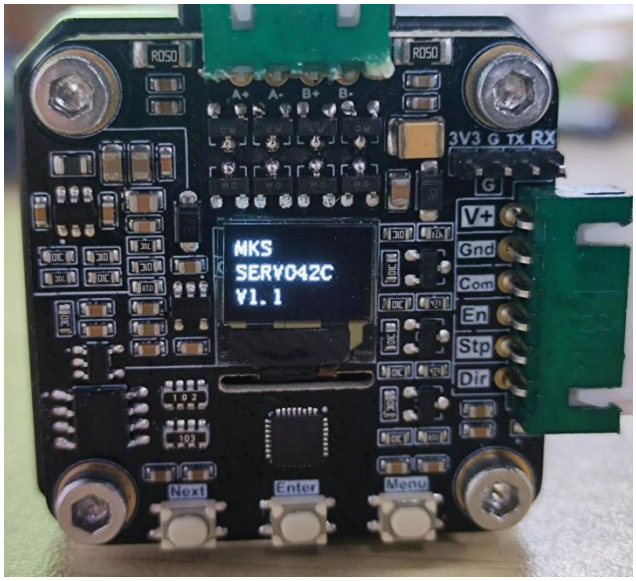
How to Buy: www.aliexpress.com/item/1005003380449974.html

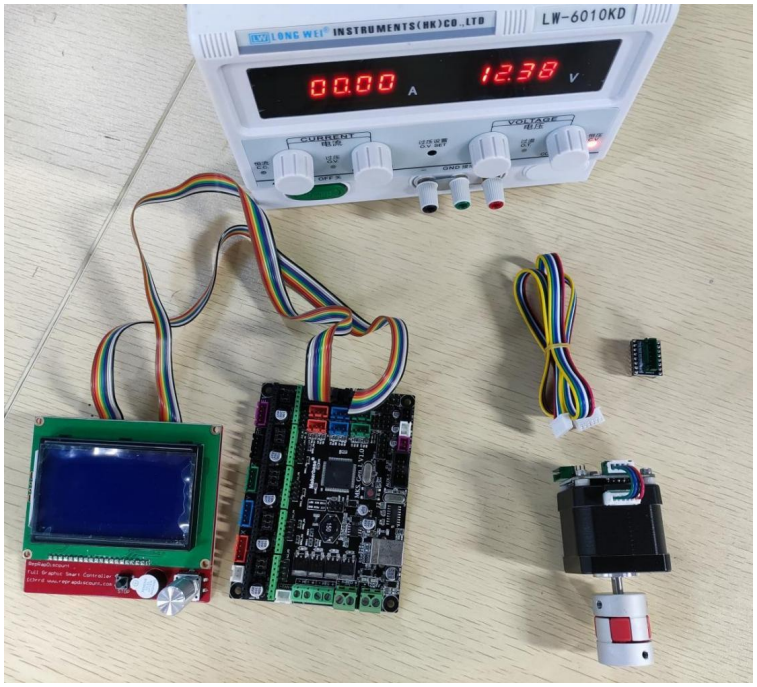
MKS SERVO42C Menu

This manual based on MKS SERVO42C V1.1 firmware.



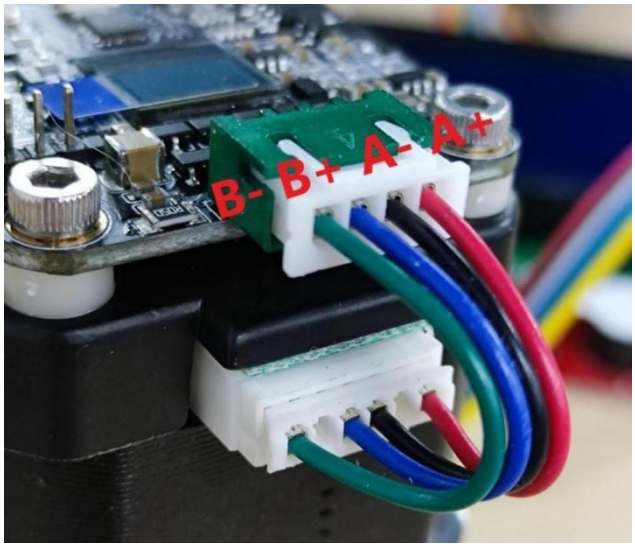
Part 1 Hardware

No.	Product list	Quantity
1	MKS SERVO42C motor V1.0	1
2	Adapter board (MKS APT)	1
3	6pin data cable	1
4	MKS Gen_L V1.x+LCD12864	1
5	DC 12V-24V power supply	1

