

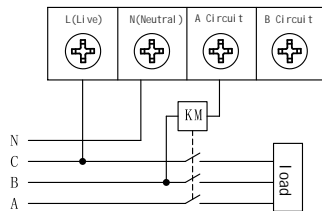
. Overview

The HHQ16 - A latitude and longitude street lamp controller (hereinafter referred to as the controller) is an upgraded version of the HHQ16 type. On the original basis, the accuracy of the clock is enhanced , and the 2 - way midnight light - off is completely independent. Regional control can be used worldwide, and it can work normally at an ambient temperature as low as - 50 . The PCB printed board is covered with three - proof paint, which plays a certain protective role in moisture prevention, salt spray prevention, mildew prevention, etc. This product adopts advanced foreign computer control technology, utilizes the operation law of the sun and the earth as well as the relationship between the earth's latitude and longitude and sunrise and sunset. According to the changes of the four seasons, it uses the latitude and longitude algorithm to calculate the sunrise and sunset time, and has the functions of switch time fine adjustment and midnight control. It can meet the needs of different geographical environments and can be widely used in streets, railways, stations, waterways, industrial and mining enterprises, schools and power supply departments and other places. This controller meets the relevant requirements of GB/T 14536.8.

. Main Technical Data

1. Working power supply (control power supply voltage): AC100V - 240V 50/60Hz;
2. Control modes: all - night lamp, automatic midnight lamp, two - stage lamp. A photosensitive probe can be added for use as a photosensitive latitude and longitude street lamp controller (to be noted when ordering);
3. Total power consumption of the whole machine: 5VA;
4. Control cycle: 24h;
5. Error: ± 2 minutes/year;
6. Output circuit: AC250V 3A or AC380V 1A (using non - contact solid - state relays, DC load cannot be controlled. If DC load is to be controlled, it needs to be customized);
7. Power - off memory: The clock can operate without power for 10 years from the date of leaving the factory;
8. Operating temperature: - 50 - 70 ;

Example 3:



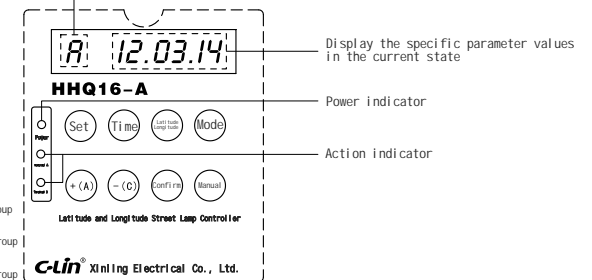
IX. Ordering Information

When placing an order, it is necessary to specify the product model, operating voltage, and quantity. If there are special requirements, they should be noted separately.
For example: HHQ16 - A AC220V, 100 pieces.

. Panel Description

Status Indicators:

- A: Indicates the date
- B: Indicates the time
- C: Indicates the longitude
- d : Indicates the latitude
- L1: Indicates the control mode of Circuit
- L2: Indicates the control mode of Circuit
- E1: Indicates the lighting - on time of the first group
- F1: Indicates the lighting - off time of the first group
- E2: Indicates the lighting - on time of the second group
- F2: Indicates the lighting - off time of the second group

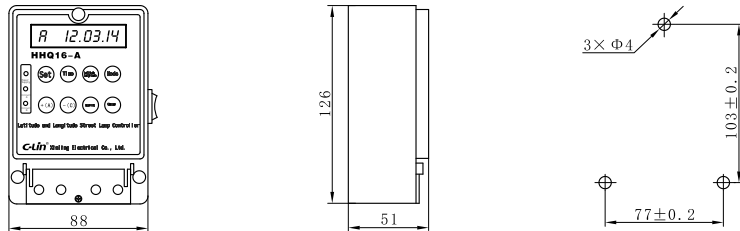


V. Instructions for Use

1. Basic Function: After inputting the local longitude and latitude, the controller can automatically calculate the local light - on and light - off times (sunset and sunrise times) according to the longitude, latitude and date. When the controller is powered on, it first displays "82401603", but sometimes it will also display different contents, which indicates that the program may be of a different version. Only when the controller displays Beijing Time and keeps time can it control according to the parameters adjusted by you. Therefore, when the user sets each item

