



**NKG3**  
**Time Switch**

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## User Instruction

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## Safety Warning

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- ① Only professional technicians are allowed for installation and maintenance.
- ② Installation in any damp, condensed-phase environment with inflammable and explosive gas is forbidden.
- ③ When the product is being installed or maintained, the power must be switched off.
- ④ You are prohibited from touching the conductive part when the product is operating.
- ⑤ The product shall be stored, installed and used in accordance with the rated control power supply voltage and specified conditions indicated in the user instructions.
- ⑥ The products shall be properly wired in strict accordance with the wiring diagram.

## 1 Use Purpose

NKG3 time switch (hereinafter referred to as relay) is mainly used in automatic control circuits with frequency of AC 50Hz/60Hz, rated control power supply voltage up to 240V and rated operating current up to 3A, for timed connection and disconnection of various equipment such as road lamps and advertising light boxes.

## 2 Key Technical Parameters

Table 1 Ambient Conditions

Normal use conditions	Ambient temp.: -5°C~+40°C; average value within 24h not exceeding +35°C; altitude not exceeding 2,000m.
Atmospheric conditions	RH shall not exceed 50% when maximum temperature is +40°C; in case of lower temperature, higher RH is allowed. Measures should be taken against occasional condensation due to temperature change.
Installation category	II
Transport and storage conditions	-25°C~+55°C

Table 2 Product Specifications and Main Technical Parameters

Model	NKG3
Installation method	Guide rail type
Operating method	Manual on, manual off, automatic on/off, latitude function; daylight saving time function
Number of programmable groups	16 groups
Time control range	1min~24h
Timing error	±2s/d
Contact number	1 group change-over

## 3 Installation

3.1 Outline and installation dimensions: see Figure 1, unit: mm.

**Table 3 Technical parameters of main circuit and auxiliary circuit**

No.	Product specifications	NKG3	
1	Rated control supply voltage $U_s$ (V), frequency (Hz)	AC220V, AC230V, AC240V, 50Hz/60Hz	
2	Allowable fluctuation range of rated control power supply voltage	85% $U_s$ ~110% $U_s$	
3	Agreed free air heating current $I_{th}$ (A)	16	
4	Rated duty system	Uninterrupted or 8h	
5	Rated operating voltage $U_e$ (V)	AC240V	AC415V
6	Utilization category and rated operating current $I_e$ (A)	AC-15	
		3A	1.9A
7	Rated insulation voltage $U_i$ (V)	415V	
8	Rated impulse withstand voltage $U_{imp}$ (kV)	4	
9	Enclosure protection class (if applicable)	IP20	
10	Pollution class	Class 3	
11	Type and maximum value of short circuit protection	RT36-00/16A	
12	Size of terminal tightening screw (or nut)	M3	
13	Torque of terminal tightening screw (N·m)	0.5	
14	Electrical life / mechanical life (10,000 times)	10/100	

**Table 4 Immunity to Interference**

No.	Test type	Test level
1	Electrostatic discharge immunity test	8kV (air discharge)
2	RF electromagnetic field immunity test	10V/m
3	Electrical fast transient/burst immunity test	2kV/5kHz on the power supply side
4	Surge immunity test	1kV (wire to wire)

### 3.2 Installation, commissioning and operation

#### 3.2.1 Wiring method

##### 3.2.1.1 Single phase direct control

Direct control method is applicable if the controlled load uses single phase power supply and its operating current is not higher than the rated value of this

time switch, see Figure 2 for wiring method; for load with big inrush starting current, please expand the capacity of AC contactor.

### 3.2.1.2 Single phase expanded capacity control

If the controlled load uses single phase power supply and its operating current is higher than the rated value of this time switch, please expand the capacity of AC contactor (coil voltage AC220V), see Figure 3 for wiring method.

### 3.2.1.3 3-phase control

If the controlled load uses 3-phase power supply, an external AC contactor is required.

a) Control contactor coil voltage: AC220V 50Hz/60Hz, see Figure 4 for wiring method;

b) Control contactor coil voltage: AC380V 50Hz/60Hz, see Figure 5 for wiring method.

