Multi Function Timer with Free power, Compact size W38×H42mm

▣ Features

- Wide power supply range
  : 100-240VAC 50/60Hz, 24-240VDC (universal), 24VAC 50/60Hz / 24VDC (universal), 12VDC
- Various output operations(6 operation modes)
- Multi time range (12 types of time range)
- Wide time setting range (0.1 sec to 30 hour)
- Close and DIN rail mounting with a dedicated socket (PS-M8) width 41mm
- Easy mounting and installation/maintenance with dedicated bracket for DIN 48×48mm

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

▣ Ordering information

ATS 8 – 4 1

Time range	1	Time range 1(0.1 to 1)
	3	Time range 3(0.3 to 3)
Power supply	1	12VDC
	2	24VAC / 24VDC
	4	100-240VAC / 24-240VDC
Number of plug pins	8	8-pin plug type
Item	ATS	Small Analog Timer

※Sockets (PG-08, PS-08, PS-M08) are sold separately.

ATS 11 – 4 1 D

Output	D	Time limit 2c
	E	Instant limit 1c + Time limit 1c
Time range	1	Time range 1(0.1 to 1)
	3	Time range 3(0.3 to 3)
Power supply	1	12VDC
	2	24VAC / 24VDC
	4	100-240VAC / 24-240VDC
Number of plug pins	11	11-pin plug type
Item	ATS	Small Analog Timer

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

▣ Specifications

Model		ATS8-□1	ATS8-□3	ATS11-□1D	ATS11-□3D	ATS11-□1E	ATS11-□3E
Function		Multi Function Timer					
Control time setting range		0.1sec to 10hour	0.3sec to 30hour	0.1sec to 10hour	0.3sec to 30hour	0.1sec to 10hour	0.3sec to 30hour
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		•100-240VAC: 4.2VA, 24-240VDC: 2W •24VAC: 4.5VA, 24VDC: 2W •12VDC: 1.5W		•100-240VAC : 3.5VA, 24-240VDC : 1.5W •24VAC : 4VA, 24VDC :1.5W •12VDC : 1W		•100-240VAC : 4.2VA, 24-240VDC : 2W •24VAC : 4.5VA, 24VDC : 2W •12VDC : 1.5W	
Return time		Max. 100ms					
Min. input signal width	START	—		Max. 50ms			
	INHIBIT						
	RESET						
Input	START	—		No-voltage input - Short-circuit impedance : Max. 1kΩ, Residual voltage : Max. 0.5V Open-circuit impedance : Max. 100kΩ			
	INHIBIT						
	RESET						
Time operation		Power ON Start		Signal ON Start			
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)		Time limit SPDT (1c), Instant limit SPDT (1c)	
	Contact capacity	250VAC 3A resistive load					
Relay life cycle	Mechanical	Min. 10,000,000 operations					
	Electrical	Min. 100,000 operations (250VAC 3A resistive load)					

▣ Specifications

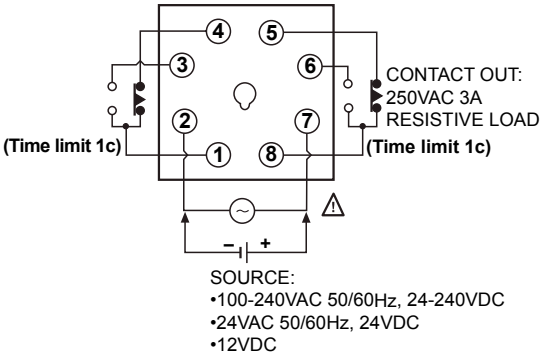
Model		ATS8-□1	ATS8-□3	ATS11-□1D	ATS11-□3D	ATS11-□1E	ATS11-□3E
Repeat error		Max. ±0.2% ±10ms					
Setting error		Max. ±5% ±50ms					
Voltage error		Max. ±0.5%					
Temperature error		Max. ±2%					
Insulation resistance		100MΩ(at 500VDC megger)					
Dielectric strength		2000VAC 50/60Hz for 1 min.					
Noise resistance		±2kV the square wave noise (pulse width 1μs) by noise simulator					
Vibration	Mechanical	0.75mm amplitude at frequency of 10 to 55Hz(for 1 min.) in each of X, Y, Z directions for 1 hour					
	Malfunction	0.5mm mplitude at frequency of 10 to 55HHz(for 1 min.) in each of X, Y, Z directions for 10 min.					
Shock	Mechanical	300m/s² (approx. 30G) in each of X, Y, Z directions 3 times					
	Malfunction	100m/s² (approx. 10G) in each of X, Y, Z directions 3 times					
Environment	Ambient temperature	-10 to 55℃, storage: -25 to 65℃					
	Ambient humidity	35 to 85%RH, storage: 35 to 85%RH					
Approval		CE cULus					
Accessory		Bracket					
Unit weight		Approx. 72g					