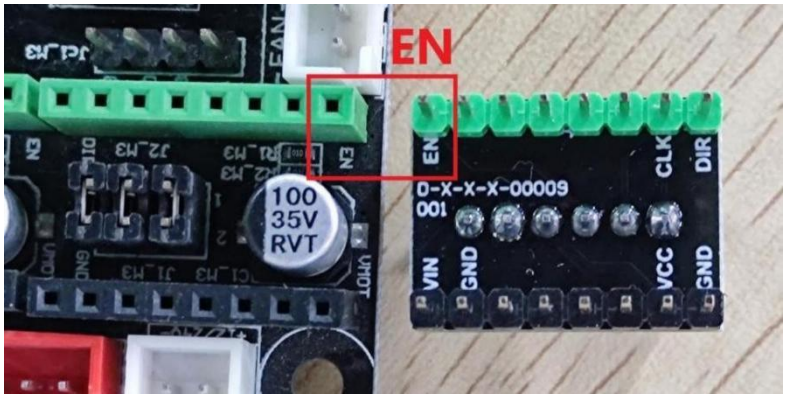


1.1 Connection

The phase pin of this motor is A+, A-, B+, B-.
Oled will keep saying “Phase Line Error!” if the cable sequence is wrong. Then turn power off and adjust the cable wiring to A+ A- B+ B-.



The adapter board plug to MKS Gen_L. Please mind the direction of converter.



Here are the pin wiring.

No.	MKS SERVO42C V1.0	MKS Gen_L V1.x
1	V+	VIN
2	Gnd	G
3	Com	VCC
4	EN	EN
5	Stp	STP
6	Dir	DIR

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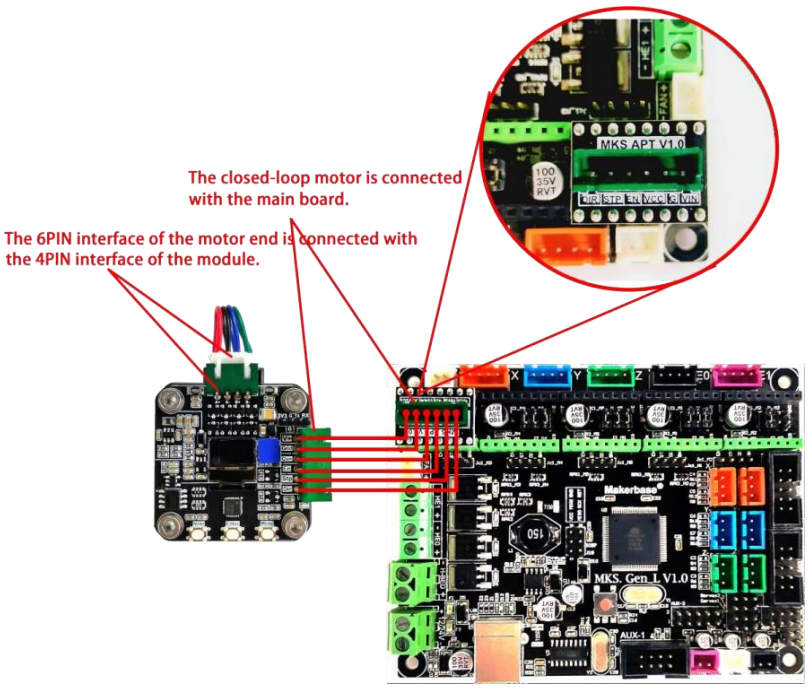
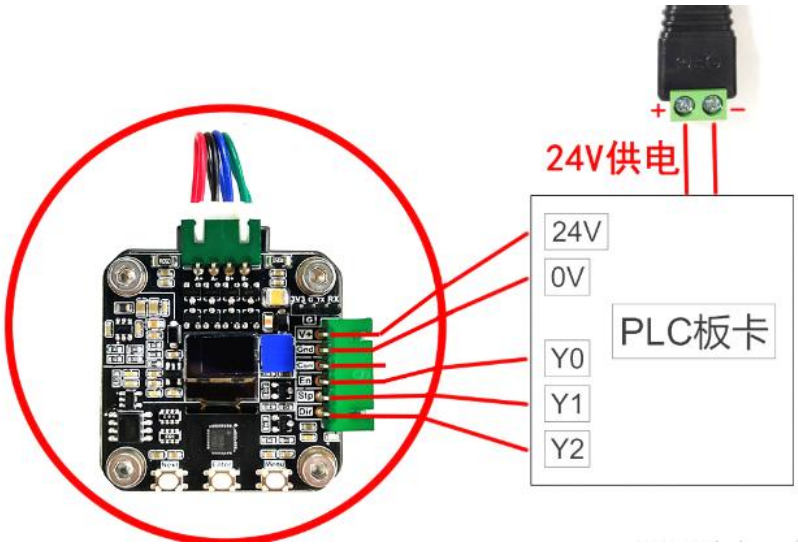


