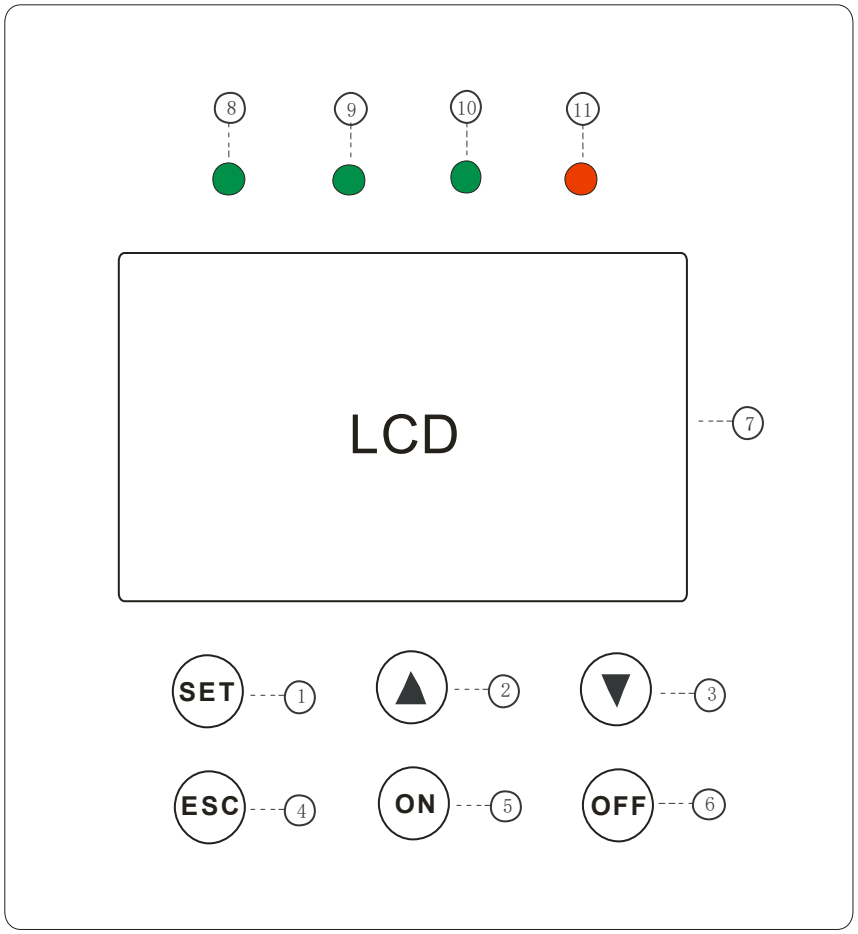
LCD panel operating instructions (i.e. the hand-held device):



Parts	Function
SET	Setting button, used as parameter confirm button under the setting mode
▲	To increase the parameter value when modify.
▼	To decrease the parameter value when modify.
ESC	Return button
ON	The start button on the panel
OFF	The stop button on the panel
LCD Display Screen	To display the load mode and parameters.
A Mode indicator (Green)	When it lights, means the control board is in constant voltage adjustment mode; When both A & B are not in lit, then the control board is in open loop voltage adjustment mode.
B Mode Indicator (Green)	When it lights, means the control board is in constant current adjustment mode.
C Mode indicator (Red)	Running indicator
D Mode indicator (Red)	Alarm indicator

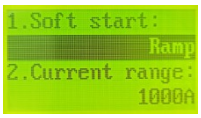
I. LCD Interfaces

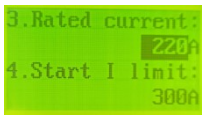
* U current: current of U phase
* V current: current of V phase
* W current: current of W phase
* Work mode: Load running condition, OFF/ RUN/ Bypass
After boards running into a certain value, it will turn into Bypass control.

