EAZY-VLC Controller User's Manual

Thank you for using this product of our company, The EAZY-VLC controller can be achieved of the joint action with dual relay by adjusting the timer, each time relay can run independently, there also can run in turn, dual time relay can be controlled by detect dual channel voltage, such as control two loads simultaneously or alternately on/off, single-phase motor positive and reversion according to the timing, or DC motor positive and reversion, or dual solenoid valve timing work in rotation (controlled pneumatic), or dual alternating bright lights and so on.

In case of any printing or translation error, we apologize for the inconvenience.

Product Features:

1. Digital LED display, set by three keys, simple, powerful, has reset function.

2.High-performance microcontrollers, industrial-grade reliability, high process stability, low power, digital display can be automatically turned off , the minimum operating current at 7mA/12V, with reverse power protection , surge current shock .

3. Each group of relay contacts to a common and normally open, normally closed, two sets of conversion;

4. Dual time relay, timer range: 0.1 seconds ~ 9999 minutes adjustable, close/ release cycles is adjustable from 0 to 999 ("0" means infinite loop) , timer relays can be set to close first or release first;

5. Dual relay can take turns running, after the end of timer relay A then timer relay B began to run, turn the cycle , can be triggered by high level or switch to start and forced stop (P-3 mode) ;

6. Dual relay which can be run independently, can be high or switch to trigger the start (P-4 mode) ;

7. Dual voltage detection control relay, the detection voltage range: DC 0 ~ 99.9V, each channel can be set to detect movement of the voltage on the lower voltage value (DC 0 ~ 99.9V);

All parameter settings can be saved, the next time modes and parameters continue to the last running.

Timer Range: 0.1seconds ~ 9999 minutes can be set, cycles 0 ~ 999 times

Voltage detection and voltmeter display range: DC 0-99 .9 V Error: ± 0.1V

Operating Power: DC10~16V

Relay parameters:

Coil Voltage: DC 12V

Two set of conversion (normally open and normally closed)

Contact load: 10A/277V AC or 10A/30V DC   Contact resistance: ≤ 100mΩ (1A 6VDC)

Mechanical durability: 10 millions

Electricity durability: > 100,000 (10A-250VAC)

Operating Temperature: -40 ~ 85℃

Set display shut, the minimum current values are 7mA/12V (delay released)

Attention:

Use this product to control the high-voltage electrical equipment must operate by electrical professionals, high voltage danger!
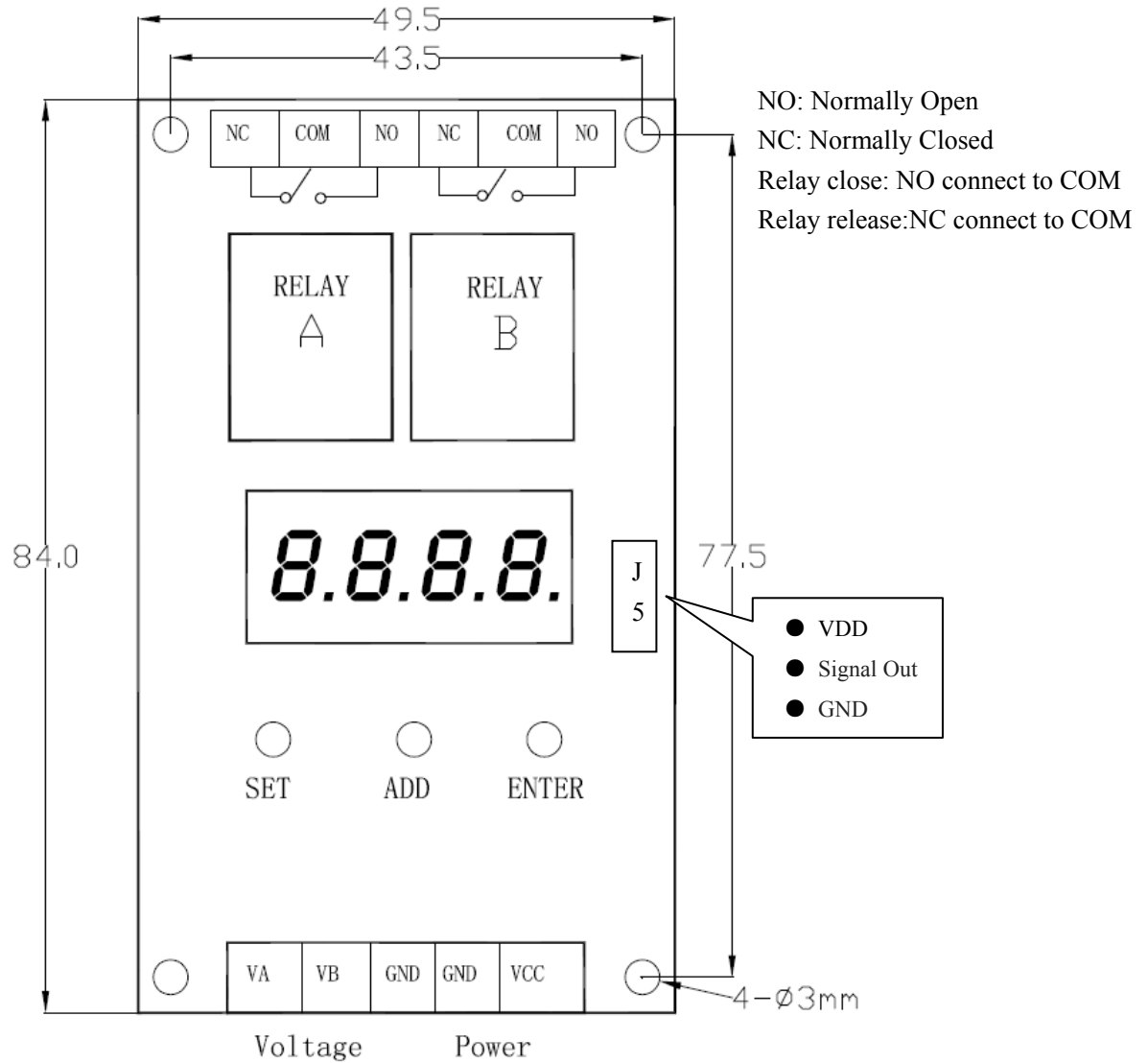
NO: Normally Open
NC: Normally Closed
Relay close: NO connect to COM
Relay release: NC connect to COM

