

Multi Function Timer

DIN W48 × H48mm, Universal voltage Multi-function Timer

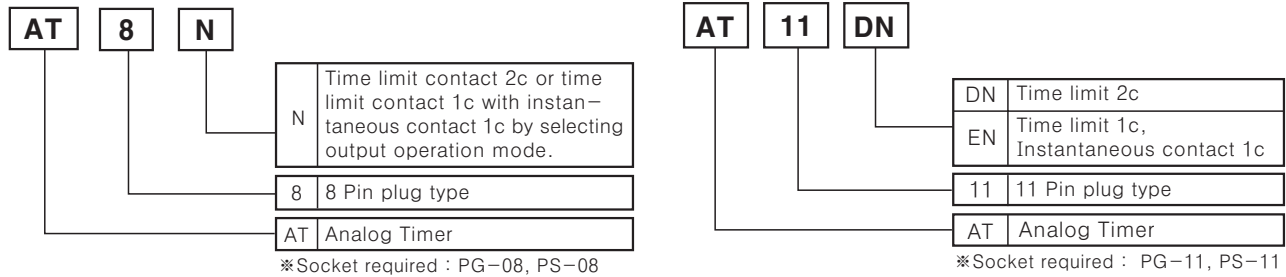
■ Features

- 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.



■ Ordering information



■ Specifications

Model		AT8N	AT11DN	AT11EN
Function		MULTI TIMER		
Control time setting range		0.05sec~100hour		
Power supply		24-240VAC 50/60Hz / 24-240VDC, 12VDC (Option)		
Allowable voltage range		90 ~ 110% of rated voltage		
Power consumption		Approx. 3.3VA (24-240VDC 60Hz), Approx. 1.5W (24-240VDC), Approx. 0.5W (12VDC)		
Reset time		Max. 100ms		
Min. input signal width	START input	————	Min. 50ms	
	INHIBIT input			
	RESET input			
Input	START input	————	No-voltage input ⚡ Short-circuit impedance : Max. 1kΩ Residual voltage : Max. 0.5V Open-circuit impedance : Min. 100kΩ	
	INHIBIT input			
	RESET input			
Timing operation		Power ON Start type	Signal ON Start type	
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	250VAC 3A resistive load		
Relay life cycle	Mechanical	Min. 10,000,000 operations		
	Electrical	Min. 100,000 operations (Rated contact capacity)		
Repeat error		Max. ±0.3%		
SET error		Max. ±5% ±0.05sec		
Voltage error		Max. ±0.5%		
Temperature error		Max. ±2%		
Insulation resistance		Min. 100MΩ (at 500VDC mega)		
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 ² (Approx. 30G) in X, Y, Z directions 3 times		
	Malfunction	100m/s ² (Approx. 10G) in X, Y, Z directions 3 times		
Ambient temperature		-10 ~ +55℃ (at non-freezing status)		
Storage temperature		-25 ~ +65℃ (at non-freezing status)		
Ambient humidity		35 ~ 85%RH		
Approval		CE cULUS		cULUS
Unit weight		Approx. 100g		

(A)
Counter

(B)
Timer

(C)
Temp.
controller

(D)
Power
controller

(E)
Panel
meter

(F)
Tacho/
Speed/
Pulse
meter

(G)
Display
unit

(H)
Sensor
controller

(I)
Switching
power
supply

(J)
Proximity
sensor

(K)
Photo
electric
sensor

(L)
Pressure
sensor

(M)
Rotary
encoder

(N)
Stepping
motor &
Driver &
Controller

(O)
Graphic
panel

(P)
Field
network
device

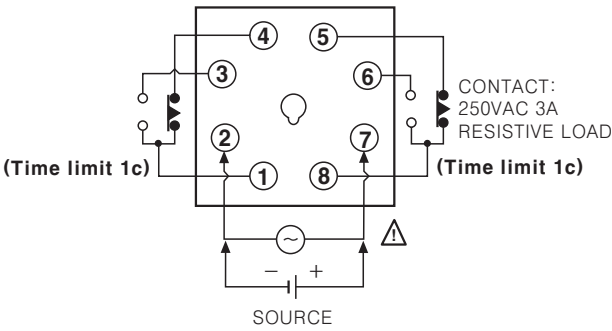
(Q)
Production
stoppage
models &
replacement