※Environment resistance is rated at no freezing or condensation.

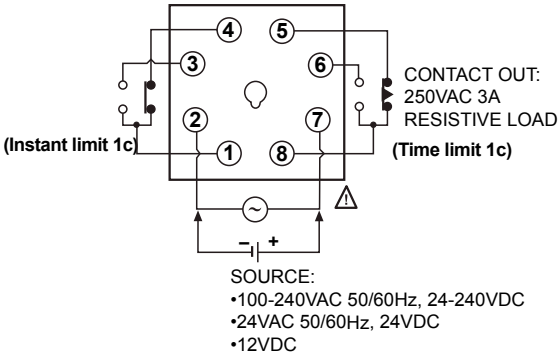
▣ Connections

◎ ATS8

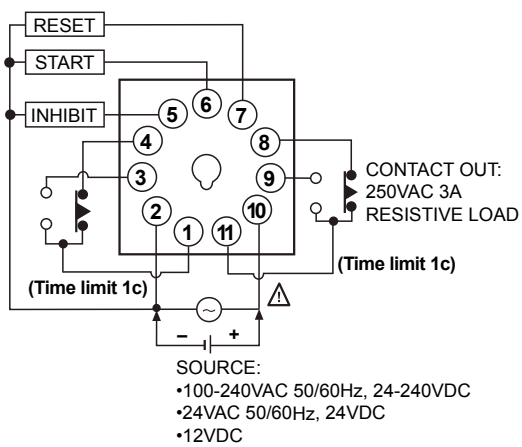
●When selectiong [A], [F] output operation mode



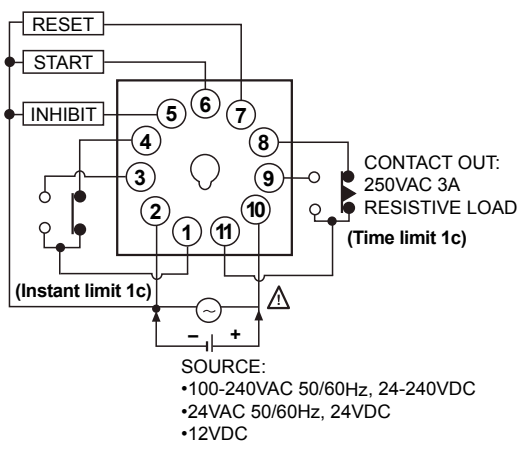
●When selecting [A1], [B], [F1], [I] output operation mode



◎ ATS11-□□D

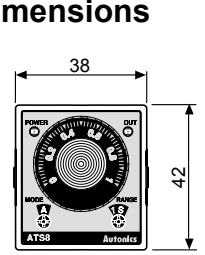


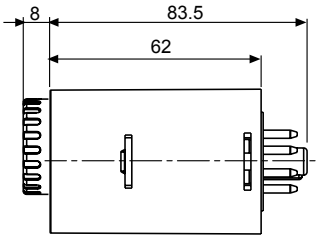
◎ ATS11-□□E

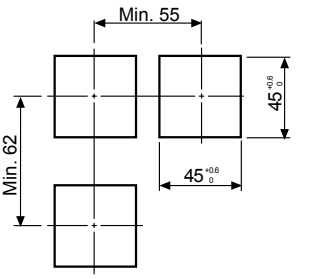


▣ Dimensions

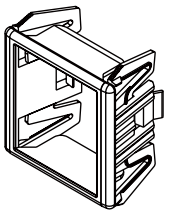
●Panel cut-out (unit : mm)