Figure 1

2 Operating modes:

Mode:

P - 1: Time relay A

P - 2: Time relay B

P - 3: A-B dual channel combined time relay (in turn)

P - 4: A-B dual channel independent time relay

P - 5: A-B dual channel voltage control time relay

P - 6: Digital LED shut down setting and system reset

Connect to power, the initial mode selection is displayed as "P-0", then press the "SET" key to select "P-1~P-6" modes, press "ENTER" key to enter into the corresponding mode. While any mode running, press the "ENTER" key for 3 seconds, system return to the mode selection state.

2.1 Time Relay Mode A (P-1)

Press the "SET" key to select "P-1", controller system will enter into the time relay mode.

 "P-1"/ "P-2":   0.1s-999 minutes can be set.

Cyclic run:

Time relay mode, the user can set T1 and T2 time and relay's state, such as: set T1 status as "ON" (relay close), 5 seconds, T2 status with "OF" (release), 10 seconds, cycle vaule is 0, the relay will close for 3 seconds and then release for 10 seconds, infinite loop. If you set the T1 as "OF" (release), at T2 time relay's state will switch to "ON" automatically. Set the cycle number, the relay release after cycles over. Short press ENTER key to restart cycle.

When the timer running, press "ADD" key, to switch between countdown time and cycles display, short press "ENTER" key to switch countdown time and suspended display.

A single run:

If you set the time T1 only, T2 is 0, the timing will stop after T1 time over, no longer run cycle, this can be used as a timer, if the state is set to "ON" of T1 (relay close), after T1 time over, relay release, if T1 is set to "OF" (release), after the T1 time delay relay to keep close, short press "ENTER" key, the system back to the T1 time start timing.

