Macromatic

TIMER
TAD1U

M A N U A L

For your safety, please read the following before using.

▣ Caution for your safety

※Please keep these instructions and review them before using this unit.

※Please observe the cautions that follow;

⚠**Warning** Serious injury may result if instructions are not followed.
⚠**Caution** Product may be damaged, or injury may result if instructions are not followed.

※The following is an explanation of the symbols used in the operation manual.
⚠ caution:Injury or danger may occur under special conditions.

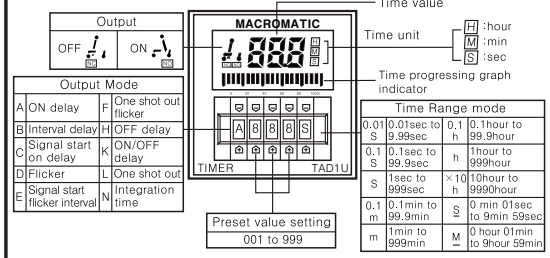
⚠ Warning

1. **In case of using this unit with machineries(Nuclear power control, medical equipment, vehicle, train, airplane, combustion apparatus, entertainment or safety device etc), it requires installing fail-safe device, or contact us for information required.**
   It may result in serious damage, fire or human injury.
2. **This must be mounted on panel.**
   It may give an electric shock.
3. **Do not repair or checkup when power on.**
   It may give an electric shock.
4. **Do not disassemble and modify this unit, when it requires. If needs, please contact us.**
   It may give an electric shock and cause a fire.

⚠ Caution

1. **This unit shall not be used outdoors.**
   It might shorten the life cycle of the product or give an electric shock.
2. **Please observe specification rating.**
   It might shorten the life cycle of the product and cause a fire.
3. **Do not use the load beyond rated switching capacity of Relay contact.**
   It may cause insulation failure, contact melt, contact failure, relay broken, fire etc.
4. **In cleaning the unit, do not use water or an organic solvents.**
   It might cause an electric shock or fire that will result in damage to the product.
5. **Do not use this unit at place where there are flammable or explosive gas, humidity, direct ray of the sun, radiant heat, vibration, impact etc.**
   It may cause explosion.
6. **Please be careful not to blow dust or wire clippings into the unit.**
   It may cause a fire or malfunction.

▣ Front panel identification

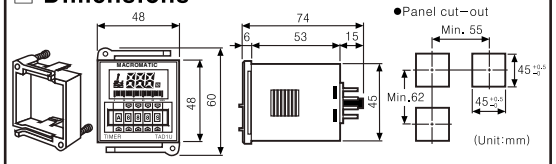


Output Mode			
A	ON delay	F	One shot out flicker
B	Interval delay	H	OFF delay
C	Signal start on delay	K	ON/OFF delay
D	Flicker	L	One shot out
E	Signal start flicker interval	N	Integration time

Time Range mode			
0.01 S	0.01sec to 9.99sec	0.1 h	0.1hour to 99.9hour
0.1 S	0.1sec to 99.9sec	h	1hour to 999hour
S	1sec to 999sec	×10 h	10hour to 9990hour
0.1 m	0.1min to 99.9min	S	0 min 01sec to 9min 59sec
m	1min to 999min	M	0 hour 01min to 9hour 59min