ATN Series

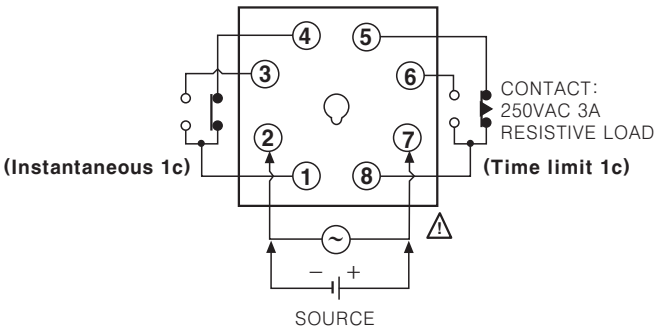
Connections

AT8N

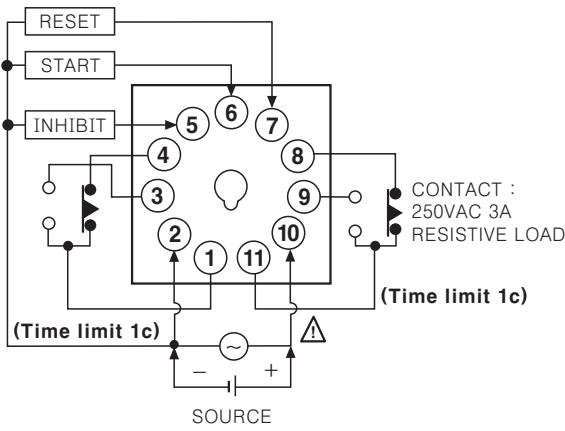
•[A], [F] mode



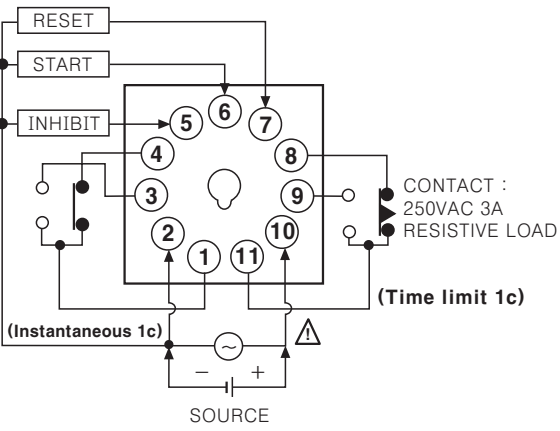
•[A1], [B], [F1], [I] mode



AT11DN

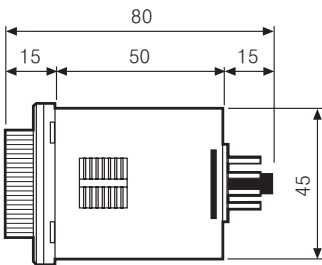
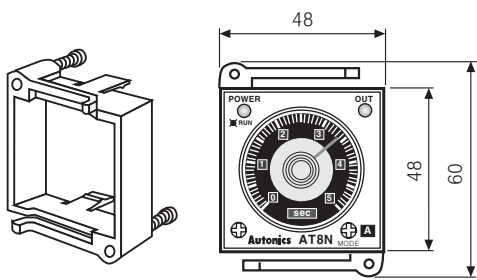


AT11EN

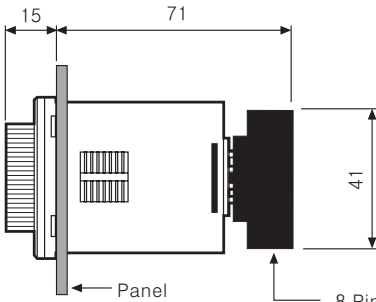
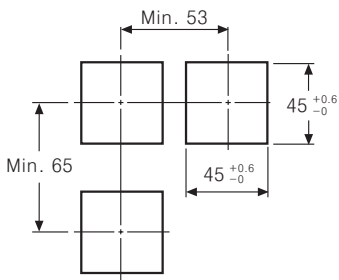