9. Altitude: 2000m;
10. Humidity: When the maximum temperature at the installation site is 40 , the relative humidity of the air shall be 50%. Higher relative humidity is allowed at lower temperatures, for example, reaching 90% at 20 . Special measures shall be taken for condensation occasionally caused by temperature changes;
11. Working power supply fuse: 100mA;
12. Load control fuse: 3A;
13. Pollution degree: Class 3;
14. Conventional heating current Ith: 5A;
15. Rated insulation voltage Ui: 400V;
16. Rated impulse withstand voltage Uimp: 2.5KV.

. Outline and Mounting Hole Dimension Drawing (mm)



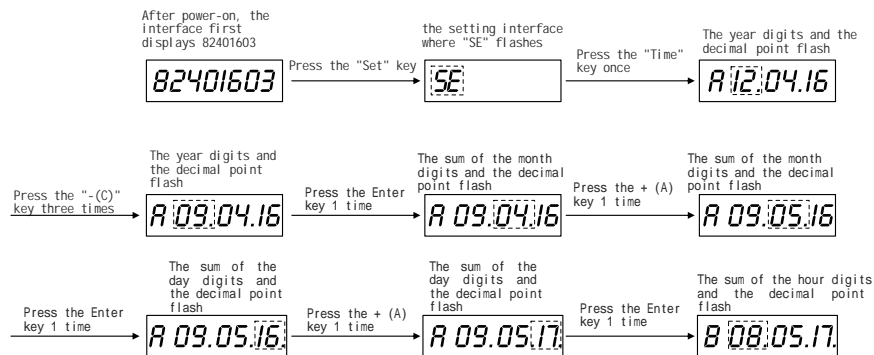
-2-

-15-

at the end, you must press the "Confirm" key once. Only in this way can the adjustment of this item be completed, and it will display Beijing Time and enter the control state.

2. Date and time setting: Date and time are the basis for ensuring the on-off of the controller. The date and time have been entered correctly, but users are expected to check them. Please adjust once every 3 to 6 months according to the accuracy requirements to ensure that the date and time are correct.

Note: For the flashing part, you can adjust the numbers by pressing the "+" or "-" key (take changing 12-04-16 08:05:17 to 09-05-17 09:10:18 as an example).



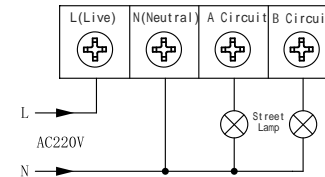
-4-

Note 2: This controller shall be used for AC contactor loads only and not for other loads. Due to the special design of the output circuit, when measuring the output voltage with a multimeter, please carry out the measurement when the load is connected; otherwise, the measurement cannot be accurate.

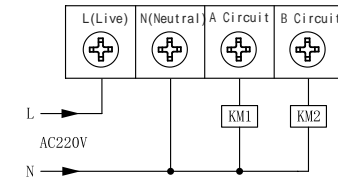
Note 3: After the circuit is installed, press the "Manual" key on the panel once to enter the manual-on test state and check whether the AC contactor can pull in. If it is normal, press the "Manual" key again to enter the automatic state. This key can only be used for short-time (within 15 minutes) testing; otherwise, it will automatically return to the automatic state.

Note 4: There is an automatic/manual conversion button on the right side of this controller, which is convenient for the maintenance of electrical equipment or emergency needs during major celebrations. It has three gears: automatic, manual-on, and manual-off. When there is no emergency, this button must be in the automatic state. Remember this.