Time setting methods:

SET	t1 ON	*0000*	t2 OF	*0000*	*C000*	save
		T1		T2		
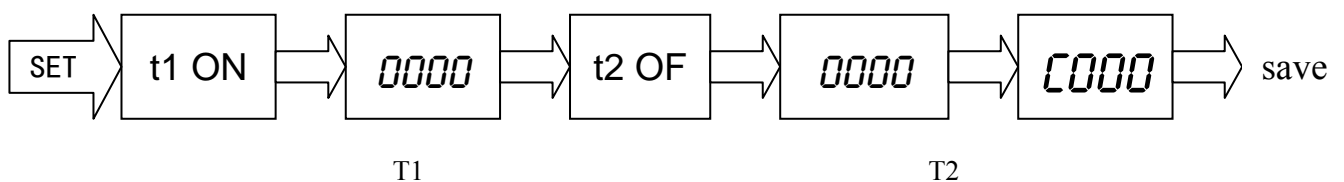
1) Press "SET" key, digital LED flashing display "t1 ON", means the relay will closed at T1 time, at this time, press the "ADD" key to select the "OF", means the relay will release at T1 time, then short press "SET" key, you can set four bit values of T1 , short press the ADD key can adjust each number 0 ~ 9, then press "SET" key LED display "t2 OF," means the relay will release at T2

time (opposite to T1 state), then short press "SET" key, can set values of T2, short press the "ADD" key, the values can be adjusted from 0 ~ 9 each number, short press "SET" key again to show "C 000", means cycle times, press the "ADD" key to adjust value, short press "SET" key again to LED dose not flash, timer parameters be saved, short press the "ENTER" key in setting process, also can save timer parameters and exit setting.

2) The values of the T1/T2 can switch to minutes unit or seconds unit, while setting (LED flashing) long press "SET" key for 3 seconds to loosen, the decimal point bright on the right of LED, means minutes unit, if the decimal point dose not bright, means second unit. Setting over, press the "ENTER" key to start the timer, and if the seconds unit, the second show the time countdown, if minutes unit, the last decimal point to 1 Hz frequency flashing in the operation of the means the countdown. While timing, short press "ENTER" key to suspend run, long press the "ENTER" key for 3 seconds the return mode selection state.

2.2 P-2 Time relay B

Setting methods of "P - 2" mode is the same as "P - 1", time relay B setting and running is independent of relay A.

In P-1, P-2 mode, voltage interface A and B (Figure 1) detect the input voltage 3v~100v high level trigger signal, that can trigger the time relay to start timing. While timing, external switch input does not affect the timer, after time over, a trigger signal input will start the timing again.

2.3 P-3 Joint dual time relay

P - 3 mode work order as: time relay A timing or loop (0 ~ 999 times), then delay with Tab time, then time relay B timing or loop (0 ~ 999 times), then delay Tba time, finally stop or repeat the above action (A/B dual time relay take reciprocating frequency of 0 ~ 999 times).

Timing parameters of time relay A and B is respectively set in P-1 and P-2 mode, the P-3 mode, you can set delay time Tab/Tba (0.1 seconds - 999 minutes adjustable), relay A and B run reciprocating frequency. If in P-1/P- 2 mode, the setting time relay cycles is 0,means infinite loops, but in the dual joint time relay mode P-3, every channel relay will run once, single relay never run with infinite loop.

In this mode you can also use A voltage detection to trigger the start two relay turns, channel A voltage interface trigger mode can be set to high level trigger, high level maintenance, low level,. Channel B voltage interface only input high level force to stop and reset timer at ordinary time.

Set method: In P-3, short press the SET key, display "tab", means to set delay time Tab (the delay time that end the A waiting for B relay start to run), press the SET key again and can set four bit values of Tab, short press the "ADD" each number can be adjusted from 0 ~ 9, three seconds long press SET key to switch to minute unit (right point light), press SET key again to LED display "tba", means delay values of Tba(end of delay B time), then press SET key to LED display "C000", means A/B two relay reciprocating frequency(cycle times) will be set, press SET key to display the "at-0", means trigger level signal mode at channel A voltage interface, press the ADD key to choose 0, 1, 2, "0" means high level trigger, a high level signal trigger running until the time over, or press ENTER key to start running, "1" means high level maintains running,

which has a high level to keep running, once the level signal disappears, dual relay immediately released. "2" means low level (0-3v) maintains running, with a high level will stop running and release the dual relay. If you want to run automatically after the power supply connected, please set to "at - 2".

When setting is completed, press SET key to exit the set state, or short press ENTER key to exit directly, the system automatically save the parameters, waiting for start.

