

HHQ9 series time - control switches (hereinafter referred to as time - control switches) adopt dedicated timing chips and LCD liquid crystal display, featuring the advantages of high timing accuracy and wide time - control range. It is widely applied to streetlights, neon lights, advertising sign lights, production equipment, radio and television equipment and other places where electrical equipment and household appliances need to be turned on and off regularly. This time - control switch complies with the relevant requirements of GB/T 14536.8.

Model	HHQ9-1	HHQ9-2	HHQ9-4	HHQ9-6		
Operating Power Supply (Control Power Supply voltage)	AC220V 50HZ; Allowable Voltage Fluctuation Range: (85% - 110%) Ue					
Time - control Range	1m~168h					
Timing Frequency	40 groups, automatic and manual dual - use					
Control table Circuits	1 circuit	2 circuits	4 circuits			
Output Mode	Passive contact output		Active voltage output			
Timing Error	$\leq \pm 1s/d$ (error adjustable: $\pm 9.5s$ in 7 days)					
Power Consumption	$\leq 5VA$					
Humidity	When the maximum temperature at the installation site is $+40^{\circ}C$, the relative humidity of air $\leq 50\%$. At lower temperatures, a relatively higher relative humidity is allowable, for example, up to 90% at $20^{\circ}C$. Special measures should be taken for condensation caused by temperature changes.					
Ambient Temperature	$-10^{\circ}C \sim +40^{\circ}C$					
Altitude	$\leq 2000m$					
Contact Capacity	16A AC250V (resistive)	3A AC250V (resistive)	/			
Load - carrying Capacity	/		2A AC220V (resistive) single - circuit			
Installation Method	Panel - type, device - type, 35mm DIN - rail installation					
Pollution Degree	Level 3					
Conventional Heating Current Ith	5A					
Rated Insulation Voltage Ui	400V					
Rated Impulse Withstand Voltage Uimp	2.5KV					

1. **"Function" key:** Press this key to switch among clock status, clock - setting status, program - setting status, and error - setting status.
2. **"Select" key:** Press this key to select each parameter that needs adjustment and setting in various functions.
3. **"+" key:** Press this key to increment the selected parameter (i.e., achieve an increasing change).
4. **"-" key:** Press this key to decrement the selected parameter (i.e., achieve a decreasing change). In the program - setting status, it can be used to switch the on/off setting of the day - of - the - week and loop parameters.
5. **"Manual" key:** In the clock status, this key is used to set different operating statuses in the following order: on $\longleftrightarrow$ automatic $\longleftrightarrow$ off; in the program - setting status, this key is used to switch between the time set for the program group and "----" (i.e., clear).
6. Other advanced functions:
 - a) If there is no key operation for 30 consecutive seconds in any setting status, it will return to the clock - running status.
 - b) Without an external power supply and in the clock - running status, press and hold the "+" and "?" keys for 5 seconds, and the liquid - crystal display will turn off, entering the sleep mode. In the clock - running status, if there is no key operation for 2 consecutive minutes, it will also enter the sleep mode, and any key press in the sleep mode will wake it up.
 - c) In the program - setting status, when a program group is selected, press and hold the "Manual" and "?" keys for 2 seconds, and the settings of the current program group and subsequent program groups will be cancelled. After the action is executed, it will display the status of the last program group being cancelled.
 - d) In the program - setting status, when a program group is selected, press and hold the "Manual" and "+" keys for 2 seconds, and the settings of the current program group and preceding program groups will be cancelled. After the action is executed, it will display the status of the first program group being cancelled.

