

# Microcomputer Timer Switch KG316T

- Be sure to read the manual carefully before using.
- Please safekeeping the manual.

## I. Function and Application

This product can automatically switch on and switch off various kinds of electric equipments according to the fixed time. It is widely used in all electrical equipments and household appliances where needs to be controlled. Such as street lamps, neon lights, advertisement board lights, production equipments, broadcasting & TV equipments and ect.



## II. Technical Specifications

Voltage Range: 180~240V 50Hz  
Capacitance: Resistance Load: 25A  
Timing Control Range: 1min~168h  
Temperature: -10℃~+50℃  
Dimension: 120×74×58mm

Voltage scope: 85%~110%  
Consumed power<4VA  
Timing error  $\leq \pm 2s/day$  (25℃ $\pm 1^{\circ}C$ )  
Relative Humidity: <95%  
Weight: 430g

## III. Operation instructions

### 1. Adjust Clock

- Before using this product, please check the clock display to follow the current time, and calibrate it.
- Hold down the "CLOCK" key, meanwhile adjust respectively the key "HOUR", "MINUTE", "WEEK" in accord with the current time.

### 2. Time setting

step	key	Setting content
①	Press the key "TIMER"	The first switch-on setting ( display 1 <sup>ON</sup> )
②	Press the key "HOUR" and "MINUTE"	Set switch-on time ( hour, minute )
③	Press the key "WEEK"	Working Mode: set the switch-on working days
④	Press the key "TIMER" again	The first switch-off setting ( display 1 <sup>OFF</sup> )
⑤	Press the key "HOUR" and "MINUTE" again	Set switch-off time ( hour, minute )
⑥	Press the key "WEEK" again	Set the switch-off working days
⑦	Repeat step ① to ⑥	Set other 2 <sup>on</sup> and 2 <sup>off</sup> , 3 <sup>on</sup> and 3 <sup>off</sup> until 16 <sup>on</sup> and 16 <sup>off</sup> ( if no, pls make it display "— — : — —" )
⑧	Press the key "CLOCK"	End the timing setting and enter to the state of clock display.
⑨	Press the key "AUTO/ MANU"	Adjust the switch sign▼ to the current state ("ON" or "OFF"),and adjust to the state of "AUTO".

Notice: ■ When make an error or cancel the settings, press "reset/recall "key to make it display "— — : — —" ( it means no timing program, not "00:00").

- Working mode: everyday cycle, Mon., Wed. and Fri.; Tue., Thur. and Sat.; Sat.,
- Shanghai Zhuoyi Electronic Co.,Ltd.

Sun.; Mon. Tue and Wed.; Thur. Fri. and Sat.; Mon., Tue., Wed., Thur., Fri.; Mon., Tue., Wed., Thur. Fri. and Sat.;

- If you set the switch-on time, you must set the switch-off time to correspond.

### 3. For example

Some electrical equipment needs to switch on 19:00, and switch off 08:00 next day.

A. Follow the steps ①, ②, ③, and make it display as Figure 1a;

B. Follow the steps ④, ⑤, ⑥, and make it display as Figure 1b;

C. Follow the step ⑦, and make each group 2<sup>on</sup> and 2<sup>off</sup>, 3<sup>on</sup> and 3<sup>off</sup> until 16<sup>on</sup> and 16<sup>off</sup> display as“— —: — —”.

D. Follow the steps ⑧, ⑨, and adjust the work mode to the state of "AUTO".

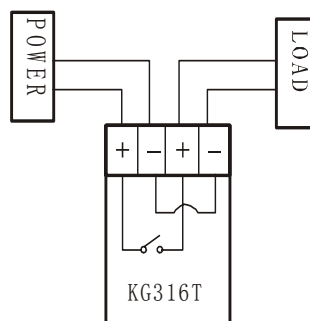
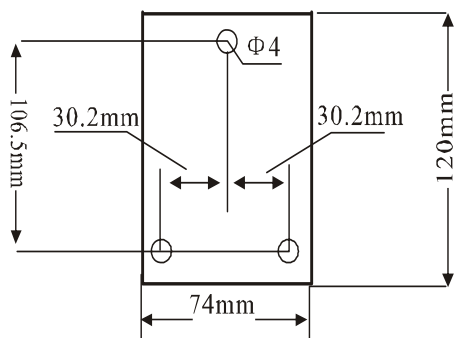


Fig1a



Fig1b

## IV. Wring diagram



## V. Maintenance

- Do not use the timer switch on the equipments which will cause the accident to affect the safety of life or harm to society with misoperation, such as medical equipment and large equipment, etc.
- When timer switch is used in equipments (large heater, or refrigerator, etc.) which will cause great property damage with misoperation, make sure the features and performance values have adequate margin. If necessary, take 2-circuit security measure and etc.
- Do not self-repair, decomposition or reconstruction the products. Please commit the repair, inspection work to the agency or the construction enterprises.
- Do not touch the terminals after connect to the power.
- Make it work under the environment where is isolated from moisture, corrosion and high content of metal gas. Do not make it contaminate with oil or water.