If cycle times has been set, when cycle times over, the controller will output a level single (as figure 1),it can be used to trigger next controller.(more controller cascade).
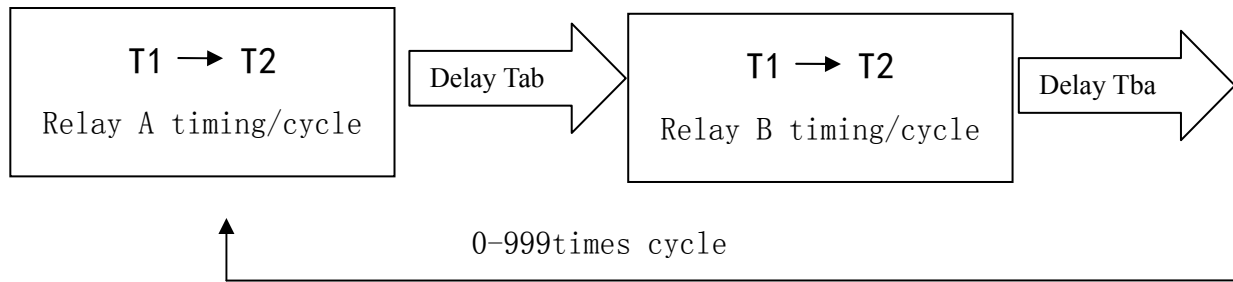
P-3 mode running model (Relay A /B run in turn)

T1: Relay close/release time;

T2: Relay release/close time, is opposite to T1 relay status;

Tab: Relay A   time over, delay Tab time start relay B;

Tba: Relay B   time over, delay Tba time start relay A;

Tab/Tab set to 0, means A executed immediately start relay B .

2.4 P-4 A-B dual independent time relay

When A and B time relay parameters have been set in P-1 and P-2 mode, enter into P-4 mode, dual time relay run independently, short press the ENTER key to start and stop dual time relay operation. Short press SET key to display A timer values, short press the ADD key to display B timer values.
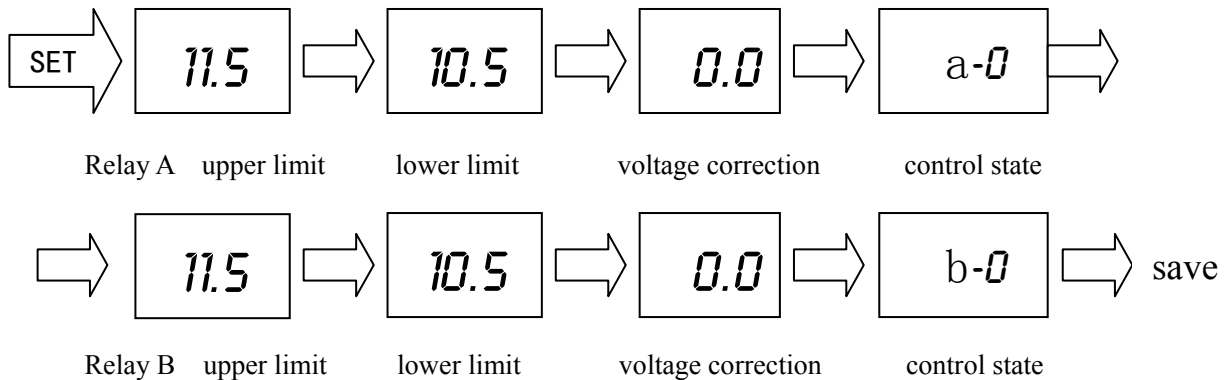
In this mode, there are dual voltage detect the input voltage 3v ~100 v high level trigger signal, can trigger the corresponding time relay to run. While timing, external switch input does not affect the timer, after time over, a trigger signal input will start the timing again.

2.5 P-5 Dual voltage relay

Enter into P-5 mode , the controller detect DC voltage from A/B voltage detection interface (Figure 1) .Short press "ADD" show "a00.0", means channel A detection of voltage is 0.0 V, short press "ENTER" show "b00.0", means channel B detection of voltage is 0.0 V. If you have set A and B time relay timing parameters in the mode of P – 1/P - 2, P -5 mode the controller will

detect channel A and B voltage, when the voltage exceeds upper limit (or set to less than the lower limit), system will control time relay A and time relay B run (A, B two timer parameter of the time relay in P - 1, P - 2 mode setting), then the voltage is lower than the lower limit (or higher than the upper limit), relay release directly, A/ B two channel of control is run independently of each other, if A and B timing parameters of the time relay are 0, then channel A and B voltage detection control relay close/release directly (without timing).

