

## DIN size W48 × H48mm, Solid State, Multi-function Timer

### ■ Features

- New model interchangeable with AT series
- Various output operation by adding the modes (6 kinds of operation modes and 26 kinds of timing range)
- Power supply : 100–240VAC 50/60Hz / 24–240VDC 12VDC (Option)
- 16 programmable timing range (0.05sec ~ 100hour)
- Easy programming from front panel
- LED indicators for timing and output status

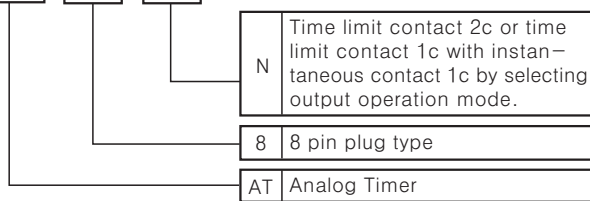


**⚠ Please read "Caution for your safety" in operation manual before using.**



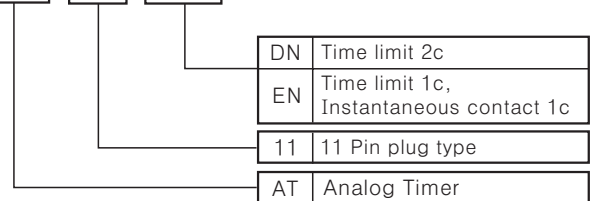
### ■ Ordering information

**AT 8 N**



\*Socket required : PG-08, PS-08

**AT 11 DN**



\*Socket required : PG-11, PS-11

### ■ Specifications

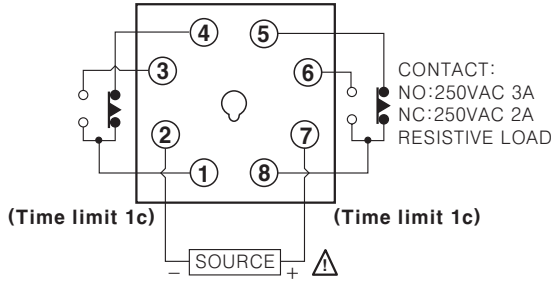
Model	AT8N		AT11DN		AT11EN	
Function	<b>MULTI TIMER</b>					
Control time setting range	0.05sec~100hour (Max. time)					
Power supply	100–240VAC 50/60Hz / 24–240VDC, 12VDC (Option)					
Allowable voltage range	90 ~ 110% of rated voltage□					
Power consumption	Approx. 4.5VA (240VDC 60Hz) Approx. 1.5W (240VDC) Approx. 0.6W (12VDC)		Approx. 4.5VA (240VDC 60Hz) Approx. 1.3W (240VDC) Approx. 0.9W (12VDC)		Approx. 4.5VA (240VDC 60Hz) Approx. 1.5W (240VDC) Approx. 0.6W (12VDC)	
Return time□	Max. 100ms					
Min. input signal width	START input	—	Min. 50ms			
	RESET input					
	INHIBIT input					
Input	START input	—	[No-voltage input] Short-circuit impedance : Max. 1kΩ Residual voltage : Max. 0.5V Open-circuit impedance : Min. 100kΩ			
	RESET input					
	INHIBIT input					
Control output□	Contact type	Time limit contact DPDT (2c), Time limit contact DPDT (1c) + Instantaneous contact DPDT (1c) by selecting output operation mode	Time limit DPDT (2c)		Time limit SPDT (1c), Instantaneous contact SPDT (1c)	
	Contact capacity	NO : 250VAC 3A resistive load NC : 250VAC 2A resistive load	250VAC 3A resistive load		NO : 250VAC 3A resistive load NC : 250VAC 2A resistive load	
Relay life cycle	Mechanical	Min. 10,000,000 operations				
	Electrical	Min. 100,000 operations (Rated contact capacity)				
Repeat error	Max. ±0.3%					
Setting error	Max. ±5% ±0.05sec					
Voltage error	Max. ±0.5%					
Temperature error	Max. ±2%					
Insulation resistance	Min. 100MΩ (at 500VDC)					
Dielectric strength	2000VAC 50/60Hz for 1 minute					
Noise strength	±2kV the square wave noise (pulse width: 1μs) by the noise simulator					
Vibration	Mechanical	0.75mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 1 hour				
	Malfunction	0.5mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 10 minutes				
Shock	Mechanical	300m/s <sup>2</sup> (Approx. 30G) in X, Y, Z directions 3 times				
	Malfunction	100m/s <sup>2</sup> (Approx. 10G) in X, Y, Z directions 3 times				
Ambient temperature	-10 ~ +55°C (at non-freezing status)					
Storage temperature	-25 ~ +65°C (at non-freezing status)					
Ambient humidity	35 ~ 85%RH					
Weight	Approx. 100g					