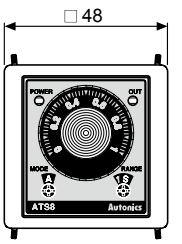


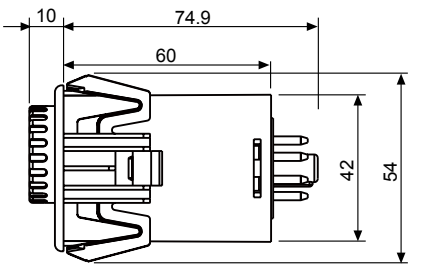




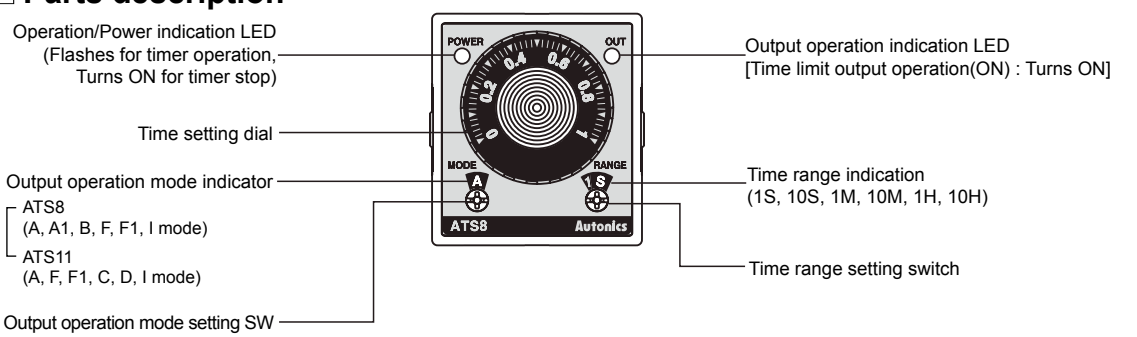
● Bracket







▣ Parts description



※Turn the time range setting switch and the output operation mode setting switche to clockwise(CW) direction.

▣ Time range

Time range	Time unit	ATS8-□1 / ATS11-□1	ATS8-□3 / ATS11-□3
		Time range	Time range
1S	**sec**	0.1 to 1 sec	0.3 to 3 sec
10S		1 to 10 sec	3 to 30 sec
1M	**min**	0.1 to 1 min	0.3 to 3 min
10M		1 to 10 min	3 to 30 min
1H	**hour**	0.1 to 1 hour	0.3 to 3 hour
10H		1 to 10 hour	3 to 30 hour