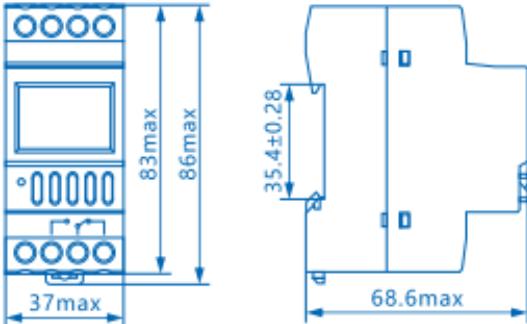


Figure 1 Outline and installation dimensions

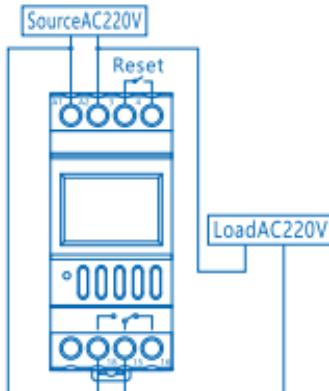


Figure 2 Wiring method of single phase control

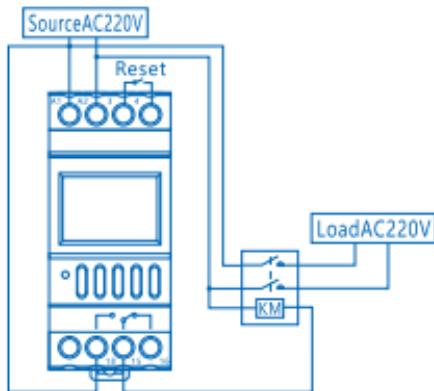


Figure 3 Wiring method of single phase expanded capacity control (contactor coil AC220V)

b) Control contactor coil voltage: AC380V 50Hz/60Hz, see Figure 5 for wiring method.

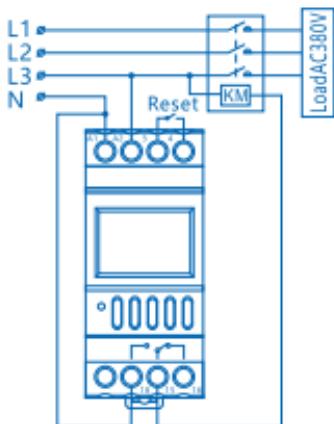


Figure 4 Wiring diagram of 3-phase control (contactor coil AC220V)

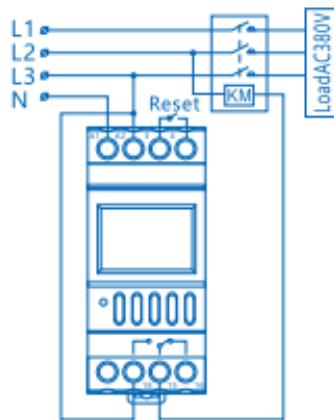


Figure 5 Wiring diagram of 3-phase control (contactor coil AC380V)

### 3.2.2 Settings and Usage

When users read this manual, please recognize the keys on the product panel. The front panel of this product is equipped with five keys: "OK", "S (Set)", "D (Right)", "A (+)", and "V (-)". You need to unlock the product before setting up the product.

#### 3.2.2.1 Unlock settings

Press and hold the "OK" key for 3s to cancel the keyboard lock function, and the briefcase icon is blanked, as shown in Figure 6.



Figure 6 LCD display (after unlocking settings)

#### 3.2.2.2 Date setting

Press and hold the "S" key for 3s, the product enters the setting mode, and the date characters at the top of the display flash. Press the "OK" key to enter the date setting state.

Press the "D" key to select the bit to be adjusted. Press the "A" key or "V" key to set the current date, as shown in Figure 7. After the setting is completed, press "OK" to save, then press "OK" to exit.



Figure 7 LCD display (set date)

### 3.2.2.3 Latitude setup

Press the "  $\nabla$  " key, the character "  $\odot$  " flashes, press the "OK" key to enter the latitude setting state, press the "  $\triangleright$  " key to select the position to be adjusted, press the "  $\Delta$  " key or "  $\nabla$  " key to operate and set to the current latitude. As shown in Figure 8. "  $\odot$  " Means south latitude, and "  $\oplus$  " means north latitude. After the setting is completed, press "OK" to save, then press "OK" to exit.

