

# Multi Function Timer

## DIN W48 × H48mm, Universal voltage Multi-function Timer

### ■ Features

- Realization of wide range of power supply  
: 24-240VAC 50/60Hz / 24-240VDC, 12VDC (Option)
- Various output operation (6 kinds modes)
- Multi time range (16 kinds of time range)
- Wide control time (0.05sec ~ 100hour)
- Easy setting of time, time range, output operation mode
- Easy to check output status by LED display



**⚠ Please read "Caution for your safety" in operation manual before using.**



AT	8	N	-	
Power supply	No mark	100-240VAC 50/60Hz / 24-240VDC		
	1	12VDC		
Time operation	2	24VAC 50/60Hz / 24VDC		
	N	Time limit contact 2c or time limit contact 1c with instantaneous contact 1c by selecting output operation mode		
Number of plug pins	8	8-pin plug type		
Item	AT	Analog Timer		

※Sockets (PG-08, PS-08(N)) are sold separately.

AT	11	DN	-	
Power supply	No mark	100-240VAC 50/60Hz / 24-240VDC		
	1	12VDC		
Time operation	2	24VAC 50/60Hz / 24VDC		
	DN	Time limit 2c		
Number of plug pins	EN	Time limit 1c, Instantaneous contact 1c		
	11	11-pin plug type		
Item	AT	Analog Timer		

※Sockets (PG-11, PS-11(N)) are sold separately.

Model	AT8N-□	AT11EN-□	AT11DN-□	
Function	Multi function timer			
Control time setting range	0.05 sec. to 100 hour			
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), Max. 2W (24-240VDC) • Max. 4.5VA (24VAC), Max. 2W (24VDC) • Max. 1.5W (12VDC)	• Max. 3.5VA (100-240VAC), Max. 1.5W (24-240VDC) • Max. 4VA (24VAC), Max. 1.5 (24VDC) • Max. 1W (12VDC)		
Reset time	Max. 100ms			
Min. input signal width	START		Min. 50ms	
	INHIBIT	—		
	RESET			
Input	START		No-voltage input - Short-circuit impedance: Max. 1kΩ Residual voltage: Max. 0.5V Open-circuit impedance: Min. 100kΩ	
	INHIBIT	—		
	RESET			
Timing operation	Power ON start type	Signal ON Start type		
Control output	Contact type	Time limit DPDT (2c), Time limit DPDT (1c)+ Instantaneous DPDT (1c) by selecting output operation mode	Time limit SPDT (1c), Instantaneous SPDT (1c)	Time limit DPDT (2c)
	Contact capacity	250VAC 5A resistive load		
Relay life cycle	Mechanical	Min. 10,000,000 operations		
	Electrical	Min. 100,000 operations (250VAC 5A resistive load)		
Repeat error	Max. ±0.2% ±10ms			
SET error	Max. ±5% ±50ms			
Voltage error	Max. ±0.5%			
Temperature error	Max. ±2%			
Insulation resistance	Min. 100MΩ (at 500VDC megger)			
Dielectric strength	2000VAC 50/60Hz for 1 minute			
Environment	Ambient temperature	-10 to 55°C, storage: -25 to 65°C		
	Ambient humidity	35 to 85%RH		
Approval	CE c UL US			
Accessory	Bracket			
Unit weight	Approx. 90g			

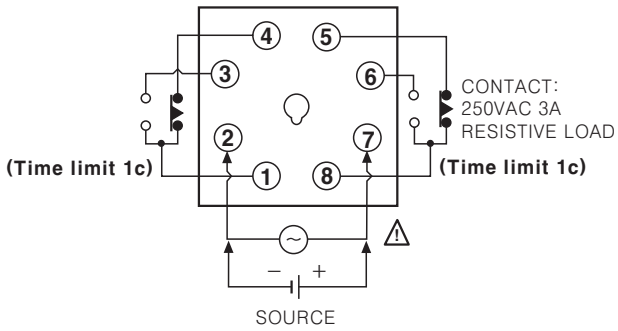
※Environment resistance is rated at no freezing or condensation.