Dimensions

•Bracket



•Panel cut-out

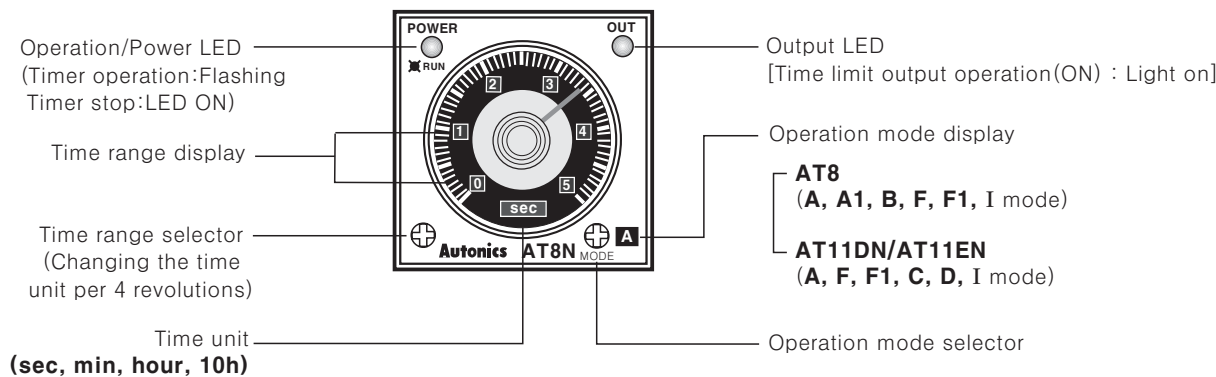


8 Pin socket : PG-08 (Sold separately)
 11 Pin socket : PG-11 (Sold separately)
 *Refer to B-5 page.

(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	sec	0.05~0.5
1.0		0.1~1.0
5		0.5~5
10		1~10
0.5	min	0.05~0.5
1.0		0.1~1.0
5		0.5~5
10		1~10
0.5	hour	0.05~0.5
1.0		0.1~1.0
5		0.5~5
10		1~10
0.5	10h	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
A	POWER ON DELAY
A1	POWER ON DELAY 1
B	POWER ON DELAY 2
F	FLICKER (OFF START)
F1	FLICKER 1 (ON START)
I	INTERVAL

●AT11DN/AT11EN

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

(A)
Counter

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Timer

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Temp.
controller

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Power
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meter

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ATN Series

■ AT8N Output operation mode

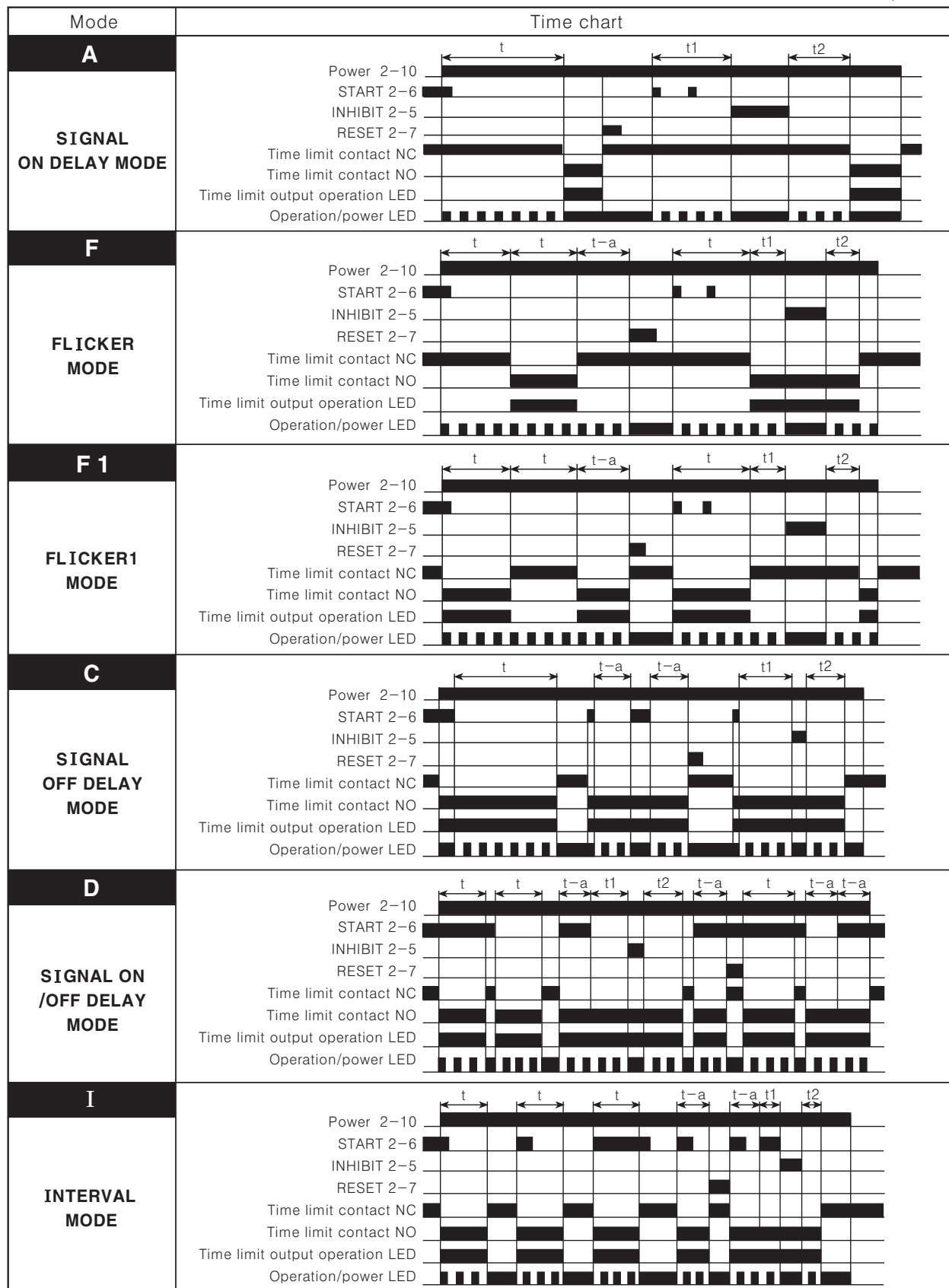
t: Setting time, $t > t-a$, Rt: Return time (Max. 100ms)