# KG316T

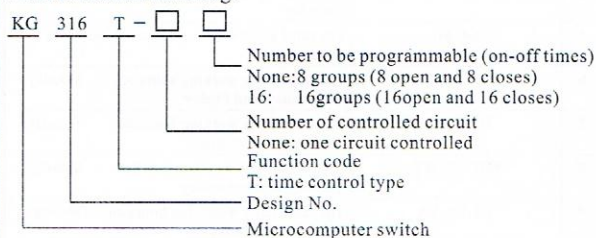
## Microcomputer Time Control Switch Operation instructions

Please read the operation instructions before installing and using the product.

### 1 Application

The KG316T microcomputer time control switch ( hereafter referred to as the switch ) can be used for timing connection and break in AC 50HZ(or 60Hz) circuits with a rated voltage of 220V and rated current of 3A in such equipment as road and advertising lamp houses.

### 2 Model and its meanings



### 3 Normal working conditions and installation conditions

3.1 Ambient air temperature:  $-25^{\circ}\text{C} \sim +60^{\circ}\text{C}$ , and the average temperature within 24 hours shall not exceed  $+40^{\circ}\text{C}$ .

3.2 Altitude: no greater than 2000m;

3.3 Humidity: The relative humidity of the installation site shall be no greater than 50% at the highest temperature of  $+40^{\circ}\text{C}$ ; at a relatively low temperature, higher relative humidity is allowable. Special measures shall be taken for the condensate on the product resulting from temperature variations.

3.4 Pollution Grade: 3

3.5 The product shall not be kept in the media of exploration danger or with gases that may erode metals or destroy insulation, or in the area where there are a lot of conducting dust.

3.6 The product shall be kept in the area where there are rain and kept snow prevention equipment and not be kept in the area where there are a lot of steam.

3.7 The product shall be kept in the area where there is no distinct swing, impact, or vibration.

3.8 Installation category: II

3.9 Transportation and storage conditions:  $-25^{\circ}\text{C} \sim +65^{\circ}\text{C}$

3.10 Source voltage variation range: 85%~110% rated voltage.

3.11 Degree of protection: IP20

### 4 Technical parameters

4.1 Rated control source voltage: AC(50Hz); 220V

4.2 Conventional heat current: 10A

4.3 Auxiliary circuit commission category: AC-15

4.4 Rated working current(Ie): AC-15 220V 3A

4.5 Timing error:  $\leq 2\text{s/day}$

4.6 Time control range: 1 minute~ 168 hours

4.7 Mechanical life:  $\geq 30000$  times

4.8 Electrical life:  $\geq 10000$  times

4.9 Installation mode: unit style

4.10 Anti-interference tolerance: see Table1



display screen show symbol explanation

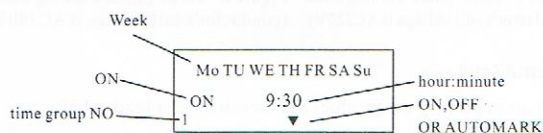


Table1 Anti-interference tolerance

Item	Rigor grade
Static discharge tolerance	$\pm 8\text{kv}$ (air discharge) $\pm 10\%$
Radiating electromagnetic field tolerance	Pilot electric field intensity $10(\text{V/m}) \pm 10\%$
Rapid transient tolerance	2kv for power cord, 1kv for I/O signal and control lines, Duration 1 min.
Surge (impact) tolerance	Open -circuit test voltage ( $\pm 10\%$ ) 2.0kv

### 5. Physical dimension, installation dimension, and mode of connection

#### 5.1 Physical dimension and installation dimension see Figure1

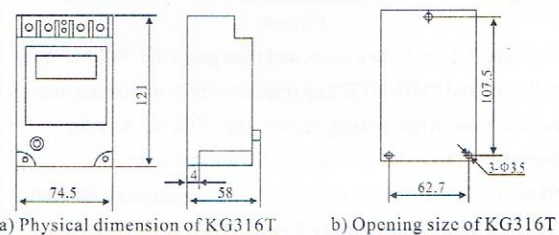


Figure 1 Physical dimension and installation dimension of KG316T

#### 5.2 Mode of connection

5.2.1 Direct control mode If the power for the appliance under control is supplied by a single phase and the working current does not exceed the rating of the switch, then the direct control mode can be adopted, with the mode of connection as shown in Figure 2.