PLC wiring as below.

No.	MKS SERVO42C V1.0	PLC
1	V+	24V
2	Gnd	0V
3	Com	/
4	EN	Y0
5	Stp	Y1
6	Dir	Y2



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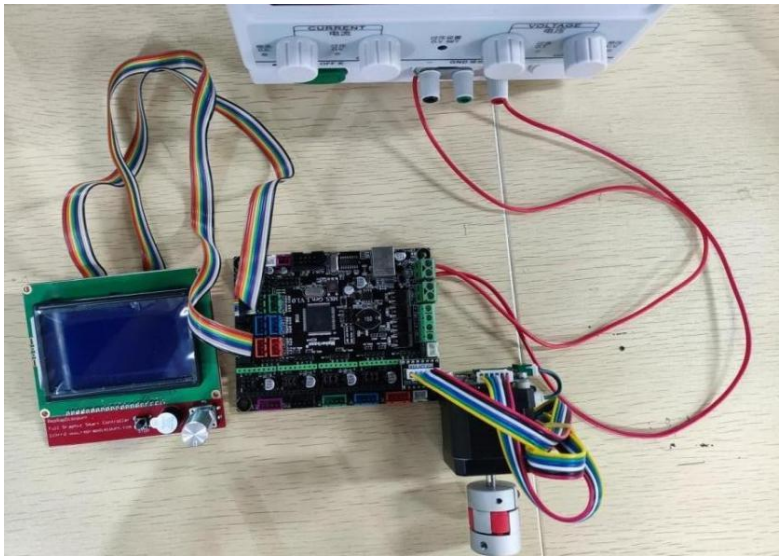
Plug DC12V-24V power to MKS Gen_L.
As below:

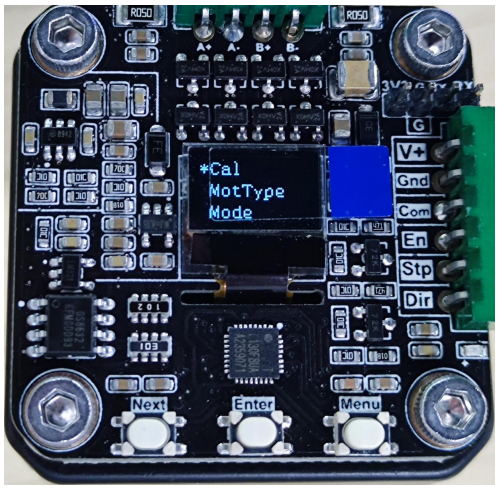


Part 2 Menu Instruction

2.1 Attention Points

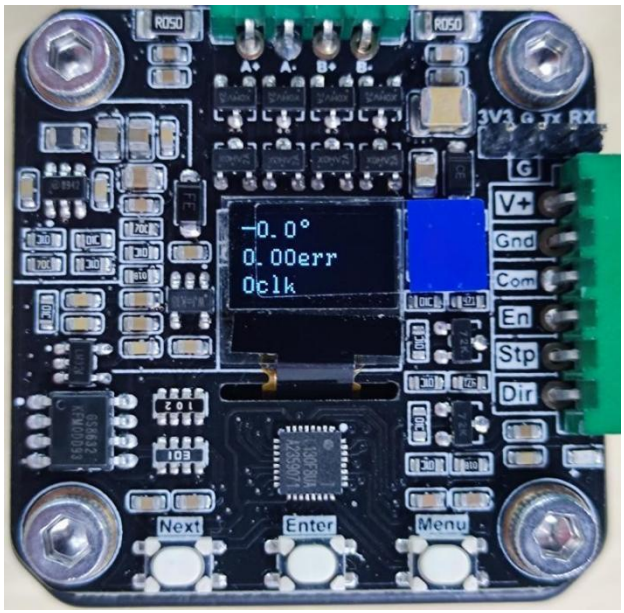
- **Cut power off first, when plug parts on/off!!!**
- Calibrate when the motor is first time on power also disconnect all other devices from motor board at this moment.
- Re-calibrate each time when remove driver board.