Figure 1 displays four schematic diagrams of the HHQ9 test cases, illustrating the network topology and power supply connections:

- HHQ9-1:** Shows a basic power supply connected to a network of nodes (1, 2, 3, 4, 5, 6, 7, 8). The power supply is connected to nodes 1 and 8.
- HHQ9-2:** Shows the power supply connected to nodes 1 and 8. The network includes nodes 1, 2, 3, 4, 5, 6, 7, 8, and two additional loops (loop 1 and loop 2) connecting nodes 3, 4, 5, 6, 7, and 8.
- HHQ9-4:** Shows the power supply connected to nodes 1 and 8. The network includes nodes 1, 2, 3, 4, 5, 6, 7, 8, and four additional loops (loop 1, loop 2, loop 3, and loop 4) connecting nodes 3, 4, 5, 6, 7, and 8. Resistors R341, R342, R343, and R344 are connected between nodes 3 and 4, 4 and 5, 5 and 6, and 6 and 7, respectively.
- HHQ9-6:** Shows the power supply connected to nodes 1 and 8. The network includes nodes 1, 2, 3, 4, 5, 6, 7, 8, and six additional loops (loop 1, loop 2, loop 3, loop 4, loop 5, and loop 6) connecting nodes 3, 4, 5, 6, 7, and 8. Resistors R341, R342, R343, R344, R345, and R346 are connected between nodes 3 and 4, 4 and 5, 5 and 6, 6 and 7, 7 and 8, and 8 and 1, respectively.

Technical drawing of the HHQ9 series digital display units. The drawing includes four front views of the units (HHQ9-1, HHQ9-2, HHQ9-3, HHQ9-4) and two side views. The front views show a digital display showing '20:34:56', the brand 'Cün', and the model 'HHQ9-1' through 'HHQ9-4'. The side views show the depth of the units with dimensions: 51mm for the top part and 108mm for the bottom part. The bottom view shows the panel cutout dimensions: 45.5mm by 45.5mm.

The diagram shows the HHQ9-G device with the following callouts:

- Function setting, status indication:** Points to the LCD display area.
- Day of the week:** Points to the 'Day' field on the LCD.
- Time:** Points to the 'Time' field on the LCD.
- Operating status indication:** Points to the 'Status' field on the LCD.
- Power - on indication:** Points to the 'Power' button.
- Loop output indication (displayed according to physical operation):** Points to the 'Loop' button.
- Reset key:** Points to the 'Reset' button.

The LCD display shows the following information:

- Model: HHQ9-G
- Time: 20:34:56
- Day: MON
- Status: Automatic OFF

The physical buttons are labeled: Power, Loop, and Reset.

Table 2

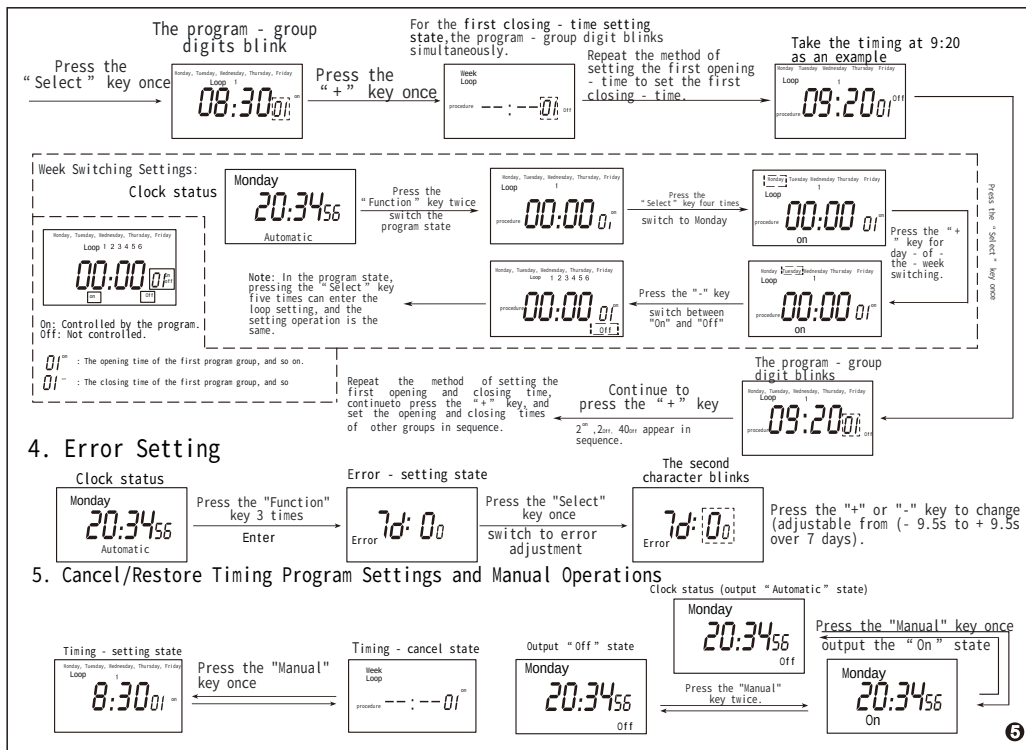
The diagram illustrates the process of setting the clock time and day of the week through a series of steps:

- Initial State:** The clock displays "Monday 20:34:56" with "Automatic" below it. The "The day - of - the - week digit blinks" (the day of the week).
- Step 1:** Press the "Function" key once to enter "Clock - setting status". The display shows "Monday 20:34:56" with "Automatic" below it. The "The hour digit blinks" (the hour).
- Step 2:** Press the "Select" key once, switching to hours. The display shows "Monday 20:34:56" with "Automatic" below it. The "The minute digit blinks" (the minute).
- Step 3:** Press the "Select" key once to switch to seconds. The display shows "Monday 20:35:56" with "Automatic" below it. The "The second digit blinks and increments" (the second).
- Step 4:** Press the "Select" key once, switch to the day of the week. The display shows "Monday 20:35:56" with "Automatic" below it. The "The day - of - the - week digit blinks" (the day of the week).
- Step 5:** Press the "Select" key once to switch to minutes. The display shows "Monday 20:35:56" with "Automatic" below it. The "The minute digit blinks" (the minute).
- Step 6:** Press "+" or "-" to change the parameter. The display shows "Monday 20:35:56" with "Automatic" below it. The "The minute digit blinks" (the minute).

The diagram illustrates the sequence of screens and key presses for setting the clock. It starts with the 'Clock Status' screen (Monday 20:34, Automatic). Pressing 'Function' twice and 'Enter' leads to the 'First start - time setting state' screen (---:--01). Pressing 'Select' once leads to the 'The program - group digit blinks' screen (---:--01). Pressing 'Select' once leads to the 'The hour character blinks' screen (---:--01). Pressing 'Select' once leads to the 'The day - of - the - week character blinks' screen (---:--01). Pressing 'Select' once leads to the 'The loop character blinks' screen (---:--01). Pressing 'Select' once leads to the 'Take the timing at 8:30 as an example' screen (08:30). Pressing 'Select' once leads to the 'The day - of - the - week character blinks' screen (---:--01). Pressing 'Select' once leads to the 'The loop character blinks' screen (---:--01). Pressing 'Select' once leads to the 'Take the timing at 8:30 as an example' screen (08:30). Pressing 'Select' once leads to the 'The day - of - the - week character blinks' screen (---:--01). Pressing 'Select' once leads to the 'The loop character blinks' screen (---:--01). Pressing 'Select' once leads to the 'Take the timing at 8:30 as an example' screen (08:30).

3. If the set start time is before the clock time (for example, the current clock time is 9:00 and the set start time is 8:00), the system defaults that it will not start this time and will start automatically next time.
If you want to start, you need to press the “On/Auto/Off” key to adjust to the “ON” (manual on) state, manually start this time, then adjust the state back to the “AUTO” (automatic) state, and execute automatic control.

4



c) The coil voltage of the AC contactor is AC380V 50Hz, and the wiring method is as shown in Example 4 and Example 8.