For the lamp loads with a large pickup impulse current, the control mode by AC contactor capacity expansion shall be used.

5.2.2 Single-phase capacity expansion mode If the power for the appliance under control is supplied by a single phase and the working current exceeds the rating of the switch, then the control mode by AC contactor capacity expansion shall be employed.

5.2.3 Three-phase working mode If power for the appliance under control is supplied by three phases, an external AC conductor is required.

a) If the control conductor's coil voltage is AC380V 50Hz, then the mode of connection is shown as in Figure4.

b) If the control conductor's coil voltage is AC 380V 50Hz, then the mode of connection is shown as in Figure5.



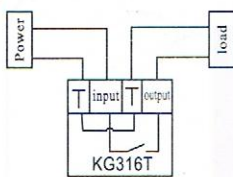


Figure 2 Direct control mode

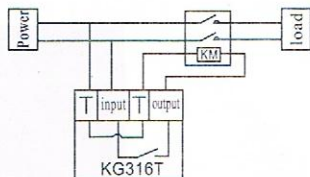


Figure 3 Single-phase capacity expansion mode  
(conductor's coil voltage is AC220V)

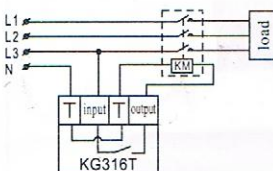


Figure 4 Three-phase working mode  
(conductor's coil voltage is AC220V)

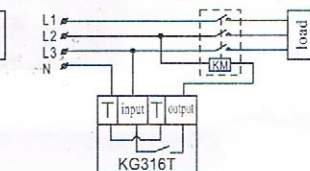


Figure 5 Three-phase working mode  
(conductor's coil voltage is AC380V)

## 6. Setting and use

Prior to putting the product into service, first load a battery. The cover direction is the positive electrode of the battery.

When reading the manual, be sure to see clearly the keys on the panel. It is preferred to read the manual together with operation. All the setup functions of the production are available until the keyboard lock is unlocked. The manual take "8-open and 8-close" product as the example, and the product of 16 groups can follow suit.

6.1 Pressing the "RESET / RECALL" key four times can unlock the keyboard lock, and the " " disappear, it is shown as Figure 6.

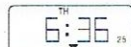


Figure 6

6.2 Press the "CLOCK" key once, and then press the "WEEK" key, "HOUR" key, and "MINUTE" key respectively to adjust the time to the current time. After setting, repress the "HOUR" key for conformation. The LCD will display the current time.

6.3 Press the "TIMER" key, wait until "1 ON" (indicating the first time opening time) appear in the lower left of LCD, and then press "WEEK" key, "HOUR" key, and "MINUTE" key and input the required opening time, as shown in Figure 7.



Figure 7

6.4 Press the "TIMER" key once again; wait until "1 OFF" (indicating the first time closing time) appear in the lower left of LCD, and then press "WEEK" key, "HOUR" key, and "MINUTE" key and input the required closing time, as shown in Figure 8.

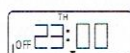


Figure 8

6.5 Continue to press the "TIMER" key. (2 ON, 2 OFF, ..... 8 ON, 8 OFF) will be displayed in the lower left of LCD in turn. Set up the time for these groups in accordance with the above procedures. If both open and close operations are conducted only once within

a day, the "RESET/RECALL" key must be pressed to cancel the time of all other groups to make the LCD to be displayed as "--:--", as shown in Figure 9.

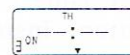


Figure 9

6.6 Press the "WEEK" key to set up working mode, as shown in Table 2.

Table 2 working mode

NO.	Working mode	Functions
1	MO TU WE TH FR SA SU	The same daily working hours in a week
2	MO/ TU/ WE/ TH/ FR/ SA/ SU	Different daily working hours in a week
3	MO TU WE TH FR	The same daily working hours from Monday to Friday
4	MO TU WE TH FR SA	The same daily working hours from Monday to Saturday
5	SA SU	The same daily working hours on Saturday to Sunday
6	MO WE FR	The same daily working hours on Monday, Wednesday, and Friday
7	TU TH SA	The same daily working hours on Tuesday, Thursday, and Saturday
8	MO TU WE	The same daily working hours on Monday, Tuesday, and Wednesday
9	TH FR SA	The same daily working hours on Thursday, Friday, and Saturday

Note: 1. As long as a working mode is set up once, the system can work in accordance with the presetting routine.  
Note: 2. MO TU WE TH FR SA SU are the abbreviations of Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday

6.7 After finishing the timing setup, press the "CLOCK" key to make the LCD to display the current time; otherwise, the automatic clock switch will switch itself into the clock mode automatically 30 seconds later.

