 MHz to 905 MHz)
	EFT/B immunity	EN61000-4-4 2 kV (power supply line)
		1 kV (signal line)
	Surge immunity	EN61000-4-5 1 kV (power line)
	Conductivity noise immunity	EN61000-4-6 10 V/m AM modulation (0.15 MHz to 80 MHz)
	Power frequency magnetic field immunity	EN61000-4-8 30 A/m (50 Hz)
	Voltage dip/Instantaneous stop/Voltage fluctuation immunity	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)