# Multi Functional Timer

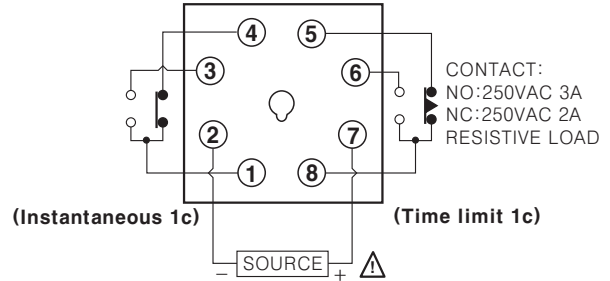
## Connections

### AT8N

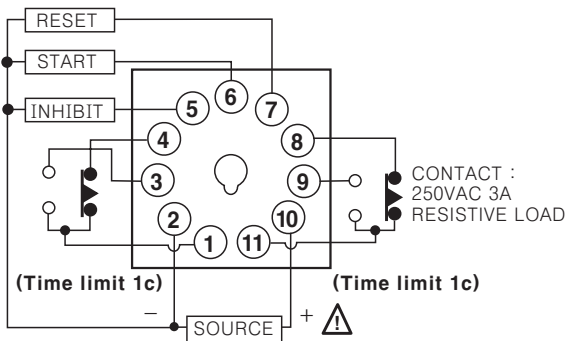
• [A], [F] mode



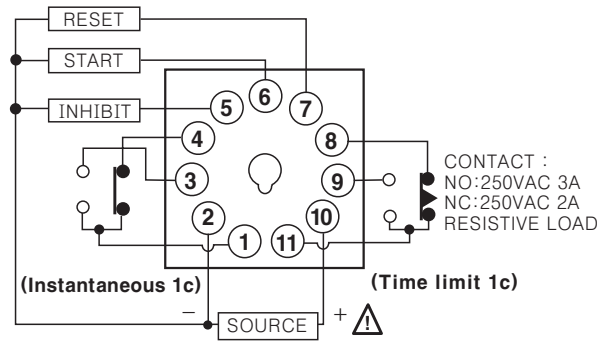
• [A1], [B], [F1], [I] mode



### AT11DN

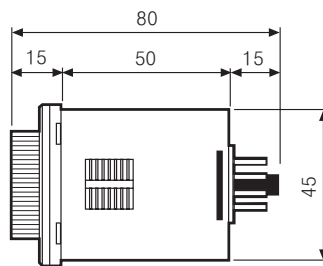
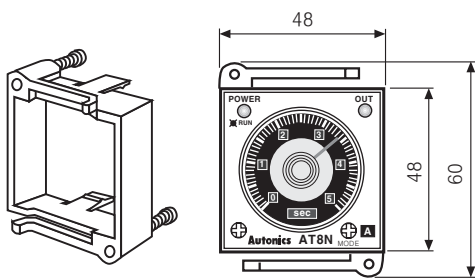


