## DIN W48×H48mm, Universal Voltage Multi-Function Timer

## $\square$ Features

- Realization of wide range of power supply :100-240VAC $50 / 60 \mathrm{~Hz}, 24-240 \mathrm{VDC}$ universal, $24 \mathrm{VAC} 50 / 60 \mathrm{~Hz}$, 24VDC universal, 12VDC
- Various output operation (6 kinds modes)
- Multi time range (16 kinds of time range)
- Wide control time ( 0.05 sec to 100 hour )
- Easy setting of time, time range, output operation mode

- Easy to check output status by indicator


## ( $\mathcal{c} \mathrm{MH}_{\mathrm{us}}$

## Ordering Information

| AT | 8 N |  |  |
| :---: | :---: | :---: | :---: |
| Item | Power supplyTime operationNumber of plug pins | No mark | 100-240VAC 50/60Hz, 24-240VDC |
|  |  | 1 | 12VDC |
|  |  | 2 | 24VAC 50/60Hz, 24VDC |
|  |  | N | Time limit DPDT (2c) or instantaneous SPDT (1c)+Time limit SPDT (1c) selectable by output operation mode |
|  |  | DN | Time limit DPDT (2c) |
|  |  | EN | Instantaneous SPDT (1c)+Time limit SPDT (1c) |
|  |  | 8 | 8-pin plug type |
|  |  | 11 | 11-pin plug type |
|  |  | AT | Analog Timer |

※8-pin socket (PG-08, PS-08(N), PS-08) and 11-pin socket (PG-11, PS-11(N)) are sold separately.

Specifications

| Model |  | AT8N- $\square$ | AT11DN- $\square$ | AT11EN- $\square$ |
| :---: | :---: | :---: | :---: | :---: |
| Function |  | Multi Function Timer |  |  |
| Control time setting range ${ }^{* 1}$ |  | 0.05 sec to 100hour |  |  |
| Power supply |  | - 100-240VAC~50/60Hz, 24-240VDC=-= universal •24VAC~50/60Hz, 24VDC=-= universal •12VDC=-= |  |  |
| Allowable voltage range |  | 90 to 110\% of rated voltage |  |  |
| Power consumption |  | - Max. 4.3VA (100-240VAC~), <br> Max. 2W (24-240VDC=-) <br> - Max. 4.5VA (24VAC~), <br> Max. 2W (24VDC=- ) <br> - Max. 1.5W (12VDC=-=) | - Max. 3.5VA (100-240VAC~), <br> Max. 1.5W (24-240VDC=-=) <br> - Max. 4VA (24VAC~), <br> Max. 1.5W (24VDC=- $)$ <br> - Max. 1W (12VDC=-=) | - Max. 4.3VA (100-240VAC~), <br> Max. 2W (24-240VDC=-) <br> - Max. 4.5VA (24VAC~), <br> Max. 2W (24VDC=- ) <br> - Max. 1.5W (12VDC=-=) |
| Return time |  | Max. 100ms |  |  |
| Timing operation |  | Power ON Start | Signal ON Start |  |
| Min. input signal width |  | - | INHIBIT, START, RESET: Approx. 50ms |  |
| Input |  | - | INHIBIT, START, RESET: [No-voltage input] <br> - Short-circuit impedance: Max. $1 \mathrm{k} \Omega$, Residual voltage: Max. 0.5 V , Open-circuit impedance: Min. 100k $\Omega$ |  |
| Control output | Contact type | ```Time limit DPDT (2c) or Instantaneous SPDT (1c)+ Time limit SPDT (1c) selectable by output operation mode``` | Time limit DPDT (2c) | Instantaneous SPDT (1c)+ Time limit SPDT (1c) |
|  | Contact capacity | $\begin{aligned} & \text { 250VAC } \sim 5 A, 30 V D C=-5 A \\ & \text { resistive load } \end{aligned}$ | $\begin{aligned} & \text { 250VAC } \sim 5 A, 24 V D C=-=5 A \\ & \text { resistive load } \end{aligned}$ | $\begin{aligned} & \text { 250VAC } \sim 5 A, 30 V D C=-5 A \\ & \text { resistive load } \end{aligned}$ |
| Relay life cycle | Mechanical | Min. 10,000,000 operations |  |  |
|  | Electrical | Min. 100,000 operations (250VAC 5A resistive load) |  |  |
| Repeat error |  | Max. $\pm 0.2 \% \pm 10 \mathrm{~ms}$ |  |  |
| SET error |  | Max. $\pm 5 \% \pm 50 \mathrm{~ms}$ |  |  |
| Voltage error |  | Max. $\pm 0.5 \%$ |  |  |
| Temperature error |  | Max. $\pm 2 \%$ |  |  |
| Insulation resistance |  | Over $100 \mathrm{M} \Omega$ (at 500VDC megger) |  |  |