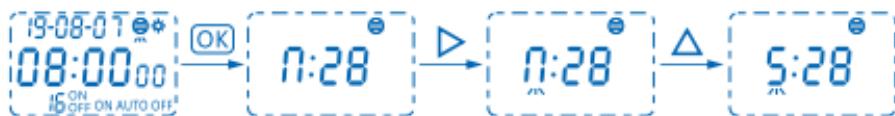


Figure 8 LCD display (set latitude)

### 3.2.2.4 Daylight saving time(DST) setting

3.2.2.4.1 Press the "  $\nabla$  " key, the character "  $\odot$  " flashes, press the "OK" key to enter the daylight saving time setting state, press the "  $\triangleright$  " key, the summer time mode character flashes, and then press the "  $\Delta$  " key or "  $\nabla$  " key to operate, Select the required daylight saving time mode, including " OFF (Off)" , " EU (Europe)" , " USA (USA)" , and " F-EE (Free)" modes, as shown in Figure 9. After the selection is completed, press "OK" to save, then press "OK" to exit.

European mode: Daylight saving time starts from 1:00 on the last Sunday in March and ends at 1:00 on the last Sunday in October.

US mode: Daylight saving time starts from 2:00 on the second Sunday in March and ends at 2:00 on the first Sunday in November.

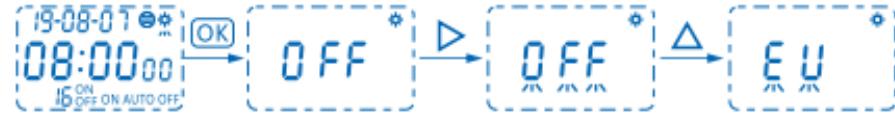


Figure 9 LCD display (set daylight saving time)

3.2.2.4.2 Set " F-EE (Free)" mode, press "OK" key to enter the daylight saving time ON setting state, press "  $\triangleright$  " key, select the bit to be adjusted, press "  $\Delta$  " key or "  $\nabla$  " key to operate, and set to turn on Month, the first Sunday of the opening month, and at some time, as shown in Figure 10. After the setting is completed, press "OK" to save.

Press the "  $\nabla$  " key to enter the daylight saving time (OFF) setting state, which is set in the same manner as in 3.2.2.4.2, and it is set to turn off the month,

the few Sundays of the month, and turn off at some time, as shown in Figure 11. After the setting is completed, press "OK" to save, then press "OK" to exit.



Figure 10 LCD display (set free mode daylight saving time on)



Figure 11 LCD display (set free mode daylight saving time off)

### 3.2.2.5 Clock settings

Press "▽" key, the clock character flashes, press "OK" key to enter the clock setting state, press "▷" key to select the bit to be adjusted, press "△" key or "▽" key to operate and set the clock to the current time. Figure 12 shows. After the setting is completed, press "OK" to save, then press "OK" to exit.

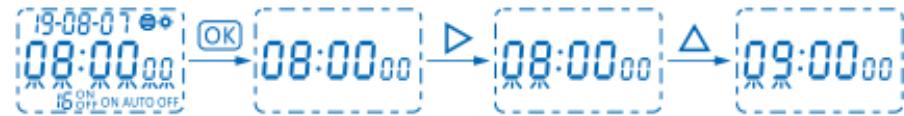


Figure 12 LCD display (set clock)

### 3.2.2.6 Timing settings

3.2.2.6.1 Press the "▽" key, the "16<sup>ON</sup><sub>OFF</sub>" character flashes, and press the "OK" key to enter the timing setting state (1 ON, first turn on). Press the "▷" key to select the bit to be adjusted, and press the "△" key or "▽" key to set the clock and timing latitude functions, as shown in Figure 13. The character "⊕" appears to indicate that the group of timing latitude functions is turned on. After the setting is completed, press the "OK" key to save.



Figure 13 LCD display (set the first group to power on)

3.2.2.6.2 Press the "△" key to enter the timer setting state (1 OFF, first off). The setting is the same as 3.2.2.6.1, as shown in Figure 14. After setting is completed, press "OK" to save.