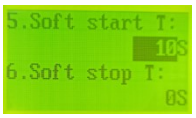
* Primary menu as below

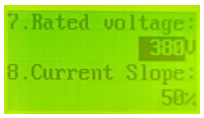
After short pressing the SET button in standby mode, it will remind you to enter the password: ------ (factory password: ▲▲▲▼▼▼). Press the SET again after entering the correct password to enter the first level menu, the interface is as below.

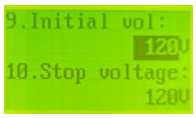
i. Start/stop parameter set

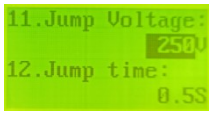












1. Soft start:

Soft start mode select: there are in total 3 types ---- Ramp, Constant current and Sudden jump.

2. Currant range:

The current range is the transformation ratio of current transformer, the over load protection value shall all based on it. The secondary current of the current transformer shall be 1A. We have a reference Appendix II for you to choose different current transformer.

3. Rated current:

According to the actual current of the motor.

4. Start I limit: start current limit

To prevent the impact from start current to motor and power supply system, we have adopt Start current limit function. To make the Start current within a certain times of the Rated current. For example, if we set Rated current of motor as 220A, set Start I limit as 300%, then the Start current is 3 times of the Rated current.

5. Soft start T:

The soft start time adjust range is 1~200 seconds. Different load's parameter setting according to Appendix III.

6. Soft stop T:

The soft off time is from 0 to 200 seconds, if the soft time is set to "0", then the soft off function is close.

7. Current slope:

This is for motor current limit or constant current feedback speed dynamics adjust, the bigger the value the fast the speed adjust. If adjust too fast, it will lead to the motor vibrate when current is limited.

8. Rated voltage

According to the main circuit power voltage, can choose AC230V, 380V(400V), 660V(690V), over voltage and under voltage protection are all count based on the Rated voltage.

9. Initial vol:

The initial voltage is refer to the output voltage when motor been start the first second, the adjust range is from 10%~99%

of the Rated voltage.

10. Stop voltage:

When motor soft stop/off, the output voltage will drop to the Stop voltage value to stop output, the adjust range is from 10%~99%.

11. Jump voltage:

Valid when the Soft start been set as “Sudden jump”, the adjust range is from 10% ~90%.

12. Jump time:

Valid when the Soft start been set as “Sudden jump”, when start, the jump voltage will add to the load’s continuous time instantly, the adjust range is from 0.1~5.0s.

ii. Protection set

1. Overvoltage:

Board will be in over voltage protection after over voltage existing reaches the set Overvoltage T, refer to the voltage protection level to set, the rated voltage feedback basic voltage is DC5V. This function is default as Close.

2. Overvoltage T:

It is the time which will action over voltage protection, the adjustable range is from 0~200s. The time is default as 10s.

3. Undervoltage:

Board will be in under voltage protection after over voltage existing reaches the set Undervoltage T, refer to the voltage protection level to set, the rated voltage feedback basic voltage is DC5V. This function is default as Close.

4. Undervoltage T:

It is the time which will action under voltage protection, the adjustable range is from 0~200s. The time is default as 10s.

5. Overload:

This set is valid when the protection level as “Custom”, the over load value can be Close or Open, the adjust rage is from 110%~200% Ie.

6. Overload T:

This set is valid when the protection level as “Custom”, it is the time the board will act over load protection, adjust range from 0~200s, default as 10s.

7. Undercurrent:

Can be Close and Open, adjust range from 30%~90% Ie. This function also suitable for Water level detection usage of submersible pump.

8. Undercurr T:

The time which the board will act under current protection, adjust range from 0~200s, default as 10s.

9. Phase loss:

Board will detect input wire and output wire of 3 phase phase loss situation. When one of the phase current missing, it will be into phase loss protection. Choose **Close** means don’t have phase loss protection, choose **Open** means with input wire phase loss protection and without output wire phase loss protection, choose **High level** means with both input and output wire protection function.