▣ Output operation mode for each model

●ATS8

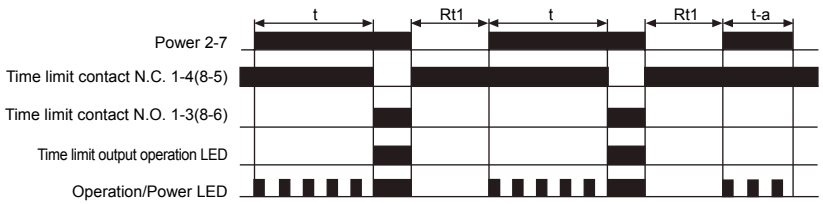
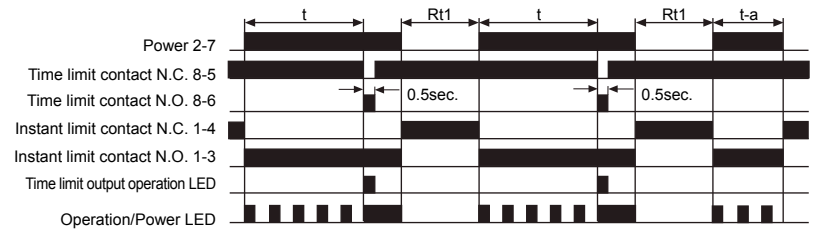
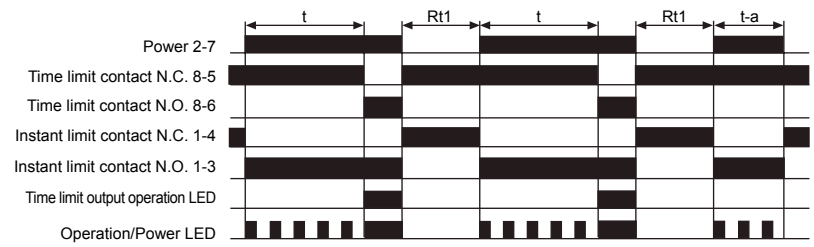
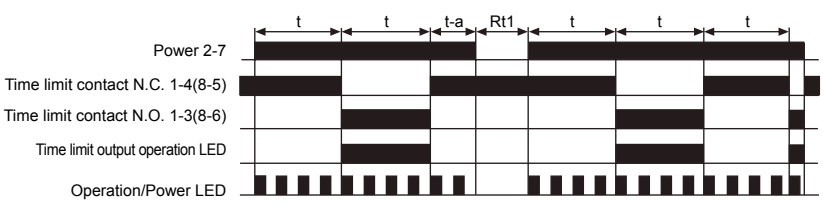
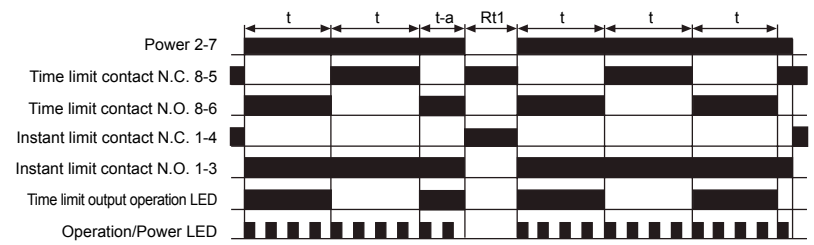
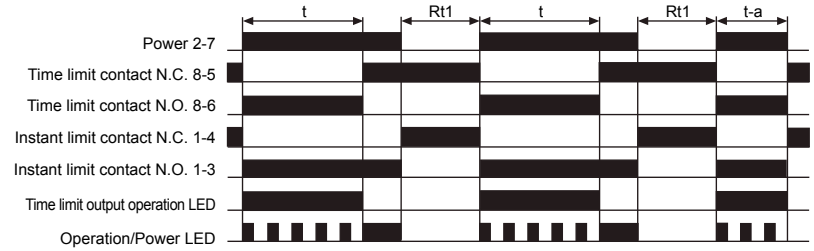
Display	Output operation mode
A	Power ON Delay
A1	Power ON Delay 1
B	Power ON Delay 2
F	Flicker (OFF Start)
F1	Flicker 1 (ON Start)
I	Interval

●ATS11

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

▣ Output operation mode(ATS8)