3.2.2.6.3 Continue to press the "△" key to display (2 ON, 2 OFF ... 16 ON, 16 OFF) in sequence. Refer to the above steps to set whether the switch time and latitude

function of the remaining groups need to be turned on. Press "OK" to save, then press "OK" to exit. For the extra time period, please press the "S" key to eliminate the remaining groups of time so that the LCD displays "--:--", and press the "S" key again to recover, as shown in Figure 15.



Figure 14 LCD display (set the first group of power off)



Figure 15 LCD display (the remaining timing setting time is eliminated)

### 3.2.2.7 Switch mode setting

Press "▽" key, "ON AUTO OFF" character flashes, press "OK" key to enter switch mode setting state, press "▷" key, switch mode character flashes, press "△" key or "▽" key to set switch mode, As shown in Figure 16.



Figure 16 LCD display (switch mode selection)

To enable the product to achieve automatic control, if the product needs to control the load on, the switch mode should be set to "ON AUTO"; if the product needs to control the load off, the switch mode should be set to "AUTO OFF" So that the product can work automatically at the set time. After setting, press "OK" to save, then press "OK" to exit.

### 3.2.2.8 Lock settings

After the above settings are completed, press and hold the "S" key for 3 seconds, the product returns to the clock mode. Standby for 30s or press the "OK" key for 3s, the product locks automatically and "🔒" appears.

### 3.2.2.9 Reset

In any state, you can press the "OK" key and the "▷" key simultaneously for 3s to reset.

### 3.2.2.10 Switching mode switching

In the unlocked state, press the "OK" key and the "▽" key at the same time to quickly switch between manual / automatic state. Press this key combination continuously, and "OFF", "AUTO OFF", "ON", "ON AUTO", as shown in Figure 17.

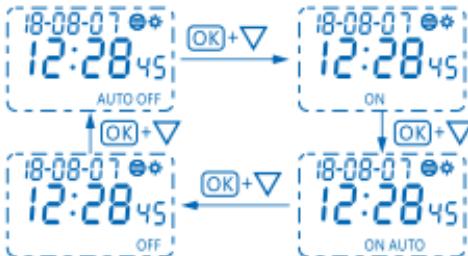


Figure 17 LCD display (manual switching)

### 3.2.2.11 Wiring use

Wire correctly according to the wiring diagram, turn on the power, set the time to the product action, turn on the load, and the red indicator light is on.

## 4 Maintenance

- 4.1 The terminal of the timer switch should be tightened on a regular basis.
- 4.2 Power should be cut off during regular maintenance to ensure personal safety. Please pay attention to the electrode when replacing the battery. After battery replacement, mount the battery cover and connect the power supply.
- 4.3 Avoid squeezing the product; the product should be stored in a well-ventilated place.
- 4.4 For equipment that may cause material economic losses or personal safety, safety measures such as secondary circuit protection should be taken.

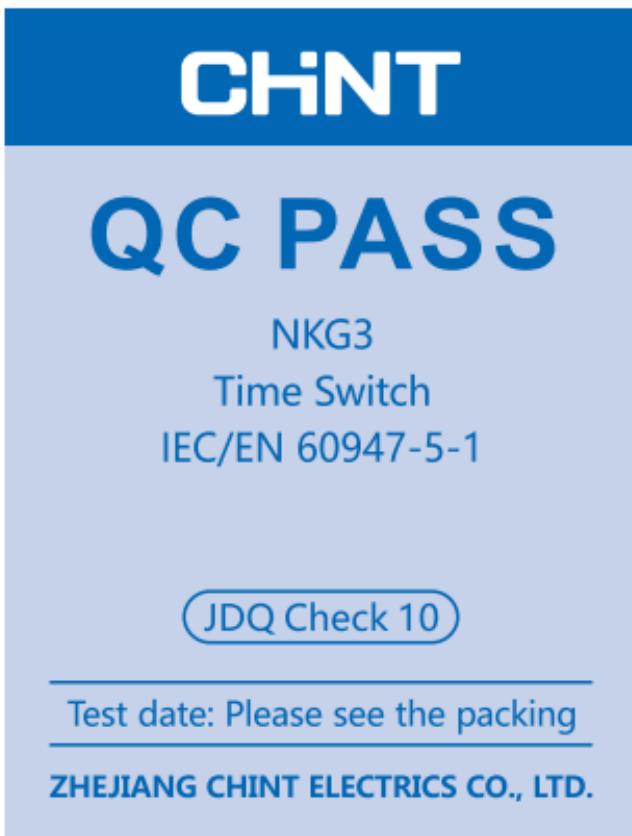
Table 5 Analysis and Troubleshooting of Faults