Example 1:



Example 2:



-13-

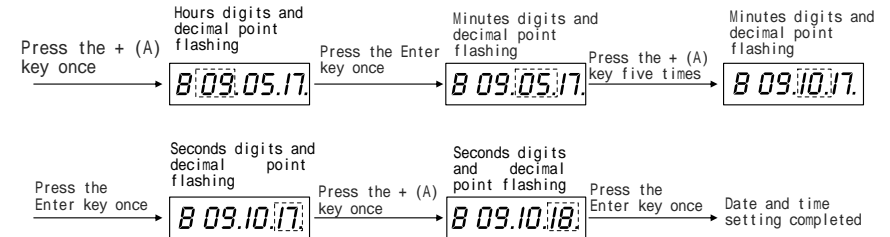
Table 1 (Continued)

City	East Longitude	North Latitude	City	East Longitude	North Latitude
Chengdu	104.1	30.6	Xiamen	118.1	24.4
Chongqing	106.6	29.8	Guangzhou	113.2	23.1
Lanzhou	103.6	36.0	Haikou	110.3	20.0
Yinchuan	106.4	38.5	Hong Kong	114.2	22.3
Urumqi	87.7	43.8	Macao	113.6	22.2
Lhasa	91.1	29.7	Taipei	121.5	25.0

VIII.Examples of Application Circuits

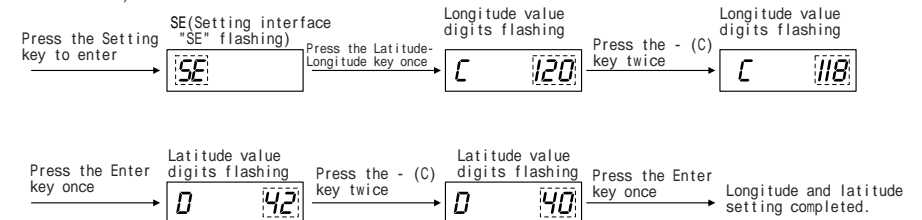
- 1.For the wiring method when the load capacity is 3A AC250V or below, refer to Example 1.
- 2.For the wiring method when the load current exceeds 3A and the coil voltage of the expanded AC contactors KM1 and KM2 is AC220V, refer to Example 2.
- 3.For the wiring method when the load current exceeds 3A and the coil voltage of the expanded AC contactor KM is AC380V, refer to Example 3.

Note 1: Other power supply voltages must not be connected to the output circuit to avoid short circuits. All wires and screws must be firm and work reliably.



3. Setting of Longitude and Latitude Values

Note: Before setting, you should first find out the longitude and latitude values of the local area (refer to Table 1 on Page 11) (taking the example of changing longitude 120 and latitude 42 to local longitude 118 and latitude 40).



The finally displayed Beijing Time: At this point, the controller will control the street lamp switch according to the above - input parameters and methods.
 7.Quick Switch Between Mode A and Mode C: Because in some places, Mode C (midnight lamp) or Mode D (two - stage lamp) is commonly used in the second half of the night under normal circumstances, while Mode A (all - night lamp) is needed during holidays. When in the Beijing Time state, press the A key (i.e., the "+" key) to quickly set the controller to Mode A. After the holidays, press the C key (i.e., the "-" key) to change the control mode back to the previously set mode.

VI. Instructions for Using Latitude - Longitude Plus Photocontrol and Photocontrol Probe

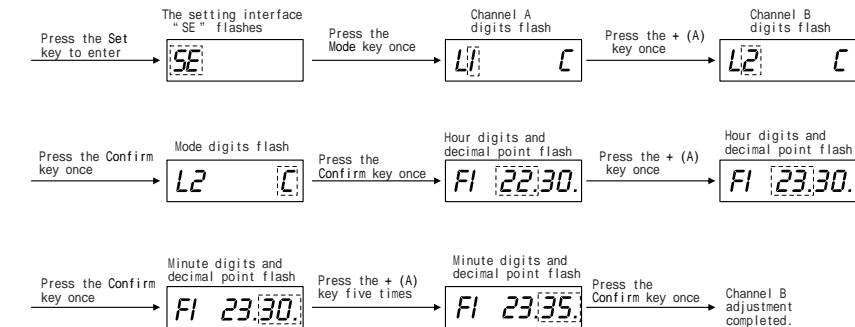
Adjustment is carried out according to the time range of sunrise and sunset automatically calculated by latitude and longitude: One hour before sunset, if it is necessary to turn on the lights in advance due to weather conditions such as cloudy days, the controller will adjust the switch time according to the function of the photocontrol probe. Generally, the cable length of the photocontrol probe is 2.4m; for special requirements, customization is required.