# ATN Series

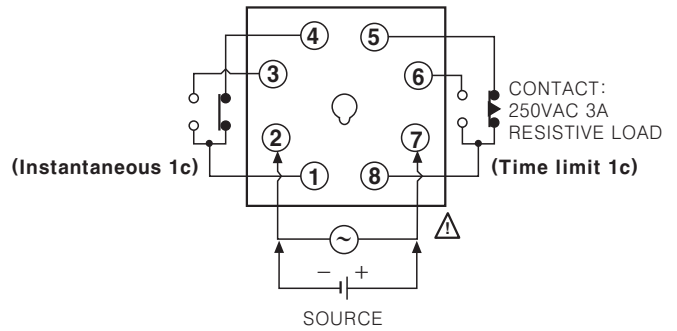
## Connections

### AT8N

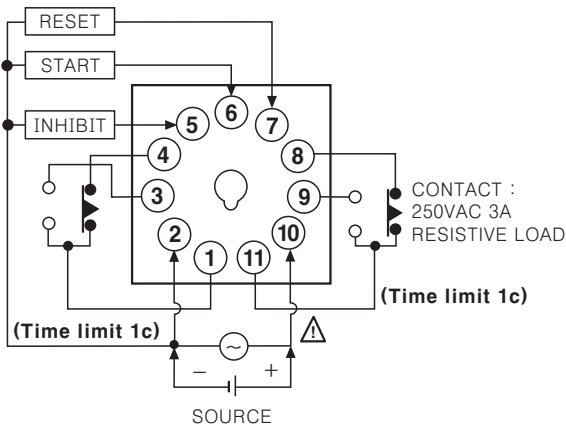
• [A], [F] mode



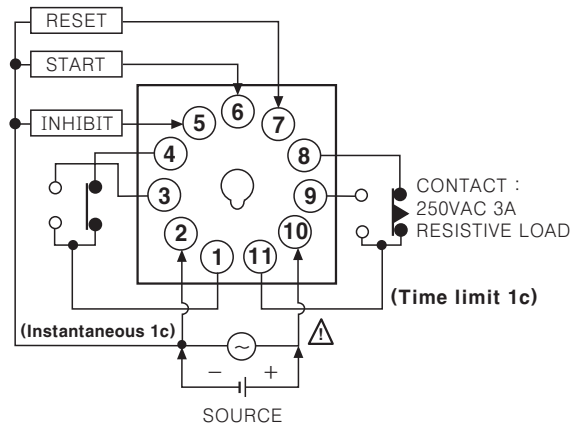
• [A1], [B], [F1], [I] mode



### AT11DN

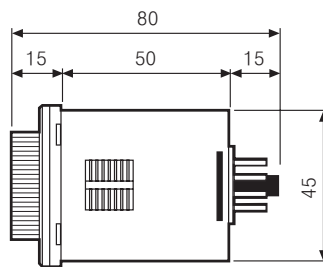
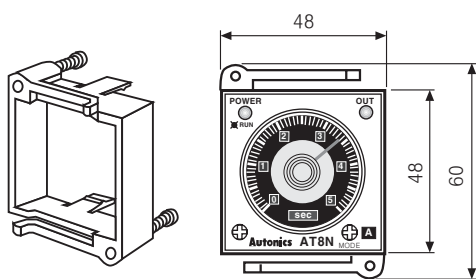


### AT11EN

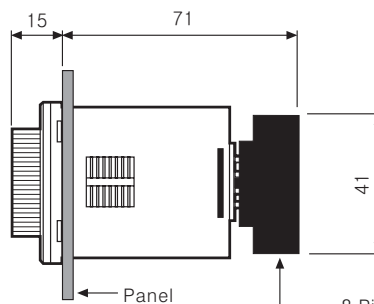
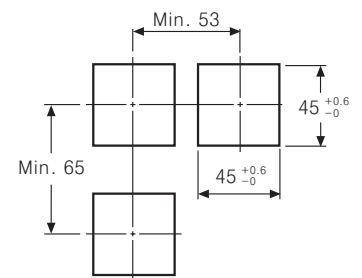