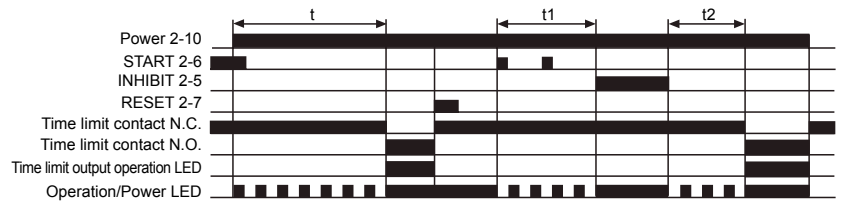
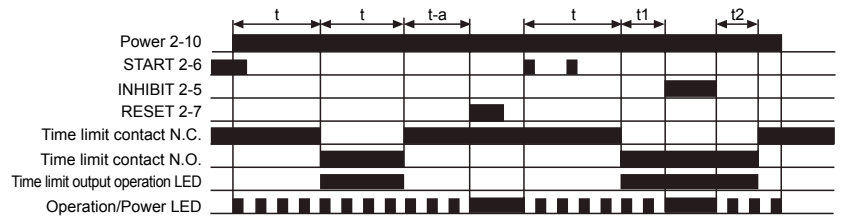
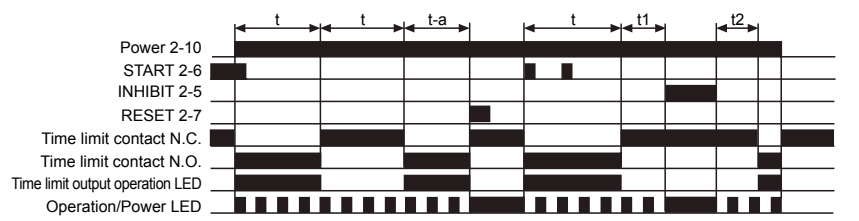
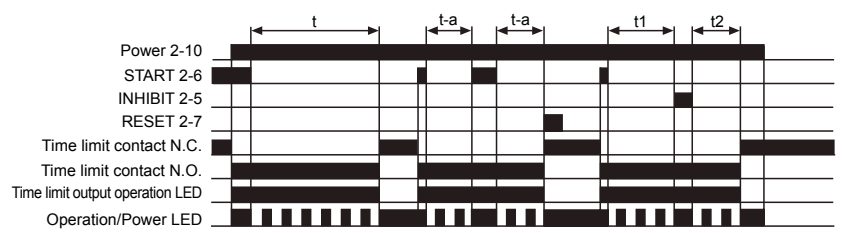
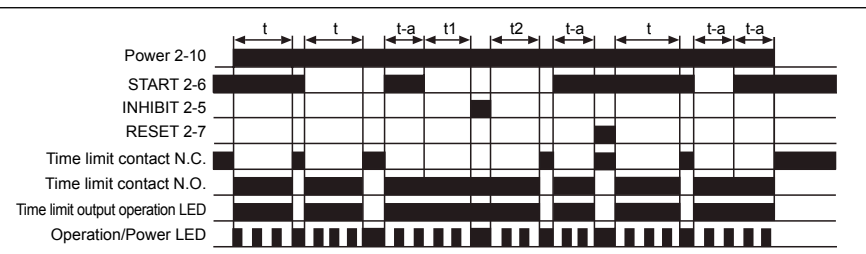
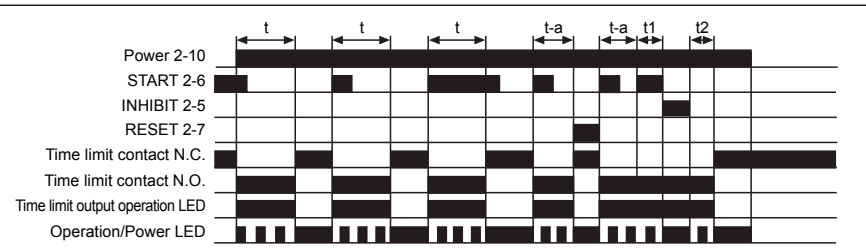
[t : Setting time, t>t-a, Rt : Return time, Rt1>Rt]

Mode	Time chart
A **Power ON Delay**	
A1 **Power ON Delay 1 (One-shot output)**	 ※One-shot output is 0.5 sec. fixed.
B **Power ON Delay 2**	
F **Flicker (OFF Start)**	
F1 **Flicker 1 (ON Start)**	
I **Interval**	

※When using F, F1 output operation modes, if the time is set too short, the output may not work properly due to contact output response time. Please set the time at least over 100ms.