1.Function of the photocontrol probe: In the evening, when the illuminance is less than 3LX, it enters the photocontrol state one hour in advance on the basis of the switch time calculated by latitude and longitude.

For example: The light-on time automatically calculated by latitude and longitude is 18:20. When the illuminance is less than 3LX between 17:20 and 18:20, the controller enters the photocontrol state and performs the light-on operation.

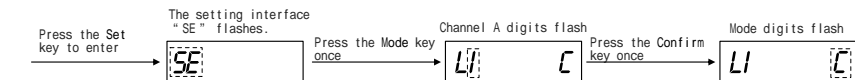
2. Installation Method a) Install the photocontrol probe with the milky white cover facing down. b) In case of scattered light, the lighting surface can be adjusted from three directions (right 45°, center, left 45°) by the fixing pin.

3.Please install the photocontrol probe outside the control box where natural light can reach.



c) Mode D is for two - stage lights (they are turned on automatically in the evening; users can set them to turn off at a certain time from evening to morning, and then set them to turn on at a certain time before morning, with automatic turn - off in the morning).

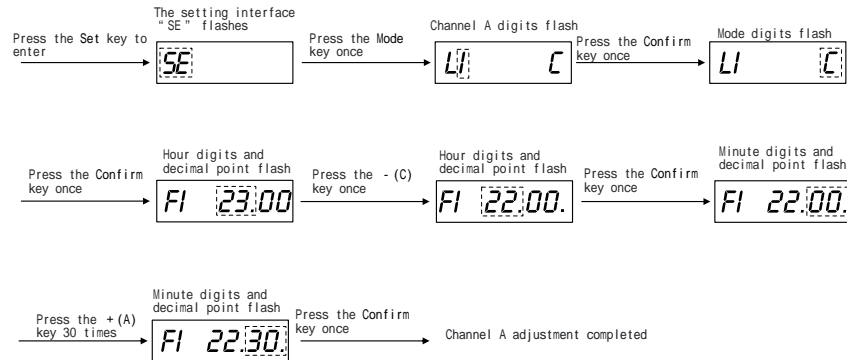
Note: The light - on time of the second stage should be earlier than the light - off time in the morning. Corresponding adjustments must be made after seasonal changes (take the first - stage light - off time of Mode D as 23:00 and the second - stage light - on time as 03:35 as an example).



4. Enter Control Mode

- a) Mode A is for all-night lights (automatic on and off), no setting required;
- b) Mode C is for midnight lights (automatic on, user-set off);

Note: Both channels are set to Control Mode C (taking turning off Channel A at 22:30 and Channel B at 23:35 as an example) (users can adjust the light-off time as needed).