Symptoms	Cause analysis	Troubleshooting method
The system is dead or shows abnormality.	Program error.	Press the "OK" key and "▷" key at the same time for 3s or reset by shorting the 3 and 4 terminals.
The product runs outside the set time range.	Latitude, DST or date setup error.	The product runs outside the set time range. Latitude, DST or date setup error. Check the function settings in accordance with 3.2.2.2 ~ 3.2.2.4 in this order.
	Timing setup error.	Check if the timing setup is removed according to 3.2.2.6.
Product cannot achieve automatic control	The automatic function is not enabled.	Check if the on/off mode is selected according to 3.2.2.7.

## 5 Environmental Protection

In order to protect the environment, the product or product parts should be disposed of according to the industrial waste treatment process, or be sent to the recycling station for assortment, dismantling and recycling.

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**NKG3**  
**Time Switch**  
**User Instruction**



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NKG3-M  
Time Switch

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## User Instruction

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## Safety Warning

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- ① Only professional technicians are allowed for installation and maintenance.
- ② Installation in any damp, condensed-phase environment with inflammable and explosive gas is forbidden.
- ③ When the product is being installed or maintained, the power must be switched off.
- ④ You are prohibited from touching the conductive part when the product is operating.
- ⑤ The product shall be stored, installed and used in accordance with the rated control power supply voltage and specified conditions indicated in the user instructions.
- ⑥ The products shall be properly wired in strict accordance with the wiring diagram.

## 1 Use Purpose

NKG3-M time switch (hereinafter referred to as time switch) is mainly used in automatic control circuits with frequency of AC 50Hz/60Hz, rated control power supply voltage up to 240V and rated operating current up to 3A, for timed connection and disconnection of various equipment such as road lamps and advertising light boxes.

## 2 Key Technical Parameters

Table 1 Ambient Conditions

Normal use conditions	Ambient temp.: -5°C~+40°C; average value within 24h not exceeding +35°C; altitude not exceeding 2,000m.
Atmospheric conditions	RH shall not exceed 50% when maximum temperature is +40°C; in case of lower temperature, higher RH is allowed. Measures should be taken against occasional condensation due to temperature change.
Installation category	II
Transport and storage conditions	-25°C~+55°C

Table 2 Product Specifications and Main Technical Parameters

Model	NKG3-M
Installation method	Guide rail type
Operating method	Manual on, manual off, automatic on/off
Number of programmable groups	16 groups
Time control range	1s~168h
Timing error	±2s/d
Contact number	1 group change-over

**Table 3 Technical parameters of main circuit and auxiliary circuit**

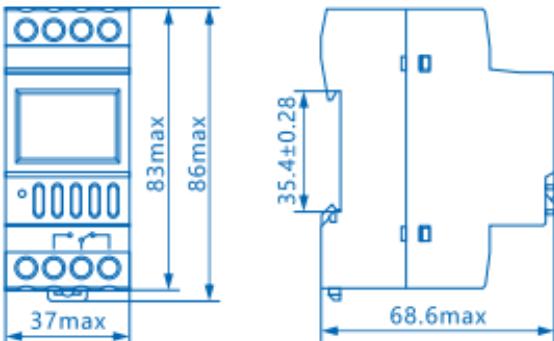
No.	Product specifications	NKG3-M	
1	Rated control supply voltage $U_s$ (V), frequency (Hz)	AC220V, AC230V, AC240V, 50Hz/60Hz	
2	Allowable fluctuation range of rated control power supply voltage	85% $U_s$ ~110% $U_s$	
3	Agreed free air heating current $I_{th}$ (A)	16	
4	Rated duty system	Uninterrupted or 8h	
5	Rated operating voltage $U_e$ (V)	AC240V	AC415V
6	Utilization category and rated operating current $I_e$ (A)	AC-15	
		3A	1.9A
7	Rated insulation voltage $U_i$ (V)	415V	
8	Rated impulse withstand voltage $U_{imp}$ (kV)	4	
9	Enclosure protection class (if applicable)	IP20	
10	Pollution class	Class 3	
11	Type and maximum value of short circuit protection	RT36-00/16A	
12	Size of terminal tightening screw (or nut)	M3	
13	Torque of terminal tightening screw (N·m)	0.5	
14	Electrical life / mechanical life (10,000 times)	10/100	