## Dimensions

• Bracket



• Panel cut-out

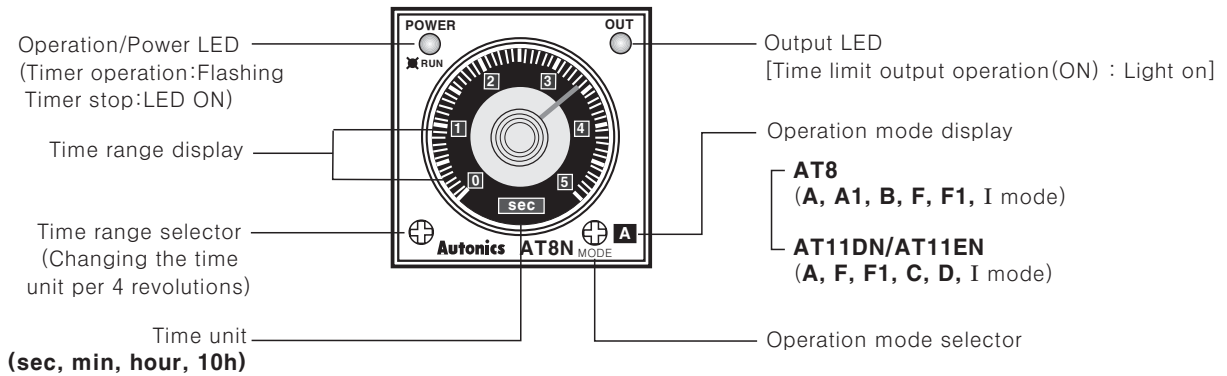


8 Pin socket : PG-08 (Sold separately)  
11 Pin socket : PG-11 (Sold separately)  
\* Refer to B-5 page.

(Unit:mm)

# Multi Function Timer

## ■ Front panel identification



※Please rotate the time range switch and operation mode switch to CW (Clockwise) direction.

## ■ Time specifications

Time range	Time unit	Time setting range
0.5	<b>sec</b>	0.05~0.5
1.0		0.1~1.0
5		0.5~5
10		1~10
0.5	<b>min</b>	0.05~0.5
1.0		0.1~1.0
5		0.5~5
10		1~10
0.5	<b>hour</b>	0.05~0.5
1.0		0.1~1.0
5		0.5~5
10		1~10
0.5	<b>10h</b>	0.05~0.5
1.0		0.1~1.0
5		0.5~5
10		1~10

## ■ Output operation mode of each model

### ●AT8N

Display	Output operation mode
<b>A</b>	POWER ON DELAY
<b>A1</b>	POWER ON DELAY 1
<b>B</b>	POWER ON DELAY 2
<b>F</b>	FLICKER (OFF START)
<b>F1</b>	FLICKER 1 (ON START)
<b>I</b>	INTERVAL

### ●AT11DN/AT11EN

Display	Output operation mode
<b>A</b>	SIGNAL ON DELAY
<b>F</b>	FLICKER (OFF START)
<b>F1</b>	FLICKER 1 (ON START)
<b>C</b>	SIGNAL OFF DELAY
<b>D</b>	SIGNAL ON/OFF DELAY
<b>I</b>	INTERVAL