IX. Troubleshooting

1. After power - on, if the product power indicator does not light up, check whether the power input is correctly connected to a power supply that matches the product's operating voltage.
2. When this product is opened, no matter what key is pressed, if the display screen does not display or the display is blurry, it is because the internal battery power is insufficient. If necessary, the battery can be replaced according to the product returned for inspection by the commodity inspection or the company's sales department.
3. The product cannot work according to the preset time mode, and there may be the following reasons:
 - a) When "setting the timing program", the day - of - the - week mode is not set correctly. Please reset the correct day - of - the - week mode according to the method in "setting the timing program" as needed.
 - b) When "setting the timing program", redundant program groups are set. Press the "manual" key to cancel the redundant program groups, and it will display "automatic".
 - c) The "operating status" is not set correctly. That is, when the current time is in the manual - on state, the bottom of the display screen should display "automatic". If it is not in this position, please adjust from "on" or "off" to the "automatic" state according to the on or off of the current time.
4. Key failure or time not moving: The product may be frozen due to severe electromagnetic interference, ambient temperature, or other reasons. Insert a needle - like object into the "reset" hole, and it can return to normal operation.
5. If the above methods cannot eliminate the fault, please contact our company or the local distributor for handling.

X. Precautions

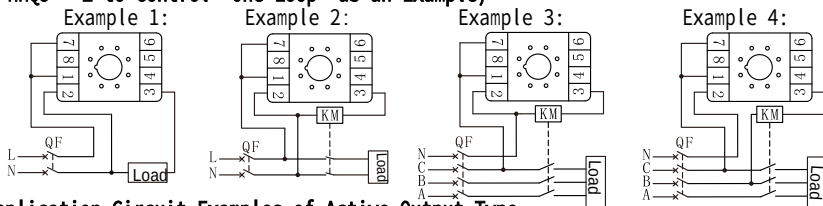
1. The product works in a humid, corrosive, and high - metal - content gas environment, or the product is contaminated with oil or water, which will affect the normal operation of the product.
2. To prevent the contacts from heating under power failure, be sure to tighten the screws of the terminal posts when wiring.

XI. Ordering Instructions

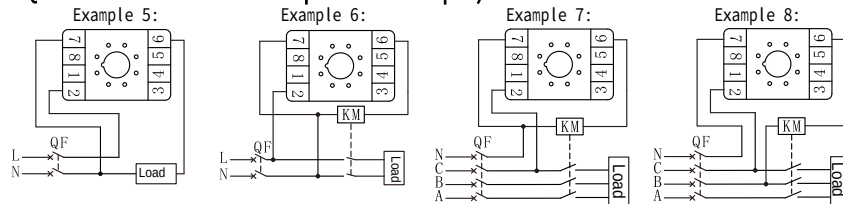
Please specify the HHQ9 model, voltage class, quantity, and when there are special requirements, they should be stated separately.

For example: HHQ9 - 2 AC220V 100 pieces.

VII. Application Circuit Examples of Passive Contact Output Type (Taking HHQ9 - 2 to Control "One Loop" as an Example)



VIII. Application Circuit Examples of Active Output Type (Taking HHQ9 - 6 to Control "One Loop" as an Example)



1. Direct - control mode wiring: If the controlled load is single - phase powered and the power consumption does not exceed the rated capacity of this switch, direct - control mode can be adopted, and the wiring method is as shown in Example 1 and Example 5.
2. Single - phase expansion mode wiring: If the controlled load is single - phase powered, but the power consumption exceeds the contact capacity of this switch (refer to the main technical data table), an AC contactor with a capacity exceeding the load power consumption is needed for expansion, and the wiring method is as shown in Example 2 and Example 6 (the operating voltage of the AC contactor coil is AC220V).
3. Three - phase operation mode wiring:
 - a) If the controlled load is three - phase powered, an external three - phase AC contactor is required.
 - b) The coil voltage of the AC contactor is AC220V 50Hz, and the wiring method is as shown in Example 3 and Example 7.

6



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使用说明书

Products Instructions

HHQ9 Series

Time - Control Switch

Thank you very much for using C-Lin brand time - control switch. Please read the instruction manual before using the product!

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