**Table 4 Immunity to Interference**

No.	Test type	Test level
1	Electrostatic discharge immunity test	8kV (air discharge)
2	RF electromagnetic field immunity test	10V/m
3	Electrical fast transient/burst immunity test	2kV/5kHz on the power supply side
4	Surge immunity test	1kV (wire to wire)

### 3 Installation

3.1 Outline and installation dimensions: see Figure 1, unit: mm.



**Figure 1 Outline and installation dimensions**

### 3.2 Installation, commissioning and operation

#### 3.2.1 Wiring method

##### 3.2.1.1 Single phase direct control

Direct control method is applicable if the controlled load uses single phase power supply and its operating current is not higher than the rated value of this time switch, see Figure 2 for wiring method; for load with big inrush starting current, please expand the capacity of AC contactor.

##### 3.2.1.2 Single phase expanded capacity control

If the controlled load uses single phase power supply and its operating current is higher than the rated value of this time switch, please expand the capacity of AC contactor (coil voltage AC220V), see Figure 3 for wiring method.

##### 3.2.1.3 3-phase control

If the controlled load uses 3-phase power supply, an external AC contactor is required.

a) Control contactor coil voltage: AC220V 50Hz/60Hz, see Figure 4 for wiring method;

b) Control contactor coil voltage: AC380V 50Hz/60Hz, see Figure 5 for wiring method.

#### 3.2.2 Settings and Usage

When users read this manual, please recognize the keys on the product panel. The front panel of this product is equipped with five keys: "OK", "S (Set)", "▷ (Right)", "△ (+)", and "▽ (-)". You need to unlock the product before setting up the product.

### 3.2.2.1 Unlock settings

Press and hold the "OK" key for 3s to cancel the keyboard lock function, and "  " is blanked, as shown in Figure 6.

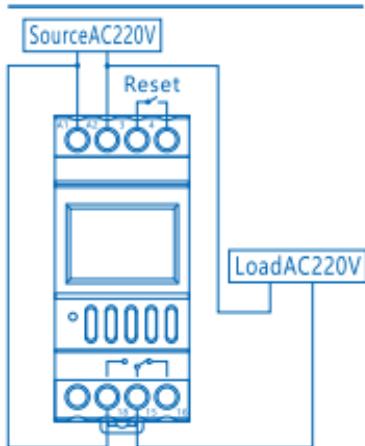


Figure 2 Wiring method of single phase control

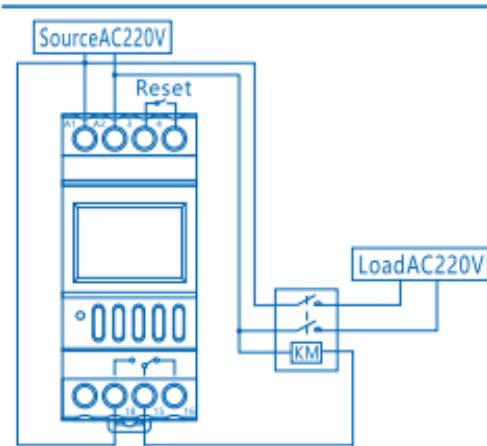


Figure 3 Wiring method of single phase expanded capacity control (contactor coil AC220V)