# ATN Series

## AT8N Output operation mode

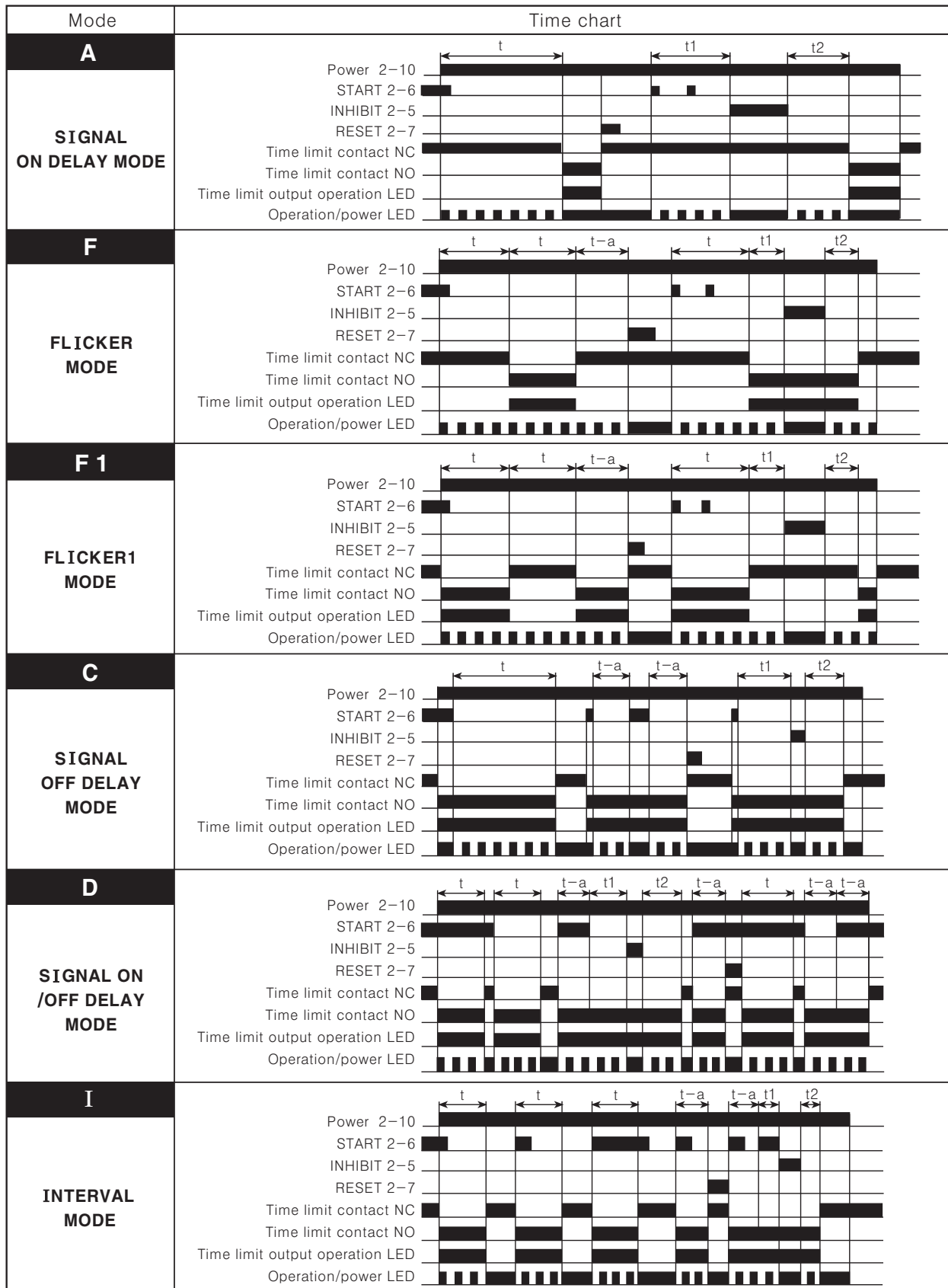
t:Setting time,  $t > t-a$ , Rt:Return time(Max. 100ms)

Mode	Time chart
<b>A</b>	
<b>POWER ON DELAY MODE</b>	<p>Power 2-7</p> <p>Time limit contact NC 1-4 (8-5)</p> <p>Time limit contact NO 1-3 (8-6)</p> <p>Time limit output operation LED</p> <p>Operation/power LED</p>
<b>A 1</b>	
<b>POWER ON DELAY 1 MODE (One-shot output)</b>	<p>Power 2-7</p> <p>Time limit contact NC 8-5</p> <p>Time limit contact NO 8-6</p> <p>Instantaneous contact NC 1-4</p> <p>Instantaneous contact NO 1-3</p> <p>Time limit output operation LED</p> <p>Operation/power LED</p> <p>*One-shot output is 0.5sec fixed.</p>
<b>B</b>	
<b>POWER ON DELAY 2 MODE</b>	<p>Power 2-7</p> <p>Time limit contact NC 8-5</p> <p>Time limit contact NO 8-6</p> <p>Instantaneous contact NC 1-4</p> <p>Instantaneous contact NO 1-3</p> <p>Time limit output operation LED</p> <p>Operation/power LED</p>
<b>F</b>	
<b>FLICKER MODE</b>	<p>Power 2-7</p> <p>Time limit contact NC 1-4 (8-5)</p> <p>Time limit contact NO 1-3 (8-6)</p> <p>Time limit output operation LED</p> <p>Operation/power LED</p>
<b>F 1</b>	
<b>FLICKER 1 MODE</b>	<p>Power 2-7</p> <p>Time limit contact NC 8-5</p> <p>Time limit contact NO 8-6</p> <p>Instantaneous contact NC 1-4</p> <p>Instantaneous contact NO 1-3</p> <p>Time limit output operation LED</p> <p>Operation/power LED</p>
<b>I</b>	
<b>INTERVAL MODE</b>	<p>Power 2-7</p> <p>Time limit contact NC 8-5</p> <p>Time limit contact NO 8-6</p> <p>Instantaneous contact NC 1-4</p> <p>Instantaneous contact NO 1-3</p> <p>Time limit output operation LED</p> <p>Operation/power LED</p>
<p>*When using F, F1 output operation modes, if the time is set too short, the output may not work properly. Please set the time at least over 100ms.</p>	