10. I imbalance

This function is used to detect the 3 phase current balance state during the running. The percentage stands for ratio between the current D-value of two phases and the maximum value. The adjust range is from 10%~60%. When choose Close, means 3 phase unbalance been canceled.

11. Soft / sta pro:

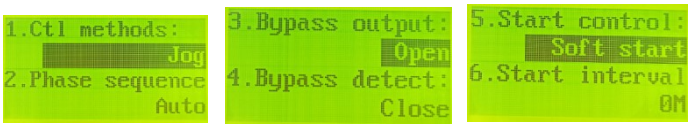
It is the protection level of over load protection when soft start. It is insert with 5 different inverse time protection curves, refer to Appendix I on user manual. Can be Close or Open.

12. Running pro:

It is the protection level of over load protection when running. It is insert with 6 different inverse time protection curves,

refer to Appendix I on user manual. When customer choose “Custom”, overload protection parameter is set according to Over load value and Over load Time.

iii. Basic paramete :



1. Ctl method

The control method can be choose from Jog and Self lock, detailed usage pls refer to user manual Terminal definition part. Default is Jog. If control board with RS485 communication function, then the control method can choose from Jog, Self lock and Comm(communication).

2. Phase sequence

By setting the phase sequence, we can let the motor running in a certain phase sequence. Also it can recognize the main circuit power running, don’t distinguish phase sequence.

3. Bypass output

This parameter determines the running mode of the SCR after the motor starting process is over. When the bypass output is turned ON, after the motor starts, the thyristor turns off the output and does not continue running, the load current is completely provided by the bypass contactor; When the bypass output is OFF, the SCR continues running after the motor starts.

4. Bypass detect

If it is set to the bypass contactor running mode, after the motor finished start, the bypass detection function is turned on to detect whether the bypass contactor is closed normally, if the bypass contactor is not closed, the SCR output will be turned off.

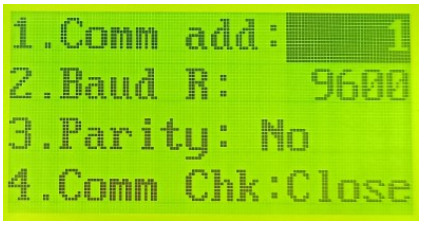
5. Start control

It has direct start and soft start 2 types, the direct start can only work when the control board has no fault.

6 Start interval

It can be set by setting the starting interval time parameter to set the start frequency, it is the interval time for the next restart after each operation stops, and the time unit is minutes.

iv. Comm parameter (Valid in STC53C)



Communication parameter: for specific pls refer to the communication protocol.

STC53 don’t have communication function, the one with RS485 communication function is STC53C.

v. Phase position

Calibtrat Phase: Phase calibration

Output Vol 50%: Output voltage will be 50% of the main circuit loop.

Parameter: this parameter don’t need to be changed if your main circuit loop is AC380V.

When users changes the main loop voltage, or connect the transformer at the primary side, or connect a synchronization transformer to the synchronization signal terminal, then users need to enter here for phase parameter calibration.

In the phase calibration mode, it is recommended that the user access the 1K~10KW resistive dummy load to test. The system defaults to the output voltage of 50% of the main loop, and presses the start button to run the work.

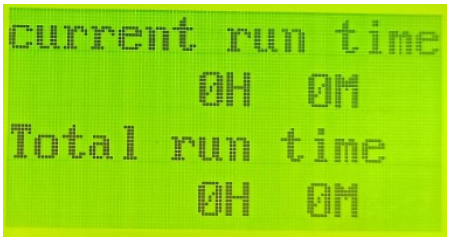
At this time, when the output voltage is adjusted by pressing the ▲ (up) or ▼ (down) key to half of the main loop voltage, the calibration work is completed. The default parameters are with AC380V, users do not need to calibrate if the main circuit

voltage is AC380V.

vi. Fault record:

Users can query the fault record here. The fault record can be delete by pressing the ▲ (up) or ▼ (down) key at the same time for 3 seconds.

vii. Running time



The current run time is time between motor work from RUN to OFF or power off. Maximum can be 99999 hours;
The total run time is the motor in total working time. Maximum can be 99999 hours.
Parameters can be delete by pressing the ▲ (up) or ▼ (down) key at the same time for 3 seconds.

viii. Reset default

By entering password ▲▲▼▼▲▲ to reset all parameters.