※1: Refer to time specifications for control time setting range by model.

## Multi Function Analog Timer

Specifications

| Model |  | AT8N- $\square$ | AT11DN- $\square$ | AT11EN- $\square$ |
| :---: | :---: | :---: | :---: | :---: |
| Dielectric strength |  | 2,000VAC $50 / 60 \mathrm{~Hz}$ for 1 minute |  |  |
| Noise immunity | $\begin{aligned} & \text { AT } \square \square-1 \\ & \text { AT } \square \square-2 \\ & \hline \end{aligned}$ | $\pm 500 \mathrm{~V}$ the square wave noise (pulse width $1 \mu \mathrm{~s}$ ) by noise simulator |  |  |
|  | AT $\square \square$ | $\pm 2 \mathrm{kV}$ the square wave noise (pulse width $1 \mu \mathrm{~s}$ ) by noise simulator |  |  |
| Vibration | Mechanical | 0.75 mm amplitude at frequency of 10 to 55 Hz (for 1 min ) in each $\mathrm{X}, \mathrm{Y}, \mathrm{Z}$ direction for 1hour |  |  |
|  | Malfunction | 0.5 mm amplitude at frequency of 10 to 55 Hz (for 1 min ) in each $\mathrm{X}, \mathrm{Y}, \mathrm{Z}$ direction for 10 min |  |  |
| Shock | Mechanical | $300 \mathrm{~m} / \mathrm{s}^{2}$ (approx. 30G) in each X, Y, Z direction 3 times |  |  |
|  | Malfunction | $100 \mathrm{~m} / \mathrm{s}^{2}$ (approx. 10G) in each X, Y, Z direction 3 times |  |  |
| Environment | Ambient temperature | -10 to $55^{\circ} \mathrm{C}$, storage: -25 to $65^{\circ} \mathrm{C}$ |  |  |
|  | Ambient humidity | 35 to $85 \% \mathrm{RH}$, storage: 35 to $85 \% \mathrm{RH}$ |  |  |
| Approval |  | C $\epsilon_{c}{ }^{-1)_{\text {us }}}$ |  |  |
| Accessory |  | Bracket |  |  |
| Weight ${ }^{* 2}$ |  | Approx. 134.12g (approx. 86.71g) | Approx. 132.2g (approx. 85g) | Approx. 134.7g (approx. 87.5g) |

$※ 2$ : The weight includes packaging. The weight in parenthesis is for unit only.
※Environment resistance is rated at no freezing or condensation.

## Connections

## © AT8N

- When selecting [A], [F] output operation mode

※1: AC/DC voltage: $100-240$ VAC $50 / 60 \mathrm{~Hz}, 24-240 V D C$
: 24VAC $50 / 60 \mathrm{~Hz}, 24 \mathrm{VDC}$
DC voltage:12VDC
© AT11DN

- When selecting [A1], [B], [F1], [I] output operation mode

(A)

Photoelectric
Sensors
(B)
Fiber

Optic Optic
Sensors
(C)
(C)
Door/Area

Sensors
(D) Proximity
Sensors
(E)
Pressure Pressure
Sensors
(F)
Rotary

Encoders
(G)
Connectors/ Connectors
Connector Cables/ Sensor Distribution Boxes/Sockets

Dimensions

※8-pin socket (PG-08, PS-08(N), PS-08) and 11-pin socket (PG-11, PS-11(N)) are sold separately.
Refer to the '(G)Connectors/Connector Cables/Sensor Distribution Boxes/Sockets'.