6.8 Connect the wires according to the connection diagram and switch on, and the red light on the panel will be on; after switching on the switch, the green light will be on and there will be 220V current at the output terminal.

6.9 Pressing the "AUTO/MANUAL" key can help to switch on or off directly. The way to let the switch act automatically is that: first press the "AUTO/MANUAL" key to adjust the arrow in the lower part of the LCD to the "OFF" position. Only in this way can the automatic clock switch work according to the present and realize automatic control.

## 7 Precautions

- 7.1 The incoming feeder of the switch can only be connected with AC 220V power supply; never use any other power source.
- 7.2 If it is confirmed that the input terminal is alive but the red indicator light is off, then check whether the fuse on the panel fails. If the fuse fails, please replace it with a new fuse of 0.25A.
- 7.3 The product employs 1.5V high performance batteries with can be used for one year from the date of manufactory. If the display is not clear after a period of service, please replace the batteries in time. The battery cover direction on the right of the product indicates the positive electrode.
- 7.4 Based on the vertical installation position, screw the battery cover to the "Θ" position to uncover the battery box and replace the batteries; after replacement, cover the box and screw the cover to the "⊙" position.

## KG316T Micro computer timer switch 1-circuit



### Function:

The product can open and close all kinds of power supply automatically according to the user's time. The control objects can be road lamp, neon lamp, billboard, producing equipment, broadcast TV, and all that the circuit fixtures and home appliances need setting time to control.

### Technical index:

1. Working voltage: 220V/50Hz
2. Applicable voltage range: 160V~240V
3. Switch capacity: Residence 25A, Sensible 20A
4. Consumed power: <1W
5. No effect from power cut, charge automatically inside
6. Can set 10 ON and 10 OFF at most everyday, manual and automatically
7. Work circularly according to designed procedure by week or by day
8. Time-lapse range: 1 min~ 168 Hrs
9. Environmental temperature: -20°C~60°C
10. Time error: <0.5s/day
11. Environmental humidity:<95%
12. Net weight: 430g

### Instructions

Time setting

When reading the manual, user shall make clear the keys on the panel and operate it.

1. Adjust clock:

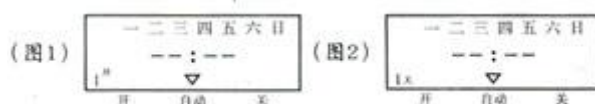
The products have been adjusted well when ex-factory. If you need readjust, please press the clock key, at the same time, press the week key, thus finish the week adjustment. The rest may be deduced by analogy.

2. Set the first open time:

Press the timer key, LCD screen shall appear (see picture 1), then press hour key and second key, put in the open time.

3. Set the first close time:

Press the timer key again, LCD screen shall appear (see picture 2), then press hour key and second key, put in the close time.

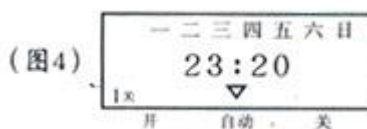
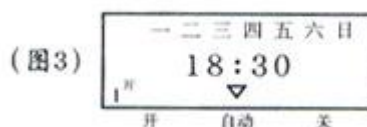


4. Press the timer key continually, the bottom left of LCD screen shall appear in turn (two ON and two OFF, .....six ON and six OFF, .....ten ON and ten OFF), refer to step 2 and 3 to set future open and close time. If open and close one time in one day, you must press Reset/Recall key to remove all the deposited time (two ON and two OFF, .....six ON and six OFF, .....ten ON and ten OFF), making the LCD show "-- : --" mark.

5. After finishing the timer setting, press clock key, or not press any key within 30 seconds, making LCD show the Beijing time.

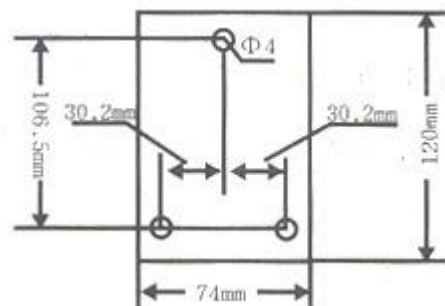
6. After engaging the power supply, if the indicator lamp only shows red, which means the circuit is with electricity. If the indicator lamps show both red and green, which means the switch is connected.