### AT11EN

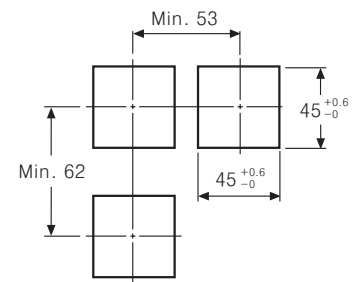


## Dimensions

• Bracket



• Panel cut-out

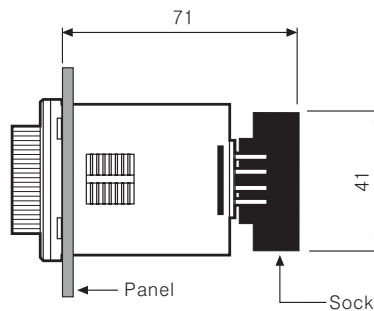


(J) Photo electric sensor

(K) Pressure sensor

(L) Rotary encoder

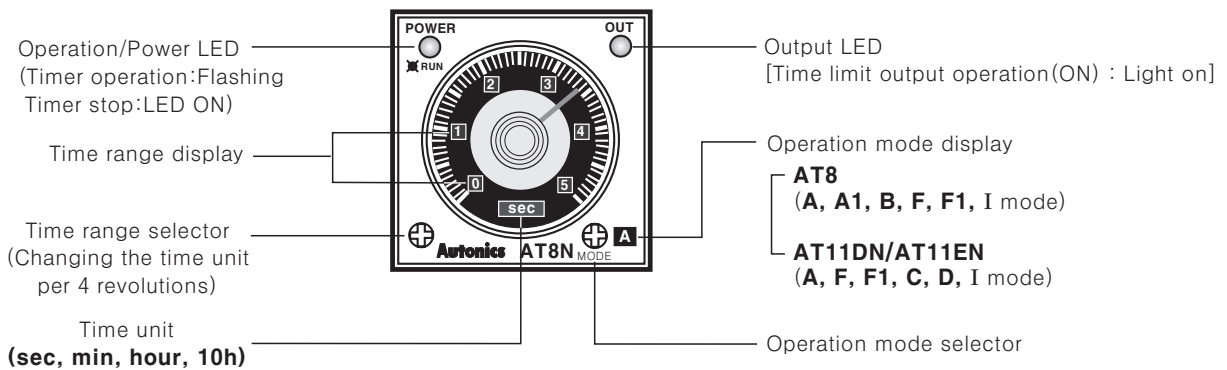
(M) 5-Phase stepping motor & Driver & Controller