In P-5 mode, you can set the voltage control upper and lower limit values of channel A/ B, correction, upper and lower control state.

| | Relay A upper limit | lower limit | voltage correction | control state |

Relay A upper limit — 11.5   lower limit — 10.5   voltage correction — 0.0   control state — a-0

Relay B upper limit — 11.5   lower limit — 10.5   voltage correction — 0.0   control state — b-0   save

Set method: short press "SET" key show the first set of "H xx. x" three numerical and flashing, means the upper limit of channel A voltage detection to be set, short press the "ADD" key can adjust 0 ~ 9, short press "SET" key to display the second group "L xx.x", means A voltage lower limit to be set, short press "SET" again to enter the third group is "C 0.0" ,is voltage correction, short press the "ADD" key to select A voltage detect values correction - 0.5 V ~ + 0.5 V, short press "SET" again show "a- 0", means A voltage detection higher than upper limit relay A will close or start timer, below the lower limit relay release, short press the "ADD" to adjust to "a - 1" means voltage is lower than the lower limit relay A will close or start the timer , higher than upper limit the relay A release, "a - 2" means voltage higher than the upper limit trigger to start the timer (voltage once more than limit, even if again below the lower limit, will start to the end of the time), short press SET again, enter into the channel B parameter setting of the relay B, then display voltage higher limit and lower limit value, correction, upper and lower control method, setting methods are the same as channel A, short press "SET" key to LED are no longer flashing, or short press ENTER key directly, at this time enter into voltage detection control status, the system display external input DC voltage by voltage interface A and B (Figure 1).

If upper and lower limit set to the same values, such as 12.0 V, when the voltage value fluctuates up and down in 12.0 may lead relay on/off frequently, it is recommended that set voltage limit certain difference between upper and lower limits.

Example:

Channel A voltage higher than 12.0V relay A close , release after 10 minutes, release less than 11.5 V, channel B voltage below 10.5 V relay B delay keep open 5 seconds then close 3 minutes, release of higher than 12.5 V.

Setting method: first enter into P - 1 mode set "t1 ON" 10 minutes, time relay A will close 10 minutes and then release, then enter into P-2 mode set "t1 OF" 5 seconds, "t2 ON" for 3 minutes, cycle number "C001" , the time delay B will close after delay 5 seconds then release after 3 minutes, finally into P - 5 mode setting channel A voltage upper limit for "H 12.0" lower limit "L11.5 " (difference between upper and lower), higher than the limit to start time relay A:"a-0"; channel B upper limit "H 12.5" lower limit "L10.5", below the lower limit to start time relay B "b- 1"; setting can be finished by short press "ENTER" key.


2.6 P- 6 Display setting and system reset

P - 6 mode, long press "SET" for three seconds to reset factory setting. Short press the ADD key digital LED can be set delay to off (1 ~ 9 minutes), LED display "d - 0" means LED will bright any time, if you have set the digital LED closing time, in the condition of each mode LED will delay shut down automatically, press "SET" key will light up digital LED and delay shut down again.