# Multi Function Timer

## AT11DN/AT11EN Output operation mode

$$t=t_1+t_2, t>t-a$$



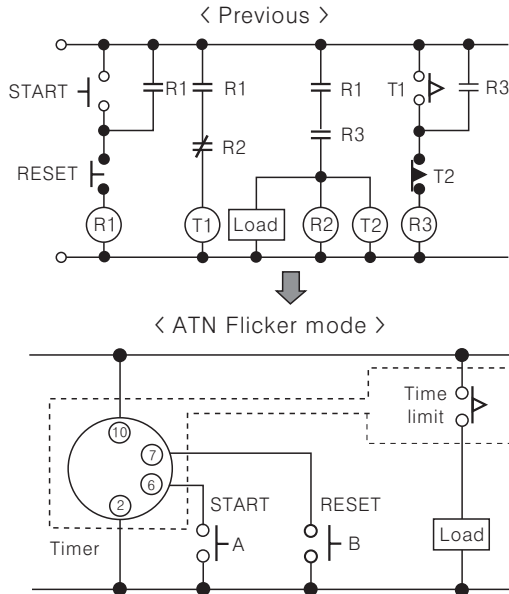
- Note) 1. If power is removed or the RESET terminal is short-circuited, the timer will be reset.  
 2. If the INHIBIT terminal is short-circuited during a timing cycle, the time will stop.  
 3. When using F, F1 output operation modes, if the time is set too short, the output may not work properly. Please set the time at least over 100ms.

# ATN Series

## ■ Proper usage

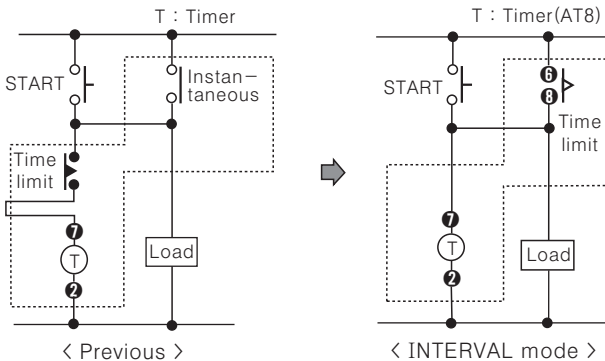
### ◎ Repeat function (Flicker)

- It enables to use one ATN Timer for 3 Sub Relays and 2 Timers (Flicker function).  
Simple to use Flicker function with only one ATN Timer.
- Switch A : Start, Switch B: Reset.



### ◎ INTERVAL mode

It enables to make Instantaneous ON and Time limit OFF (Remained circuit) with using INTERVAL mode.



### ◎ Input signal condition (AT11DN, AT11EN)

#### 1. Relay contact input

Please use gold-plated switches with good contact assurance and short bouncing time for contact input. (Open resistance: Over 100kΩ, Short-circuit resistance: Under 1kΩ)

※ Please use a contact that can function reliably at 5VDC 0.4mA.

#### 2. NPN open collector transistor input

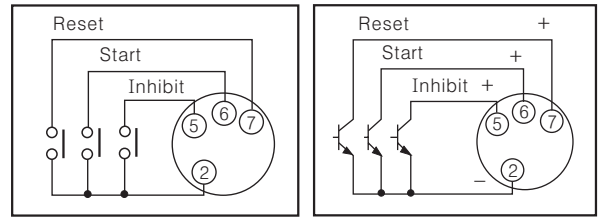
Please use the characteristic of transistor as follow;

V<sub>ceo</sub> : Min. 25V

I<sub>c</sub> : Min. 10mA

I<sub>cbo</sub> : Max. 0.2μA.

Residual voltage : Max. 0.5V

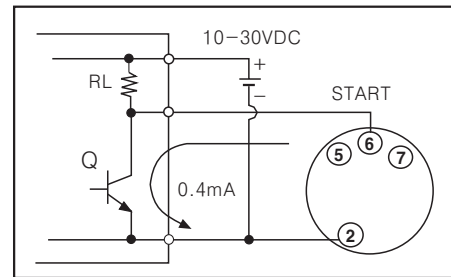


### 3. NPN universal input

It enables to use voltage output type as input signal source instead of open collector output in Solid-state circuit (Proximity sensor, Photo-electric sensor) which has range of 10-30VDC output voltage.

When H signal change to L, Timer will start.

When transistor (Q) is ON status, please make residual voltage under 0.5V.



### ◎ Terminal connection

- 1) Please wire correctly with wiring instructions
- 2) Power connection

Connect the power line without observing polarity for ATN series AC power type, but please be careful of power connection for DC power type.