Unit:mm

# ATN Series

## ■ 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

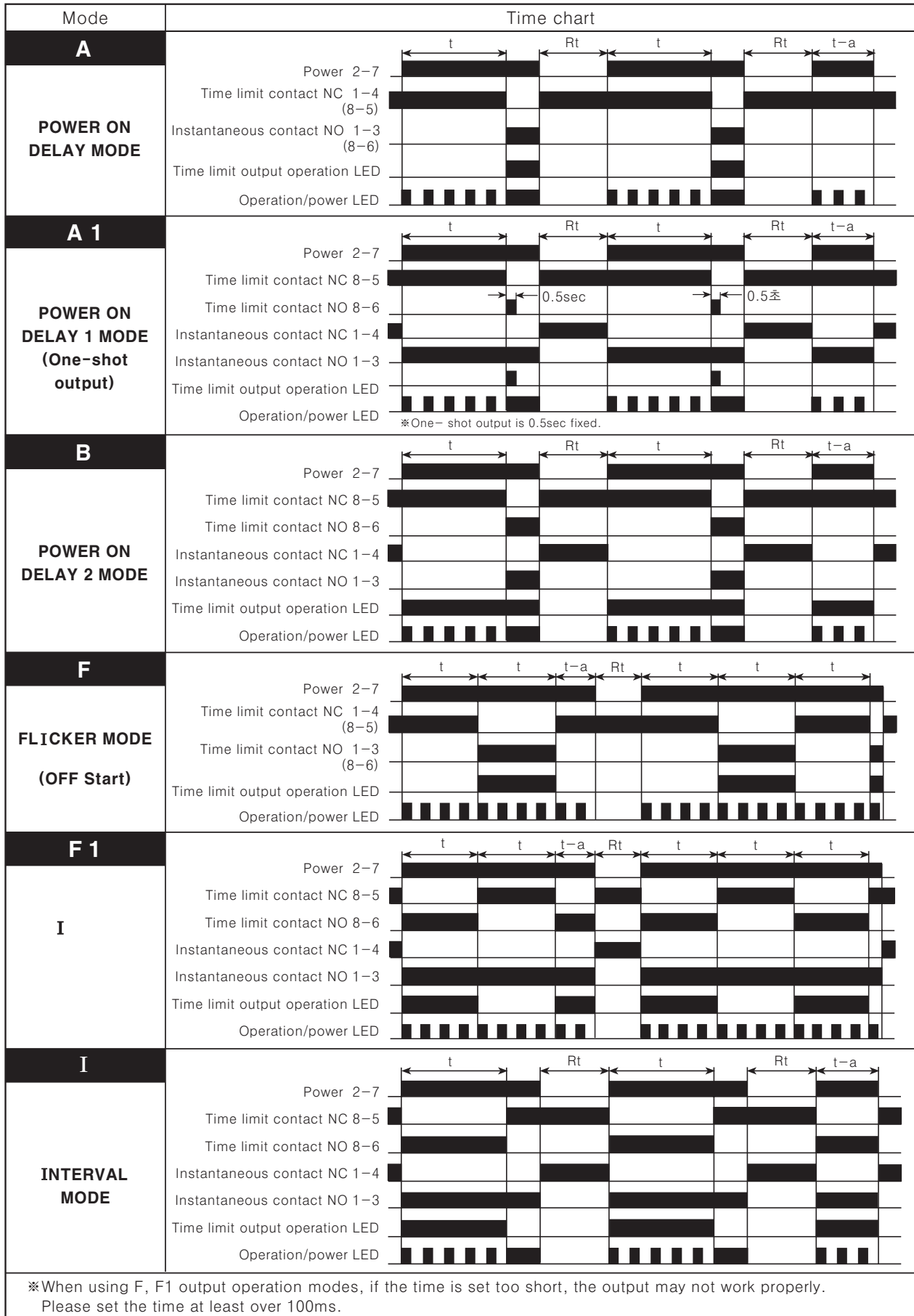
### ●AT11DN/AT11EN

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

# Multi Functional Timer

## Output operation mode(AT8N)

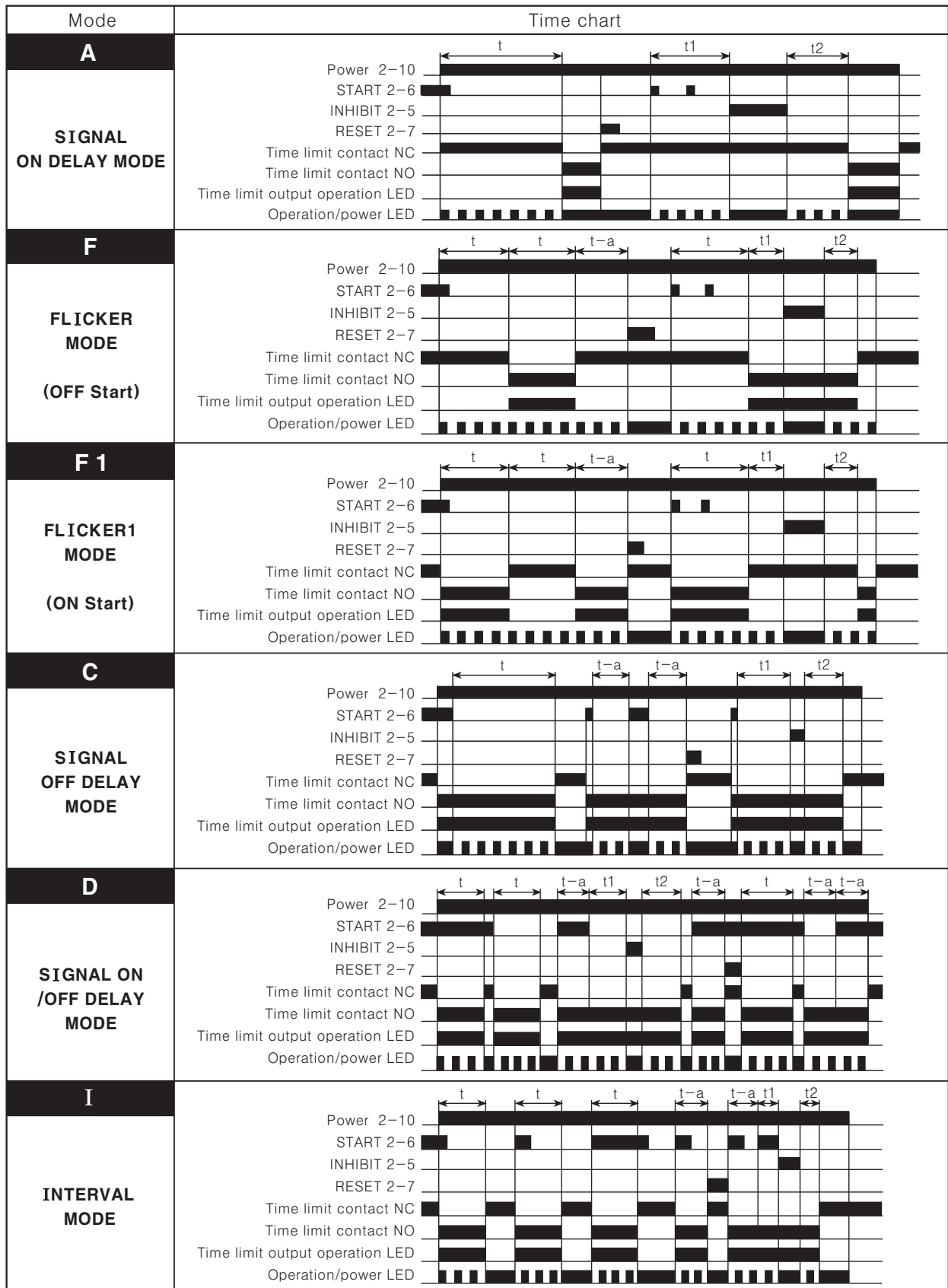
t:Setting time,  $t > t-a$ , Rt:Return time(Max. 100ms)