※**The above specification are changeable without notice anytime.**

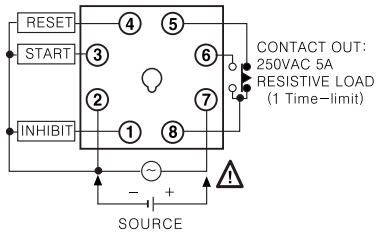
▣ Dimensions



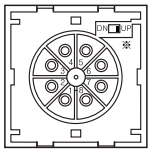
▣ Specifications

Model			TAD1U
Function			Multi operating, Multi time
Power supply			24–240VAC 50/60Hz, 24–240VDC
Display method			LCD Display
Allowable voltage range			90 to 110% of rated voltage
Power consumption			Max. 2.5VA (240VAC 50/60Hz) Max. 1W(240VDC)
Return time			Max. 0.2sec
Min. input signal	START input		Min. 20ms
	INHIBIT input		
	RESET input		
Input	START input		No–voltage input Shot–circuit : Impedance(Max. 1kΩ), Residual voltage : Max. 0.5VDC Open–circuit : Impedance(Min. 100kΩ)
	INHIBIT input		
	RESET input		
Control output	Contact	Type	Time–limit : SPDT(1c)
		Capacity	250VAC 5A resistive load
Output mode			A, B, C, D, E, F, H, K, L, N
Ambient temperature			–10 to 55℃(at non–freezing status)
Storage temperature			–25 to 65℃(at non–freezing status)
Ambient humidity			35 to 85%RH
Deviation			Power Start: Max. ±0.01% ±0.05sec Signal Start: Max. ±0.005% ±0.03sec
Setting error			
Voltage error			
Temperature error			
Insulation resistance			Min. 100MΩ(at 500VDC)
Dielectric strength			2000VAC 50/60Hz for 1 minute
Noise strength			±2kV the square wave noise(pulse width:1㎲) by the noise simulator
Vibration	Mechanical		0.75mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 1hour
	Malfunction		0.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 10 minutes
Shock	Mechanical		300m/s² (Approx. 30G) in X, Y, Z directions for 3 times
	Malfunction		100m/s² (Approx. 10G) in X, Y, Z directions for 3 times
Relay life cycle	Mechanical		Min. 10,000,000 times
	Electrical		Min. 100,000 times (250VAC 5A resistive load)
Weight			Approx. 100g

▣ Connections



▣ Up/Down mode



※Output operation mode is working as Up mode or Down mode according to Up/Down mode selection switch's position.

Up	Down
DN ■ UP	DN □ UP

⚠ **Power must be cut off.**

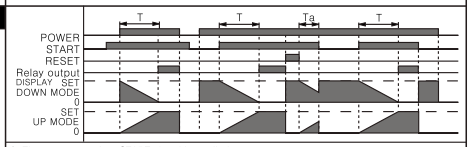
●Factory specification

TAD1U
Up/Down mode : Up

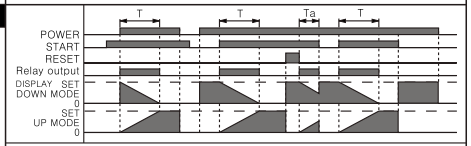
▣ Output operation mode

● **TAD1U**

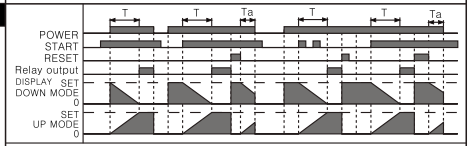
• This product has 10 output mode from A to N by digital switch in front.
T=Preset value, T>Ta, T=T1+T2+T3, T>Ta+Tb

Mode	Time chart
A ON Delay Ⓐ	

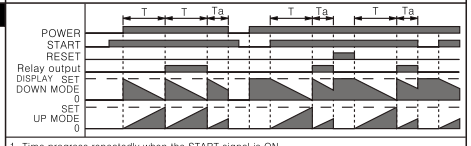
1. Time progress when START signal is applied.
2. The output will be ON when the preset value is equal to the display value.
3. When the setting value is equal to the display value, if START signal is OFF, the output turns off, the display value is returned to initial state.
4. When the RESET signal is applied, the display value is returned to the initial state.
※When the setting value is bigger than the display value, if START signal turns off, the display value is returned to initial state.

B Interval Delay Ⓐ	

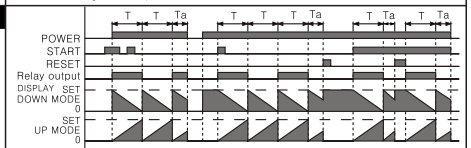
1. The output turns on and time progress when START signal is ON.
2. When the setting value is equal to the display value, the output will be returned and the display held.
3. When the RESET signal is applied, the display value is returned to the initial state.
※If START signal is OFF when the preset value is bigger then the display value, the display value is returned to initial state.

C ON Delay Ⓑ	

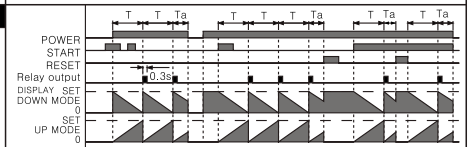
1. Time proceeds when START signal is ON.
2. The output & display value is held when the setting value is equal to the display value.
3. When the RESET signal is applied, the display value is returned to the initial state.
※Even though setting signal is applied continuously, the signal after the second is not detected.