Mode	Time chart
A	
POWER ON DELAY MODE	Power 2-7 Time limit contact NC 1-4 (8-5) Time limit contact NO 1-3 (8-6) Time limit output operation LED Operation/power LED
A 1	
POWER ON DELAY 1 MODE (One-shot output)	Power 2-7 Time limit contact NC 8-5 Time limit contact NO 8-6 Instantaneous contact NC 1-4 Instantaneous contact NO 1-3 Time limit output operation LED Operation/power LED *One-shot output is 0.5sec fixed.
B	
POWER ON DELAY 2 MODE	Power 2-7 Time limit contact NC 8-5 Time limit contact NO 8-6 Instantaneous contact NC 1-4 Instantaneous contact NO 1-3 Time limit output operation LED Operation/power LED
F	
FLICKER MODE	Power 2-7 Time limit contact NC 1-4 (8-5) Time limit contact NO 1-3 (8-6) Time limit output operation LED Operation/power LED
F 1	
FLICKER 1 MODE	Power 2-7 Time limit contact NC 8-5 Time limit contact NO 8-6 Instantaneous contact NC 1-4 Instantaneous contact NO 1-3 Time limit output operation LED Operation/power LED
I	
INTERVAL MODE	Power 2-7 Time limit contact NC 8-5 Time limit contact NO 8-6 Instantaneous contact NC 1-4 Instantaneous contact NO 1-3 Time limit output operation LED Operation/power LED
*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.	

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.

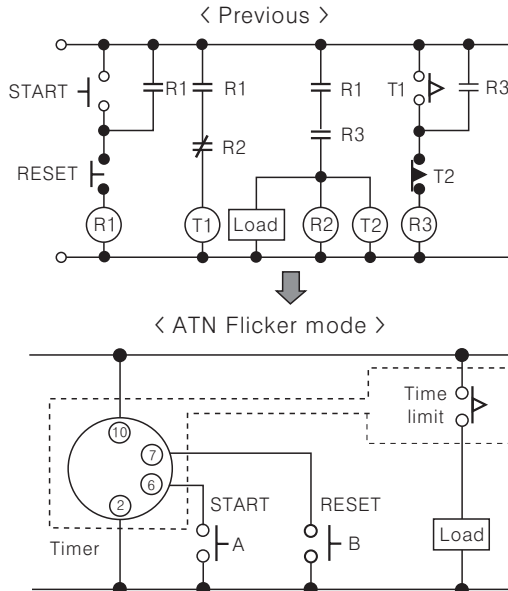
- (A) Counter
- (B) Timer
- (C) Temp. controller
- (D) Power controller
- (E) Panel meter
- (F) Tacho/ Speed/ Pulse meter
- (G) Display unit
- (H) Sensor controller
- (I) Switching power supply
- (J) Proximity sensor
- (K) Photo electric sensor
- (L) Pressure sensor
- (M) Rotary encoder
- (N) Stepping motor & Driver & Controller
- (O) Graphic panel
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- (Q) Production stoppage models & replacement