control two loads on/off
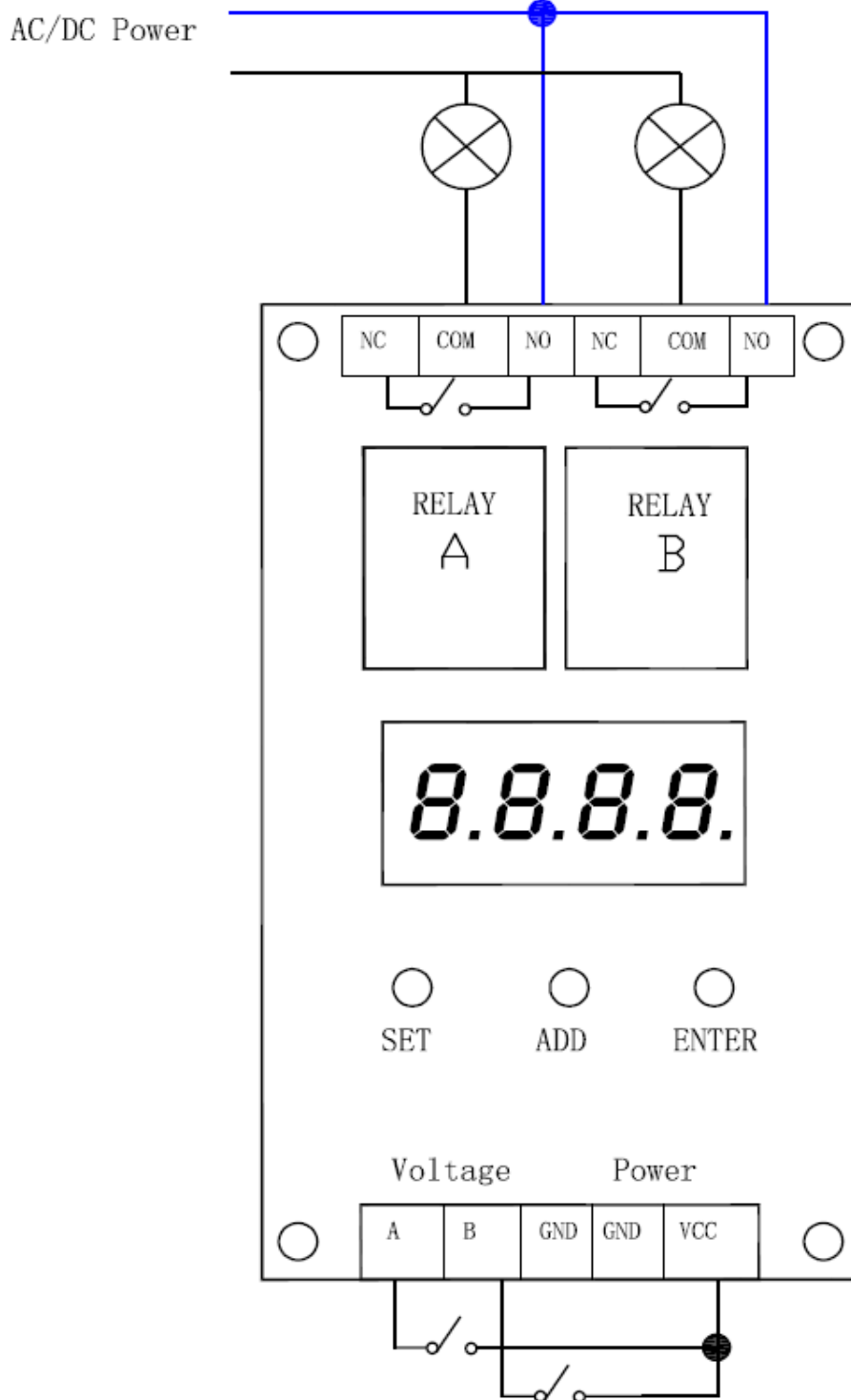
In P1/P2/P4 mode, Use A/B voltage detection terminal
can trigger A/B time relay start timing, switch signal
connect to power VCC,
PNP type approach switch, photoelectric switch "NO"
line access to A, B voltage detection terminal.

DC motor positive and reversion
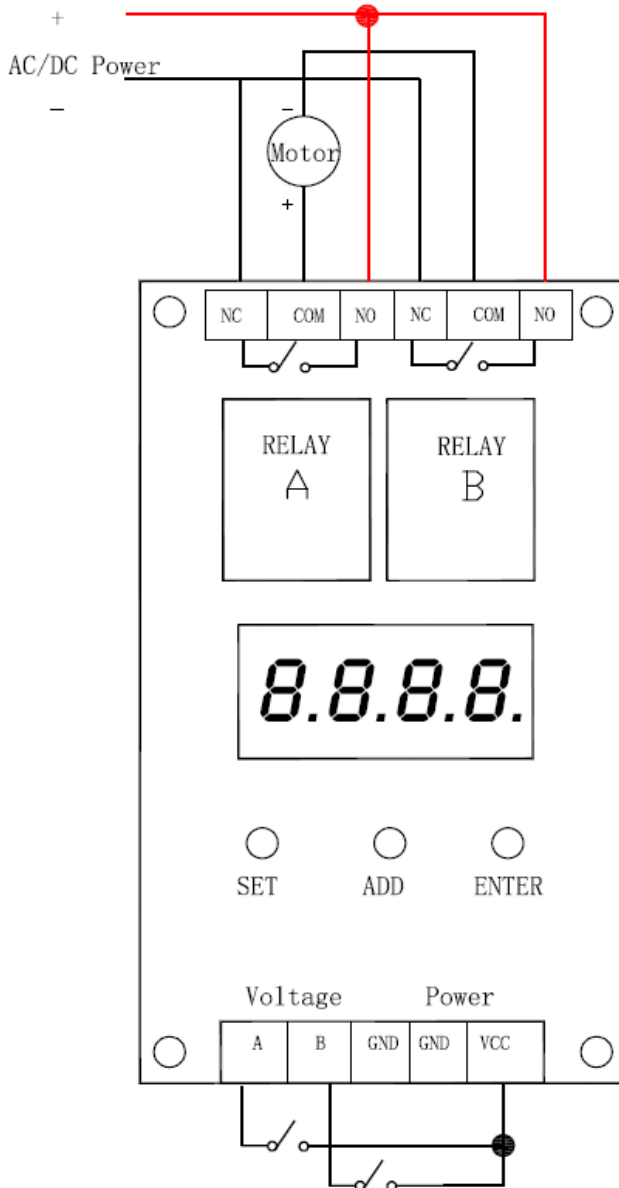
Control of DC motor positive and reversion, when A, B relay are release, the motor's two poles are connected with the cathode of the power supply, the motor does not run, when the A relay colse, The pole of motor anode is connected to the the anode of power, the motor run by normal direction,when A relay release, B Is swltched on, the motor reverse.
Attention should be paid to the DC motor can be reversed by reverse pole.