II. Fault display and dealing methods

When a fault occurs, the fault relay output a signal, the running relay and the load output are disconnected, and the text on the lower right of the LCD screen is the fault display. If you need to query the fault, **press the ESC key to enter the fault display mode. At this time the fault is displayed in the middle of the screen.** We provide the following troubleshooting methods for the possible failures:

※ Overvoltage fault: Check the voltage protection level and overvoltage protection selection setting. If the parameters are normal, then check if the power supply voltage exceeds the set value.

※ Undervoltage fault: Check the voltage protection level and undervoltage protection selection setting. If the parameters are normal, then check if the power supply voltage is lower than the set value.

※ Phase loss protection: The protection circuit operates when any phase of the main circuit power supply is disconnected.

Maintenance method: Check if the main circuit input is disconnected or the load is too light. If the load current is too small, then the transformer needs to be replaced.

※ Overcurrent protection: The protection circuit operates instantaneously when any phase current exceeds 8 times the rated current.

Maintenance method: Check if there is a short circuit in the main circuit or the overload protection parameter setting is too low.

※ Overload protection: Uses overload reverse time protection.

Maintenance method: Reduce the load.

※ Three-phase unbalance protection: When two of the phase current values differ bigger than the set value, the protection take action after three seconds.

Maintenance method: Check if there is any abnormality in the power supply or in the load.

※ Overheat protection: Protection acts when the thyristor is over temperature.

Maintenance method: Check if the radiator is too small or the load current is too large.

※ Feedback fault: There is no signal input to the VF or IF feedback terminal from voltage sensor or current sensor during the constant voltage or constant current.

Maintenance method: Check if the voltage sensor or current sensor didn't output feedback signal, or if it is damaged or the line is disconnected.

III. Analysis and elimination of common problems：

Number	Fault	Possible Reason	Solution
1	No display on the display screen	1.No AC input power	1.Check if the power is on, or if the fuse is burned
		2.AC power voltage is too low	2.Check input voltage of the control power
		3.Display screen interface is broken	3.Return to factory for replacement
2	No output from the control board	1.Control wire on the trigger port is connected wrong	1.Follow the wiring diagram, check the wiring of the control wire
		2.The thyristor is damaged	2.Replace the thyristor
		3.There is an indicator light (six red lights) not lit on the trigger port	3.The related indicator of certain road is not lit, check if the thyristor on this road is connected right
		4.There is an indicator light (six green lights) not lit on the trigger port	4.Return to factory for replacement
3	The output voltage is unstable	1.Open load	1.Check if the load is wired
		2.Power of the load is low	2.Change for a high power load, please take >1000W for experiment
		3.One of the thyristor is not conductive	3.Replace the thyristor
		4.PID parameter is wrong	4.Reset the PID parameters according to the feature of the load
4	The differ ratio between the input signal value and the actual output voltage is too big.	1.Constant current or constant voltage does not match with feedback signal	1.Check if the feedback signal is DC0-5V
5	Output voltage can’t adjust to the rated value.	1. Feedback signal of constant current or constant voltage does not match.	1.Check if the feedback signal is DC0-5V
		2.The settled value of limit voltage or limit current is too low	2.Reset the value of limit voltage or limit current
		3.The main circuit is not with 380V or synchronous transformer	3.Re-phase calibration, adjust parameters