Power supply	8 Pin Type	11 Pin Type
AC Type	Terminal ② - ⑦	Terminal ② - ⑩
DC Type	Terminal ② ← ⊖ Terminal ⑦ ← ⊕	Terminal ② ← ⊖ Terminal ⑩ ← ⊕

- When turning off the power, be careful of inductive voltage. (If using power line with another high voltage line or energy line near by, it may cause inductive voltage).
  - Power ripple should be under 10% and power supply should be within range of allowable voltage for DC power type.
  - Please supply the power quickly when using a switch or a relay contact. Otherwise, it may cause time error or power reset failure.
- 3) The load of Control output should be under rated load capacity.

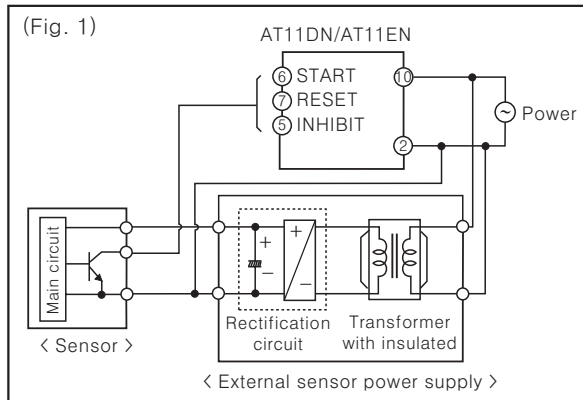
# Multi Function Timer

## ◎Setting time, Time range, Operation mode

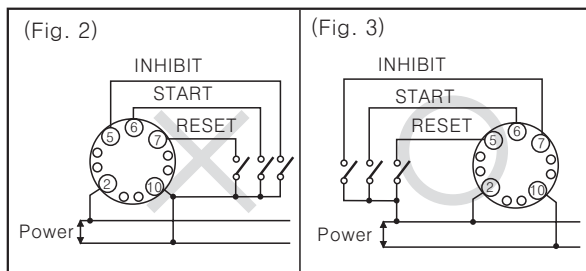
Do not change time range or operation mode while time operating. When changing it, please power off or apply reset signal.

## ◎Input connection

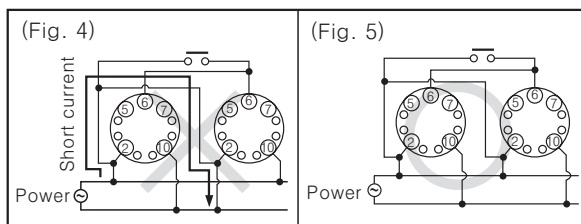
1) AT11DN/AT11EN Timer is transformerless type, therefore please check following for connecting relay contact for input signal and transistor.



2) When using the terminal ⑩ as a common terminal of input signal as (Fig. 2), it may cause damage to the inner circuit of AT11DN/AT11EN, please use the terminal ② for common terminal as (Fig. 3).



3) When using more than one timer with one contact or transistor input, the short current is flowed when it is connected as (Fig. 4). Please connect the power phase correctly as (Fig. 5) correctly.



4) INHIBIT, START, RESEST signal applied by short-circuiting input terminal ②-⑤, ②-⑥ or ②-⑦.

It may cause internal circuit damaged by wrong connection.

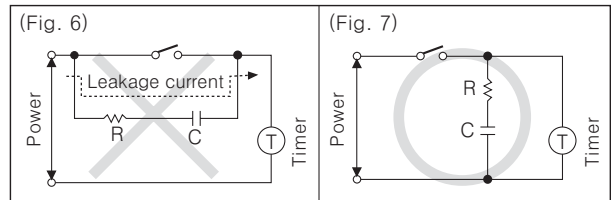
5) If using power line with another high voltage line or energy line at the same conduit, it may cause inductive voltage. Therefore please use seperated conduit for power line.

6) When input (INHIBIT, START, RESEST) wire is long, plse use shield wire and it should be short.

## ◎Common

1) If operating the unit in high temperature, it may cause damage to internal components (Electrolytic Condenser etc).

2) Please use it as (Fig. 7) in order not to flow leakage current into timer.



## 3) Environment

Please avoid the following places:

- Where this product may be damaged by strong impact or vibration.
- Where corrosive gas or flammable gas and water, oil, dust exist.
- Where magnetic and electrical noise occurs.
- Where there are high temperature and humidity beyond rated specification.
- Where there are strong alkalis and acids.
- Where there are direct rays of sun.