P-3 mode, A/B Voltage detection terminal input a high level as start and stop signal, connect to VCC or external DC3-100V voltage as a voltage signal

single-phase motor reversing

AC MOTOR

N

AC

L

capacitance
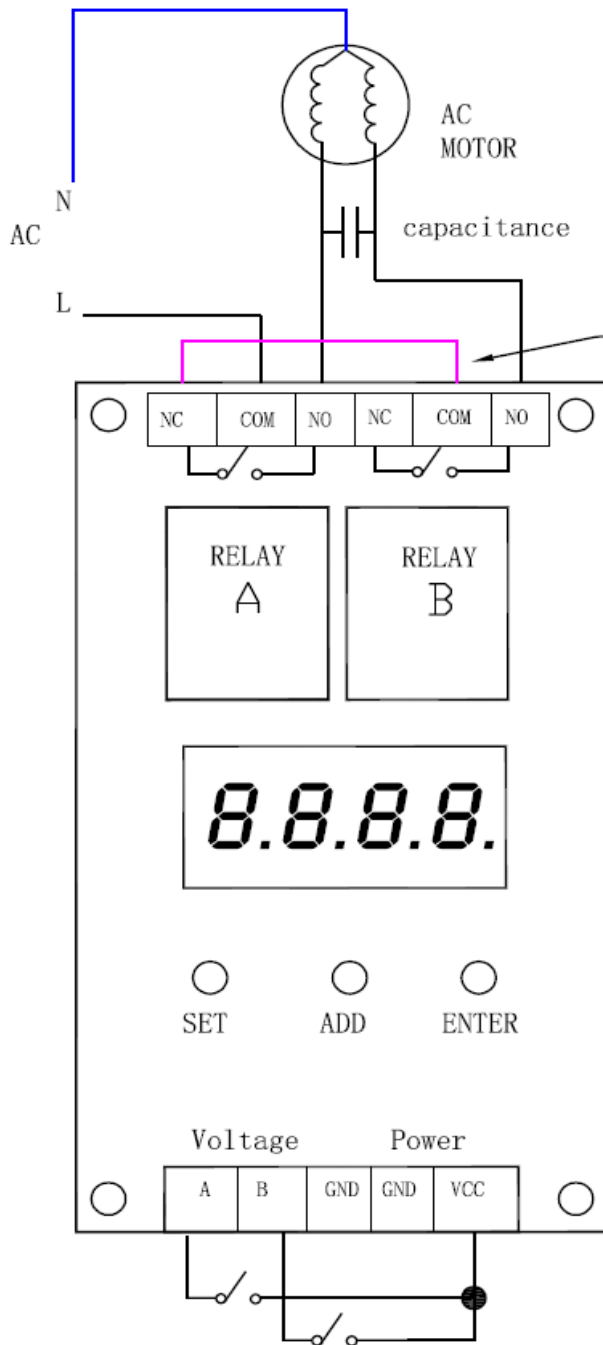
In order to avoid motor stator winding access communication with a phase.
Interlocking connection

| NC | COM | NO | NC | COM | NO |

RELAY A

RELAY B

Control of single-phase AC motor positive inversion, by relay A and B turn on main and auxiliary winding in turn.
The maximum current 10A/277VAC relay contacts.If the motor power is large, please Installation with contact.