7. Pressing Auto/Manu key can open or close circuit directly. If you want the switch automatically work, please press Auto/Manu key first, and adjust the mark under the LCD to the close position, and then press it again to adjust to the Auto position. For example: Open at 18:30 P.M. (See picture 3, introduced in step 2) and close at 23:20 P.M. automatically everyday (See picture 4, introduced in step 3), and the following is to adjust the LCD to be "-- : --" marked (Introduced in step4), and operate as introduced in step 5,6, 7.



8. Press timer key, and then press week key, thus can set same or different combinations of Mon, Wed, Fri or Tue, Thu, Sat, or Mon, Tue, Wed, or Thu, Fri, Sat. and set same from Mon to Fri, or Sat. to Sunday.

### Mounting size



### Connection methods

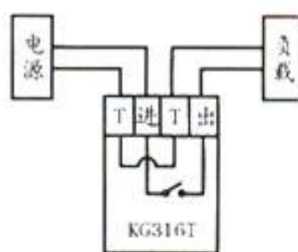


图 1

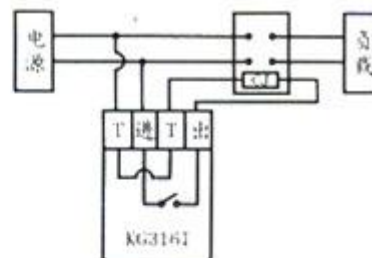


图 2

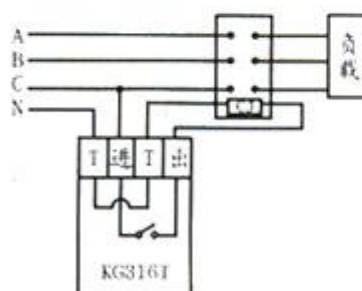


图 3

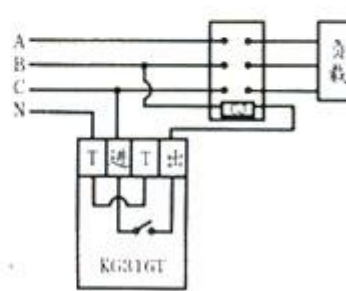


图 4

#### 1. Direct control connection

The controlled equipment shall be single-phase power supply, and the power shall not beyond the rated capacity (Resistibility loading 25A, sensibility loading 20A), is available for direct control method. See picture 1.

#### 2. Single phase and extended capacity connection

The controlled equipment is single-phase power supply, but the power is beyond the rated capacity (Resistibility loading 25A, sensibility loading 20A), then you shall need an AC contactor

to extend the capacity. See picture 2.

### 3. Three-phases connection

The controlled equipment is three-phase power supply, which need a three-phase AC contactor connected outside. The loop of the AC contactor is AC220V, 50Hz. See picture 3. And if the loop is AC380V, 50Hz, then see picture 4.

### When you think it at fault

- If the switch has not open at the open time, or close not at the close time after opening, it maybe the week adjustment goes wrong, please check or readjust it according to the methods of the timer setting introduction.
- If you confirm the open and close time have been right adjusted, but the switch open or close at the wrong time, it maybe redundant time settings have not be removed, please remove them according to the methods of the timer setting introduction. ( Note: The timer shows “-- : -- ” is OK instead of “00:00”.)
- If the above two are all right, but the switch doesn't work normally, maybe the Auto/Manu key is wrongly done, please check mark▼of open, auto, close, and adjust it to be current time, then back at the auto position.
- If the switch has not work normally yet, please open the rear fuse cover (terminal panel), check whether the fuse break off or not, if yes, please change it with new fuse of 0.1A~0.3A.
- If the above several methods still can't remove the faults, please contact our company or local distributor.

### Attentions

- For the equipment which has possible accident caused by the timer switch going wrong, or the equipment which has great effect to the society such as medical treatment equipment and large-scale equipment, etc., Please don't use our timer switch.
- For the equipments (large-scale ones such as heat warehouse or refrigeratory, etc.) which have the possible great belongings losing caused by the timer switch goes wrong, please be sure to have enough space for the properties and performance value, and take measures such as double circuit for secure, when you use our timer switch.
- Don't repair, disassemble, change, and check it by yourself.
- Please be sure to entrust distributor or builder.
- Don't touch terminal part after connecting power supply.
- The switch works at non-humidity, corrosion proof and free from high metal-contained gas environment. Please don't touch with oil or water.