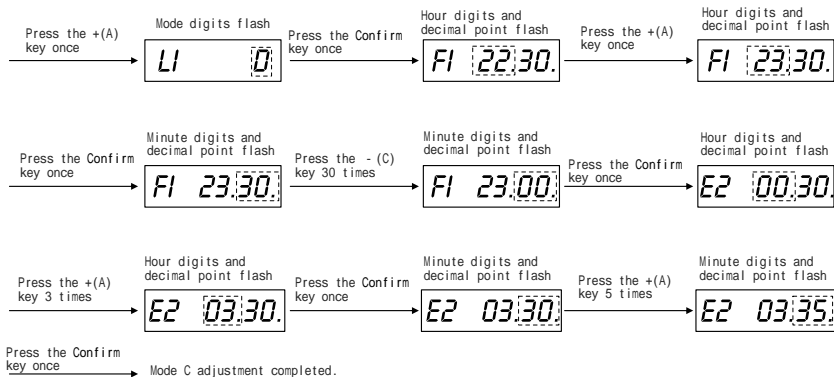


4. Do not install the photocontrol probe upside down or horizontally; otherwise, it will cause malfunctions.

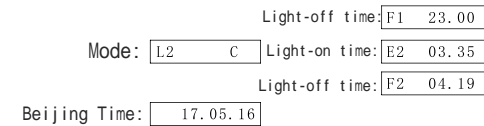
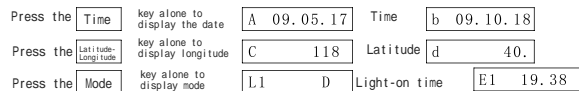
VII. Reference of Latitude and Longitude for Major Cities in China

Table 1

City	East Longitude	North Latitude	City	East Longitude	North Latitude
Beijing	116.5	40.0	Jinan	117.0	36.7
Hohhot	112.2	40.9	Qingdao	120.3	36.1
Shenyang	123.4	41.8	Nanjing	118.8	32.0
Dalian	121.6	39.0	Shanghai	121.5	31.2
Changchun	125.3	43.9	Hangzhou	120.2	30.3
Harbin	126.7	45.7	Hefei	117.3	31.9
Tianjin	117.2	39.1	Nanchang	115.9	28.7
Shijiazhuang	114.4	38.0	Changsha	113.0	28.2
Taiyuan	112.6	37.8	Nanning	108.4	22.8
Zhengzhou	113.8	34.8	Guiyang	106.7	26.6
Wuhan	114.3	30.6	Kunming	102.7	25.1
Xi'an	108.9	34.2	Fuzhou	119.3	26.1



5. Check: Check whether the content entered above is correct.



6. The light-on and light-off times (i.e., sunset and sunrise times) are automatically calculated based on longitude value, latitude value, and date. However, some users believe that the switch times need adjustment, and the method is as follows:

- a) Adjust the evening light-on time (sunset time): The adjustment range is 0-59 minutes. Press the "Set" key and then the "Confirm" key; the display of "on" indicates that the number of minutes for advancing or delaying the light-on time can be adjusted. Press the "+" key and then the "Confirm" key; the "+" or "-" key can be used to adjust the number of minutes by which the light-on time is delayed. Press the "-" key and then the "Confirm" key; the "+" or "-" key can be used to adjust the number of minutes by which the light-on time is advanced.
- b) Adjust the morning light-off time (sunrise time): The adjustment range is 0-59 minutes. After adjusting the required evening light-on (sunset) time, press the "Confirm" key again; the display of "OFF" allows adjustment of the number of minutes for advancing or delaying the sunrise light-off time. Press the "+" key and then the "Confirm" key; the "+" or "-" key can be used to adjust the number of minutes by which the light-off time is delayed. Press the "-" key and then the "Confirm" key; the "+" or "-" key can be used to adjust the number of minutes by which the light-off time is advanced.
- c) Press the "Confirm" key and then the "+" key to query the number of minutes by which the adjusted light-on time and light-off time are advanced or delayed.



C-Lin®
欣灵电气股份有限公司
XINLING ELECTRICAL CO., LTD.
地址: 浙江省乐清经济开发区纬十九路328号
电话: 0577-6273 5555 传真: 0577-6272 2963
官网: www.c-lin.cn E-mail: xl@xinling.com
技术咨询: 400-8236-775



C-Lin 欣灵

使用说明书
Products Instructions

HHQ16-A

Latitude and Longitude Street Light Controller

Thank you very much for using C-Lin Brand Street Light Controller.
Please read the instruction manual before using the product!

03A027P0