$8.8.8.8.$

SET   ADD   ENTER

Voltage   Power

| A | B | GND | GND | VCC |

P-3 mode, A/B Voltage detection terminal input a high level as start and stop signal, connect to VCC or external DC3-100V voltage as a voltage signal
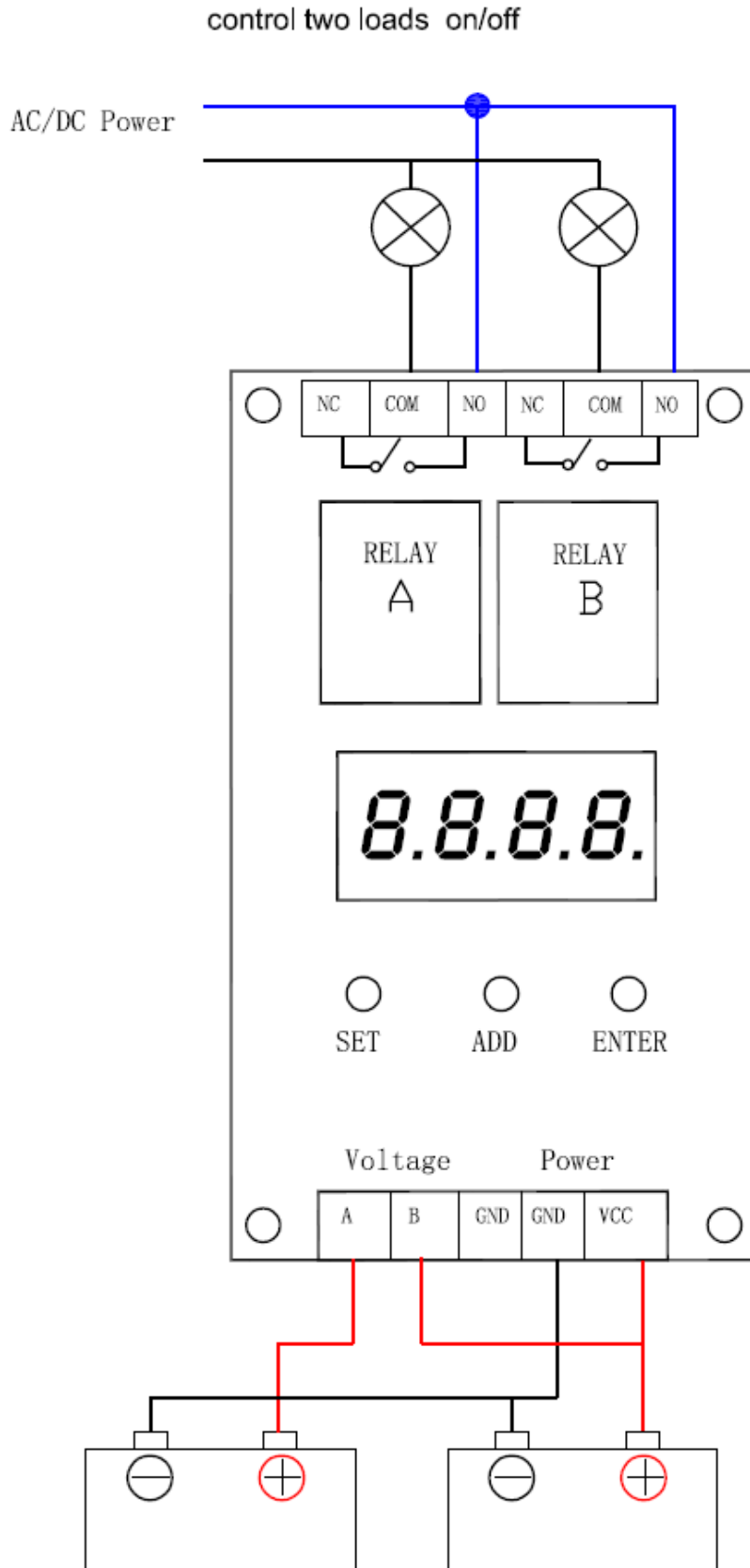
control two loads on/off

AC/DC Power

| NC | COM | NO | NC | COM | NO |

RELAY
A

RELAY
B

8.8.8.8.

SET   ADD   ENTER

Voltage   Power

| A | B | GND | GND | VCC |

P-5 mode, A/B Voltage detection terminal
connected to two channel Voltage,relay A/B
Independently controlled by pre-set Voltage