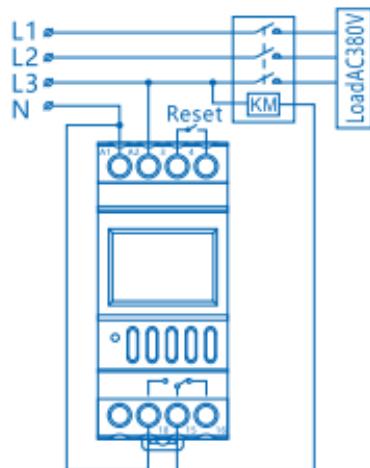


Figure 4 Wiring diagram of 3-phase control (contactor coil AC220V)

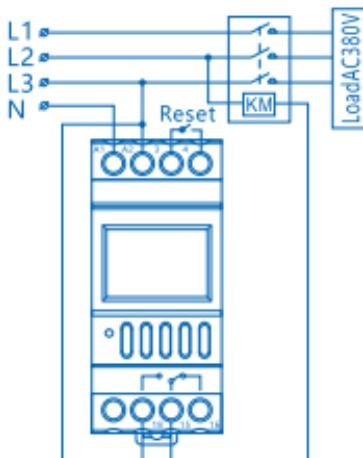


Figure 5 Wiring diagram of 3-phase control (contactor coil AC380V)



Figure 6 LCD display (after unlocking settings)

### 3.2.2.2 Week setting

Press and hold the "S" key for 3s, the product enters the setting mode, and the week character above the display flashes. Press the "OK" key to enter the week setting state, press the "▷" key, the day of the week character flashes, press the "△" key or "▽" key to set the current week, as shown in Figure 7. After the setting is completed, press "OK" to save, then press "OK" to exit.

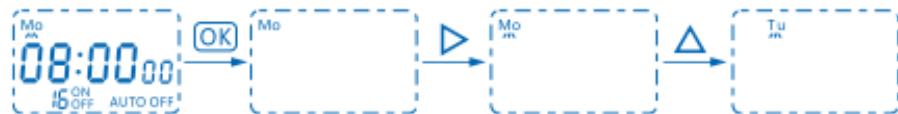


Figure 7 LCD display (set week)

### 3.2.2.3 Clock settings

Press the "▽" key, the clock character flashes, press the "OK" key to enter the clock setting state, press the "▷" key to select the bit to be adjusted, press the "△" key or "▽" key to operate and set the clock to the current time, such as Figure 8 shows. After the setting is completed, press "OK" to save, then press "OK" to exit.



Figure 8 LCD display (set clock)

### 3.2.2.4 Timing settings

3.2.2.4.1 Press the "▽" key, the "16<sup>ON</sup> OFF" character flashes, and press the "OK" key to enter the timing setting state (1 ON, first turn on). Press the "▷" key to select the bit to be adjusted, and press the "△" key or "▽" key to set the clock and week work mode (see Table 5), as shown in Figure 9. After the setting is completed, press "OK" to save.

Table 5 Working modes

No.	Working mode	Function
1	Mo Tu We Th Fr Sa Su	Same working hours per day
2	Mo Tu We Th Fr Sa	Same working hours from Monday to Saturday
3	Mo Tu We Th Fr	Same working hours from Monday to Friday
4	Sa Su	Same working hours on Saturday and Sunday
5	Mo Tu We	Same working hours on Monday, Tuesday and Wednesday
6	Th Fr Sa	Same working hours on Thursday, Friday and Saturday
7	Mo We Fr	Same working hours on Monday, Wednesday and Friday
8	Tu Th Sa	Same working hours on Tuesday, Thursday and Saturday
9	Mo/Tu/We/Th/Fr/Sa/Su	Daily working hours vary

Note 1: All operating modes only need to be set once to ensure operation according to the set procedure.

Note 2: Mo TU WE TH FR SA SU are the abbreviations of Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday.



Figure 9 LCD display (set the first group to be powered on)

3.2.2.4.2 Press the “ $\Delta$ ” key to enter the timer setting state (1 OFF, the first time off). The setting is the same as 3.2.2.4.1, as shown in Figure 10. After setting is completed, press “OK” to save.