- Bracket


- Panel cut-out


Unit Description


Time Specifications

| Time range | Time unit | Time setting range | Time range | Time unit | Time setting range |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 0.5 | SEC | 0.05 to 0.5 sec | 0.5 | HOUR | 0.05 to 0.5hour |
| 1 |  | 0.1 to 1 sec | 1 |  | 0.1 to 1hour |
| 5 |  | 0.5 to 5 sec | 5 |  | 0.5 to 5hour |
| 10 |  | 1 to 10sec | 10 |  | 1 to 10hour |
| 0.5 | MIN | 0.05 to 0.5 min | 0.5 | 10H | 0.5 to 5hour |
| 1 |  | 0.1 to 1 min | 1 |  | 1 to 10hour |
| 5 |  | 0.5 to 5 min | 5 |  | 5 to 50hour |
| 10 |  | 1 to 10 min | 10 |  | 10 to 100hour |

## Output Operation Mode

## - AT8N

| Display | Output operation mode |
| :--- | :--- |
| A | Power ON Delay |
| A1 | Power ON Delay1 (One-Shot output) |
| B | Power ON Delay2 |
| F | Flicker (OFF Start) |
| F1 | Flicker1 (ON Start) |
| I | Interval |

## - AT11DN/AT11EN

| Display | Output operation mode |
| :--- | :--- |
| A | Signal ON Delay |
| F | Flicker (OFF Start) |
| F1 | Flicker1 (ON Start) |
| C | Signal OFF Delay |
| D | Signal ON/OFF Delay |
| I | Interval |

## Multi Function Analog Timer


$\square$ Output Operation Mode (AT11DN/AT11EN)
[ t : Setting time, $\mathrm{t}=\mathrm{t} 1+\mathrm{t} 2, \mathrm{t}>\mathrm{t}-\mathrm{a}$ ]


## Proper Usage

## © Input connection (AT11DN/AT11EN)

- Power circuit of AT11DN/EN timer does not use trans. Use isolation transformer which secondary part is not grounded as (Figure 1) to cut off peripheral current flow for supplied power to external input deivces.

- As (Figure 2), if using terminal (10) as common terminal of input signal, it may cause damage to inner circuit of AT11DN/EN timer. Use terminal (2) as common terminal referring to (Figure 3).

- In order to apply input signals (INHIBIT, START, RESET), short-circuit the terminal no. (2)-(5), (2)-(6) or (2)-(7). It may cause internal circuit damage by wrong connections.
- Do not wire INHIBIT, START, RESET signal input line with power line, high voltage line in parallel.


## © Common

- Please connect DC power input after checking polarity of power.
- 12VDC, 24VDC, 24VAC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
- When applying the power to the timer, please apply the rated power at the moment by switch, relay, etc.
Otherwise it might cause malfunction.
- When supply the power to the timer, connection shown in (Figure 4) might cause malfunction due to leakage current through $R$ and $C$.
Please connect R and C as shown in (Figure 5) to prevent malfunction.

- It might cause malfunction if changing the setting time, time range or operation mode during unit operating unit. Please change the setting time, time range or operation mode after cut the power off.
- Do not use this unit at below places.
- Place where there are severe vibration or impact.
- Place where strong alkalis or acids are used.
- Place where there are direct ray of the sun.
- Place where strong magnetic field or electric noise are generated.
- Installation environment
- Indoors
- Altitude max. 2,000m
- Pollution degree 2
- Installation category II
(A)

Photoelectric
Sensors
(B)
Fiber

Optic
Sensors
(C)
Door/Area

Door/Area
Sensors
(D)

Proximity
Sensors
Sensors
$(\mathrm{E})$
Pres
(
Pressure
Sensors
(F)

Rotary
Encoders

Connectors/
Connector Cables/
Sensor Distribution
Boxes/Sockets
( H )
Temperature
Controllers
(I)
SSRs

SRRs / Power
Controllers
(J)
Coun

Counters
(K)
Time

Timers
(L)

Panel
Meters
(M)

Tacho /
Speed / Pulse
Speed/P
Meters
(N)
Display
(

Display
Units
( O )
Sensor
Controllers
(P)
Switchin

Mode Power
Supplie
(Q)

Stepper Motors
\& Drivers
(R)
(R)
Graphic

Logic
Panels
(S)
Field

Field
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