# ATN Series

## Output operation mode(AT11DN/AT11EN)

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

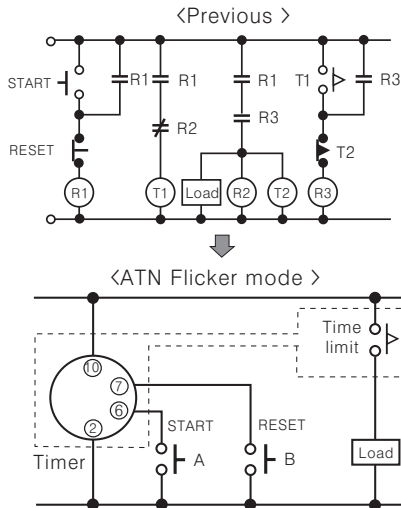


Note)1. If power is removed or the RESET terminal is short-circuited, the timer will be reset.  
 2. If the INHIBIT terminal is short-circuited during a timing cycle, the time will stop.  
 3. When using F, F1 output operation modes, if the time is set too short, the output may not work properly.  
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

## ■ Proper usage

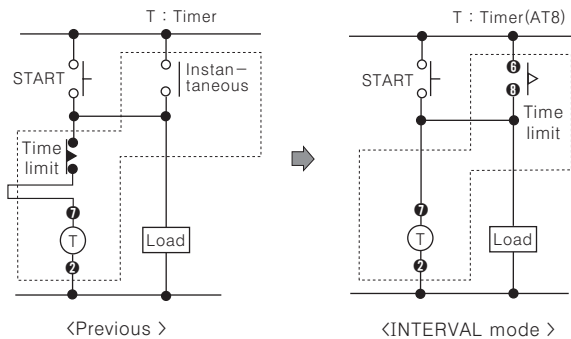
### ◎ Repeat function(Flicker)

- Able to use one AT Timer for 3 sub Relays and 2 Timers(Flicker function).  
Simple to use Flicker function with only one AT Timer.
- Switch A : Start, Switch B: Reset.