▣ Output operation mode (ATS11)

[t : Setting time, t=t1+t2, t>t-a]

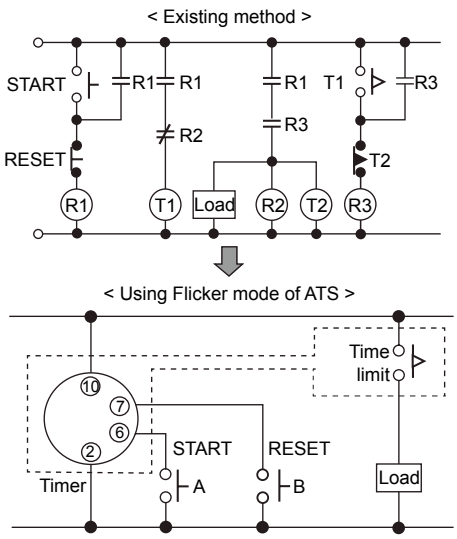
Mode	Tiime chart
A **Signal ON Delay**	
F **Flicker (OFF Start)**	
F1 **Flicker 1 (ON Start)**	
C **Signal OFF Delay**	
D **Signal ON/OFF Delay**	
I **Interval**	

Note) 1. If power is cut or the RESET terminal is short-circuited, the timer will be reset.
2. If the INHIBIT terminal is short-circuited during a time limit operation, 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 due to contact output response time. Please set the time at least over 100ms .

▣ Proper usage

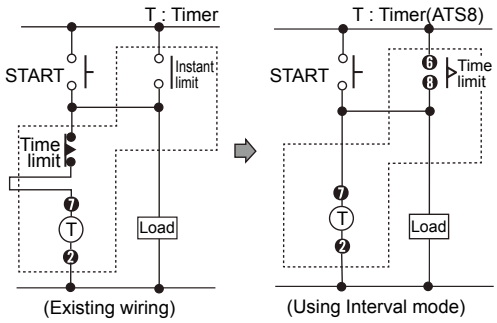
◎ Flicker mode

- Flicker mode which needs 3 subsidiary relays and 2 timers is available with an ATS timer.
  You can organize flicker function economically.
- Start it with a switch A and reset it with a switch B.



◎ Interval mode

When using interval mode, you can simply organize instant limit on, time limit off (self hold circuit).



◎ Conditions of input signal (ATS11-□□D, ATS11-□□E)

1. Input with contact

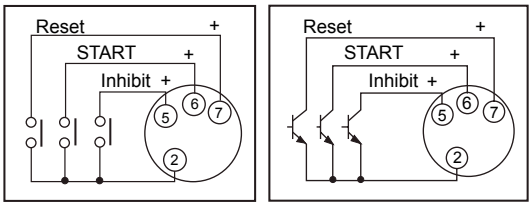
Use a switch which is gilded and has good reliability of contact.

Use a switch which has short bound (chattering) time for input contact because bound(chattering) time of contact timer may be error for operation time. Open resistance should be over 100kΩ and short resistance should be below 1kΩ.

※Use contact which has good reliability to open/close for 0.4mA small current.

2. Input with NPN open collector type

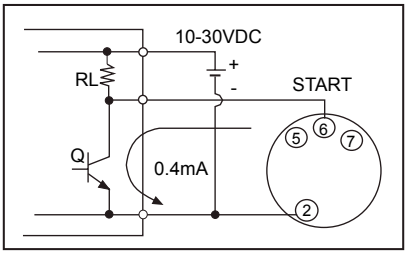
Characteristics of transistor should be Vceo = min. 25V, Ic = min. 10mA, Icbo = max. 0.2μA, residual voltage = max. 0.5V.



3. Input with NPN universal type

For non-contact circuit (proximity sensor, photoelectric sensor, etc.) which output voltage range is 10-30VDC, voltage output is also available as input signal not as open collector output.

In this case, when signal changes from H to L, a timer starts. Residual voltage should be below 0.5V when transistor (Q) is ON.



◎ Terminal connection

- Refer to the connection diagrams and wire it correctly.
- Power connection

For power connection of ATS Series, when it is AC power, connect it to the designated power terminal regardless of polarity. When it is DC power, be sure that the polarity for connecting.

Power voltage	8-pin type	11-pin type
AC type	Terminal ② - ⑦	Terminal ② - ⑩
DC type	Terminal ② - ⊖ Terminal ⑦ - ⊕	Terminal ② - ⊖ Terminal ⑩ - ⊕

- Turn OFF a power switch and be sure that not to supply induced voltage, residual voltage between timer power terminals. (When wiring power cable parallel with high voltage line, power line, induced voltage may occur between power terminals.)
- For DC power, ripple should be below 10% and power voltage should be within the allowable range.
- Use contact such as switch, relay, etc to supply power voltage at once.If supplying power slowly, its time may be up regardless of set value or power may be not reset.
- Load for control output should be below the rated load capacity.