Figure 10 LCD display (set the first group of power off)

3.2.2.4.3 Continue to press the “ $\Delta$ ” key to display in sequence (2 ON, 2 OFF ... 16 ON, 16 OFF). Refer to the above steps to set the switch time and week mode for the remaining groups. Save, then press “OK” to exit. For the extra time period, please press the “S” key to eliminate the remaining groups of time and make the LCD display “--: --: \_\_”, as shown in Figure 11. Press the “S” key again to resume.



Figure 11 LCD display (the remaining timing setting time is eliminated)

### 3.2.2.5 Switch mode setting

Press “ $\nabla$ ” key, “ON AUTO OFF” character flashes, press “OK” key to enter switch mode setting state, press “ $\triangleright$ ” key, switch mode character flashes, press “ $\Delta$ ” key or “ $\nabla$ ” key to set switch mode, As shown in Figure 12.

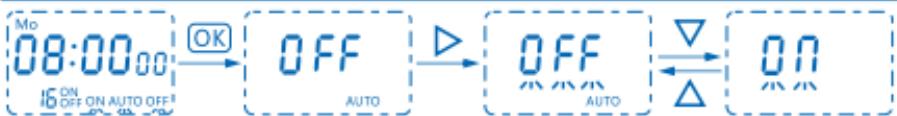


Figure 12 LCD display (switch mode selection)

To enable the product to achieve automatic control, if the product needs to control the load on, the switch mode should be set to “ON AUTO” ; if the product needs to control the load off, the switch mode should be set to “AUTO OFF” So that the product can work automatically at the set time. After setting, press “OK” to save, then press “OK” to exit.

### 3.2.2.6 Lock settings

After the above settings are completed, press and hold the “S” key for 3 seconds, the product returns to the clock mode. Standby for 30s or press the “OK” key for 3s, the product locks automatically and “” appears.

### 3.2.2.7 Reset

In any state, you can press the “OK” key and the “ $\triangleright$ ” key simultaneously for 3s to reset.

### 3.2.2.8 Switching mode switching

In the unlocked state, press the “OK” key and the “ $\nabla$ ” key at the same time to quickly switch between manual / automatic state. Press this key combination continuously, and “OFF”, “AUTO OFF”, “ON”, “ON AUTO”, as shown in Figure 13.

### 3.2.2.9 Wiring use

Connect the wiring correctly according to the wiring diagram, turn on the power, set the time, the product will move, and the red indicator light will be on.

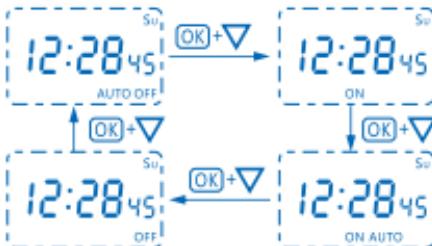


Figure 13 LCD display (manual switching)

## 4 Maintenance

- 4.1 The terminal of the timer switch should be tightened on a regular basis.
- 4.2 Power should be cut off during regular maintenance to ensure personal safety. Please pay attention to the electrode when replacing the battery. After battery replacement, mount the battery cover and connect the power supply.
- 4.3 Avoid squeezing the product; the product should be stored in a well-ventilated place.
- 4.4 For equipment that may cause material economic losses or personal safety, safety measures such as secondary circuit protection should be taken.

Table 6 Fault Analysis and Troubleshooting

Symptoms	Cause analysis	Troubleshooting method
Show abnormal or freeze	Product program disorder	Press the "OK" key and "▷" key at the same time for 3s or reset by shorting terminals 3 and 4.
Product works at non-set times	Timing setting error	Check whether the timing setting is set according to 3.2.2.4.3.
Product cannot achieve automatic control	Automatic function is not turned on	Check if the automatic function is turned on at the bottom right of the product display.

## 5 Environmental Protection

In order to protect the environment, the product or product parts should be disposed of according to the industrial waste treatment process,

or be sent to the recycling station for assortment, dismantling and recycling.

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**CHINT**

**QC PASS**

NKG3-M  
Time Switch  
IEC/EN 60947-5-1

JDQ Check 10

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Test date: Please see the packing

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**ZHEJIANG CHINT ELECTRICS CO., LTD.**

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NKG3-M  
Time Switch  
User Instruction



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