### ◎ INTERVAL mode

Able to make Instantaneous ON and Time limit OFF (Holding device) 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:Under1kΩ)

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

#### 2. NPN open collector transistor input

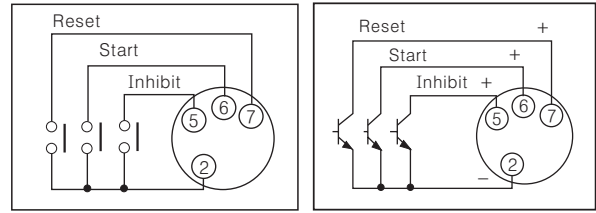
Please use the characteristic of transistor as follow;

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

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

I<sub>cbo</sub> : Max. 0.2μA.

Residual voltage : Max. 0.5V

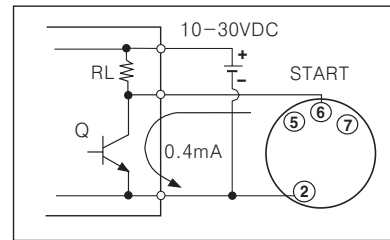


### 3. NPN universal input

It is able 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 per wiring instructions
- 2) Power connection

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

Power supply	8Pin Type	11Pin 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 aware 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.

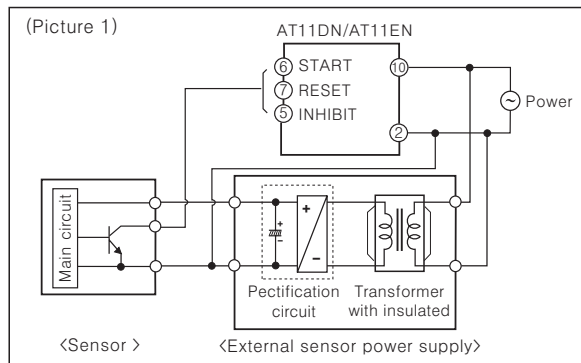
# ATN Series

## ◎Setting time, Time range, Operation mode

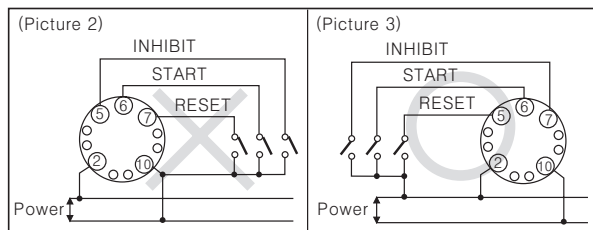
Do not change time range or operation mode while time operating. When changing setting, please power off or apply Reset signal.

## ◎Input connection

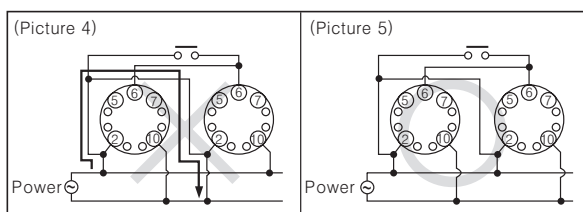
1) AT11DN/AT11EN Timer is transformer-less type, therefore please check following for connecting relay contact for input signal and transistor.



2) The terminal ⑩ should be common.



3) When using more than one timer with one contact or transistor input. Please connect the power phase correctly.



4) Inhibit, Start, Reset signal applied by short-circuiting input terminal ②-⑤, ②-⑥ or ②-⑦.

It may cause internal circuit damaged by wrong connection.

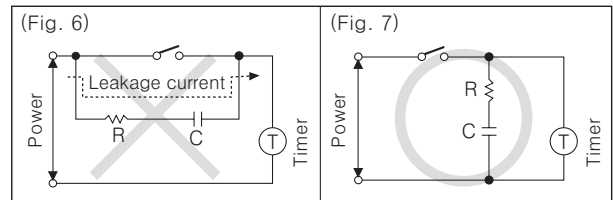
5) If using power line with another high voltage line or energy line at the same conduit, it may cause inductive voltage. Therefore please use separated conduit for power line.

6) When input (Start, Reset, Inhibit) wire is long, please use shielded wire and it should be short.

## ◎Common

1) If operating the unit in high temperature, it may cause internal components damage.

2) Please use it like (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.