ATN Series

■ Proper usage

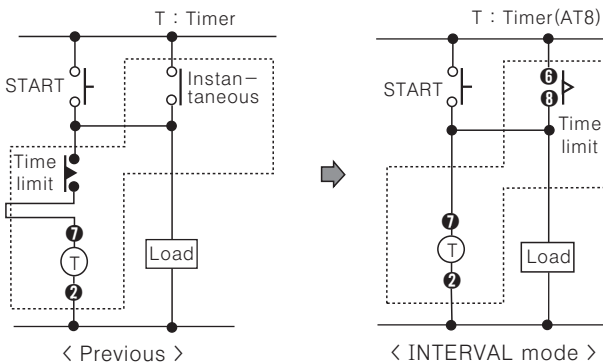
◎ Repeat function (Flicker)

- 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 100k Ω , Short-circuit resistance: Under 1k Ω)

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

2. NPN open collector transistor input

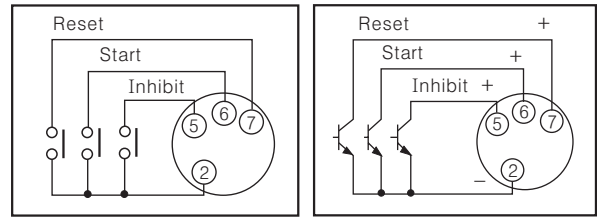
Please use the characteristic of transistor as follow;

V_{ceo} : Min. 25V

I_c : Min. 10mA

I_{cbo} : Max. 0.2 μ A.

Residual voltage : Max. 0.5V

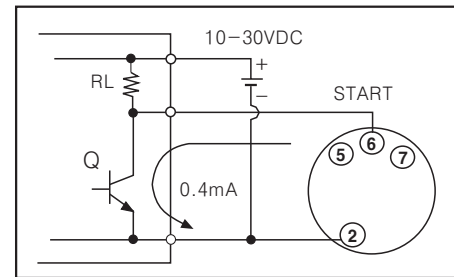


3. NPN universal input

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.

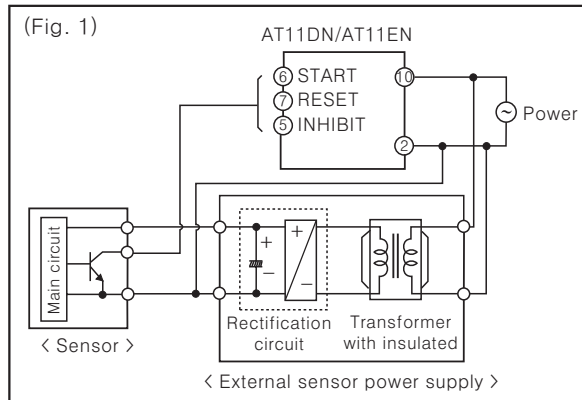
Multi Function Timer

◎Setting time, Time range, Operation mode

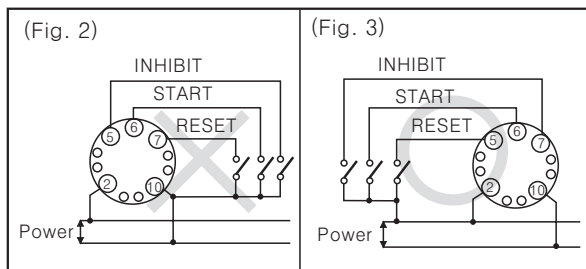
Do not change time range or operation mode while time operating. When changing it, please power off or apply reset signal.

◎Input connection

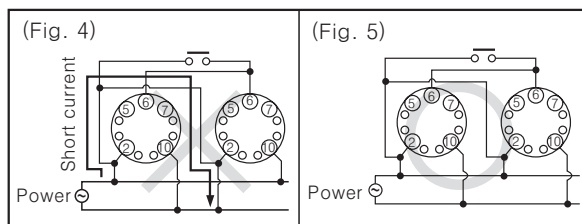
1) AT11DN/AT11EN Timer is transformerless type, therefore please check following for connecting relay contact for input signal and transistor.



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.

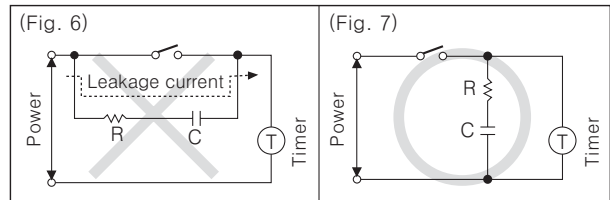
5) If using power line with another high voltage line or energy line at the same conduit, it may cause inductive voltage. Therefore please use seperated conduit for power line.

6) When input (INHIBIT, START, RESEST) wire is long, ples 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.

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