D Flicker Ⓐ	

1. Time progress repeatedly when the START signal is ON.
2. The output also operates from NC to NO, and from NO to NC repeatedly.
3. If the START signal is OFF, it is returned to initial state.

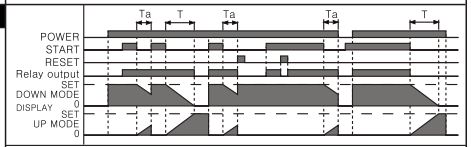
E Flicker Ⓑ	

1. Time progress repeatedly when the START signal is ON.
2. The output also operates from NC to NO, and from NO to NC repeatedly.
3. If the RESET signal is ON, it is returned to initial state.
※No need to apply start signal continuously.

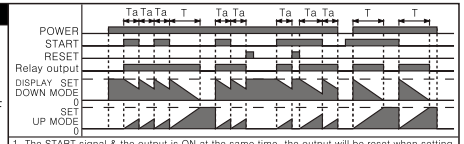
F One Shot Out Flicker	

1. Time progress from initial value to the setting value repeatedly and the output operates as one–shot(0.3sec), when the START signal is ON.
2. If the RESET signal turns on, it is returned to initial state.
※No need to apply the START signal continuously.

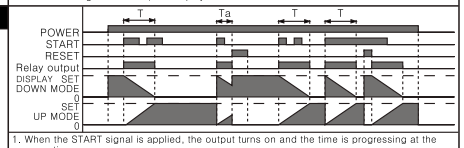
0.3s One–shot out

H OFF Delay	

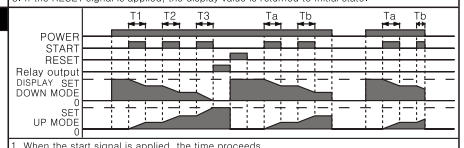
1. The START signal & the output is ON at the same time, the output will be reset and the display value is held after the setting time.
2. If the RESET signal is ON, the display value is returned to initial state.
※If the START signal is applied continuously, the output will be ON but time is not progressing.

K ON/OFF Delay	

1. The START signal & the output is ON at the same time, the output will be reset when setting value is equal to display value. The START signal is OFF & the output is ON at same time, the output is ON when setting value is equal to display value.
2. If the START signal is applied continuously, the output turns on but time is returned to the initial state.
3. If the reset signal turns on, the display value is returned to initial state.

L Interval Delay Ⓑ	

1. When the START signal is applied, the output turns on and the time is progressing at the same time.
2. When the time reach at the setting value the output will be reset, and the display value is held.
3. If the RESET signal is applied, the display value is returned to initial state.

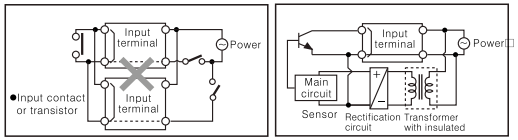
N Integration Time	

1. When the start signal is applied, the time proceeds.
2. When the output signal does not come out, if turn the start signal off, then time will be held.
3. If the reset signal is applied, the display value is returned to initial state.

※Initial state : The output is OFF, the display value is "0". (At Up mode)
※When use D, E, F output mode:If set the fine short, it may not work due to response time of relay contact. Please set the min. setting time over 100ms.

▣ Caution for using

1. AC Power:It is able to connect power to the terminals(2 to 7) without distinguish the polarity DC Power:Be sure the polarity of ②–〈–〉, ⑦–〈+〉
2. Please connect DC power input after checking polarity of power.
3. Please use the transformer which has been insulated between primary and secondary and not grounded in secondary.
4. Do not control the plural number of Timer with one transistor for input at the same time.



5. When set the time setting as 000, control output will not come out.
6. Do not connect input signal to terminal 2, it may cause inner circuit broken.
7. Do not change the time unit, time setting value, output operation mode while it is running. Therefore continue to set after cutting off power.
8. Do not use this unit at below places.
   ①It shall be used indoor
   ②Altitude Max. 2000m
   ③Pollution Degree 2
   ④Installation Category Ⅱ.

※**It may cause malfunction if above instructions are not followed.**

Macromatic Industrial Controls
2201 Corporate Dr Waukesha, WI 53189
For product information and technical support go to www.macromatic.com/contact

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