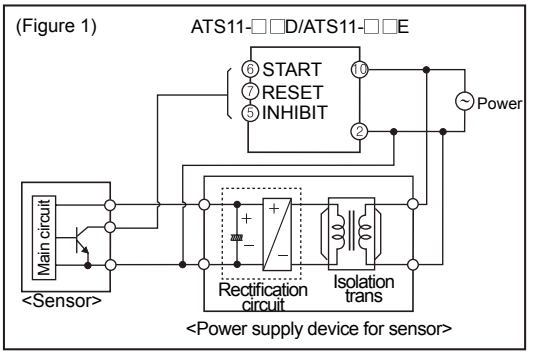
◎ Changing of set time, time range, operation mode

It may cause malfunction when changing set time, time range, or operation mode during timer operation. Turn OFF the power and change set time, time range, or operation mode.

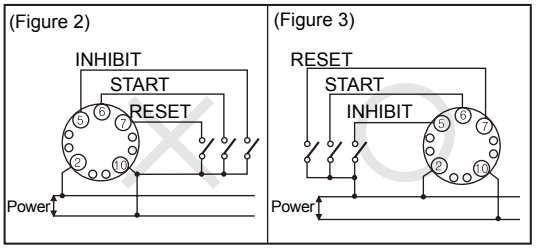
◎ Input connection

- Power circuit of ATS11-□□D/ATS11-□□E timer does not use trans. Use isolation transformer which secondary part is not grounded as (Figure1) to cut off peripheral current flow for supplied power to external input deivces.

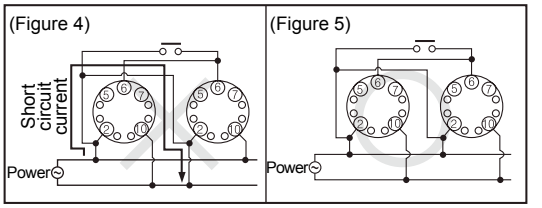
(Figure 1) ATS11-□□D/ATS11-□□E



- As (Figure 2), if using terminal ⑩ as common terminal of input signal, it may cause damage to inner circuit of ATS11-□□D/ATS11-□□E timer. Use ② terminal as common terminal referring to (Figure 3).



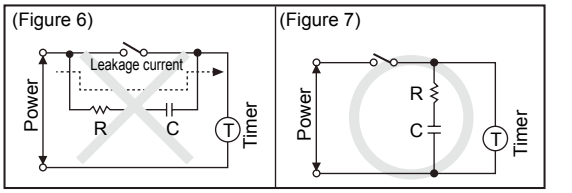
- When controlling several timers by one input contact or transistor, do not wire it as (Figure 4). This wiring causes short current due to not accorded phase of power. Wire it as (Figure 5) to accord to phase of power.



- Inhibit, Start, Reset signal is supplied to short input terminal ②-⑤, ②-⑥, ②-⑦. Be sure that if connecting other terminals or supplying over voltage, inner circuit is damaged.
- Do not wire input(START, RESET, INHIBIT) cable parallel with or same with high voltage line, power line.
- Use shield cable when input(START, RESET, INHIBIT) cable is longer. Cable length should be as short as possible.

◎ Common

- Be sure that when using a timer at high temperature for a long time, it may cause deterioration for inner parts(electrolytic condenser, etc.).
- When supplying the power to timer, do not wire it as (Figure 6). This wiring causes timer malfunction due to path of peripheral leakage current from resistance and condenser.
  Connect resistance and condenser as (Figure 7) to prevent from timer malfunction by peripheral leakage current .



- Do not use this unit at below places.
- Place where temperature or humidity is out of the rated specifications.
- Place where there is condensation by temperature changes.
- Place where flammable gas or corrosive gas.
- Place where there are dust, oil or 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