The motor will turn round step by step while calibrating.Then invert a round step by step,then will see 'Cal...'.and finish in 1-2min.



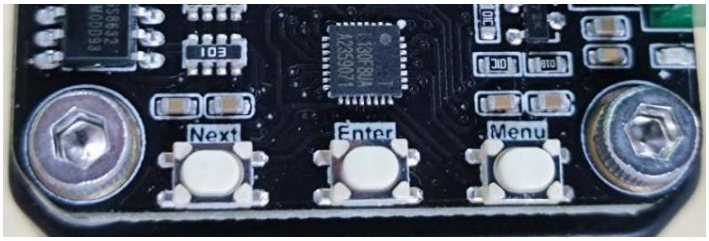
2.2 Parameters

-0.0° - The angle of the motor shaft.(unit degree).
0.00err - The err of the motor shaft angle.
0clk - The pulses have been received.



2.3 Buttons

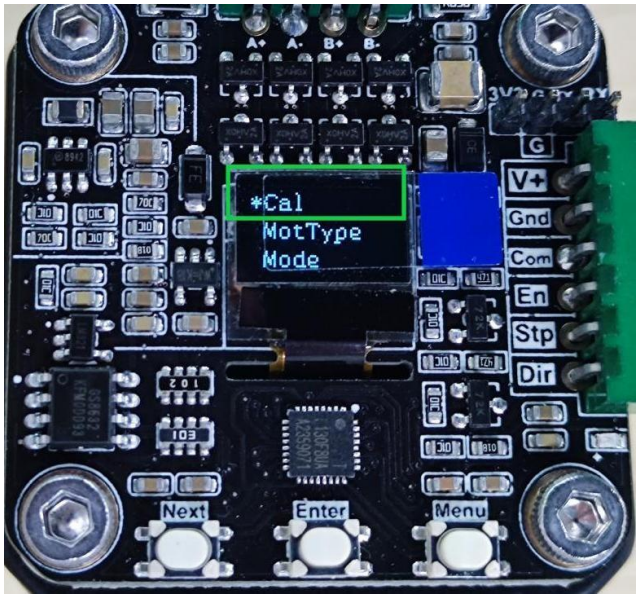
There are 3 keys on board.
Next: Move down
Enter: Confirm
Menu: Enter/exit parameter setting menu. As below:



How to view parameters
Press Menu →Next → Enter
Enter the parameter you want,it will auto-save and immediately take effect.

2.4 Menu Introduction

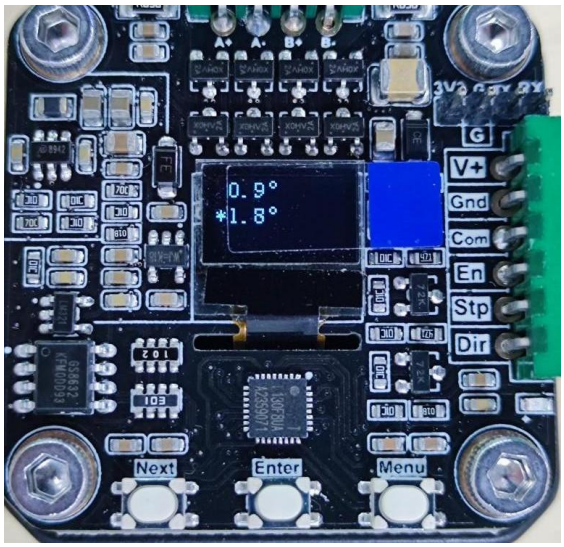
CAL: Calibrate the encoder.
-Ensure Configure of MotType is correct.(default 1.8 °)



MotType: Select stepper motor type.

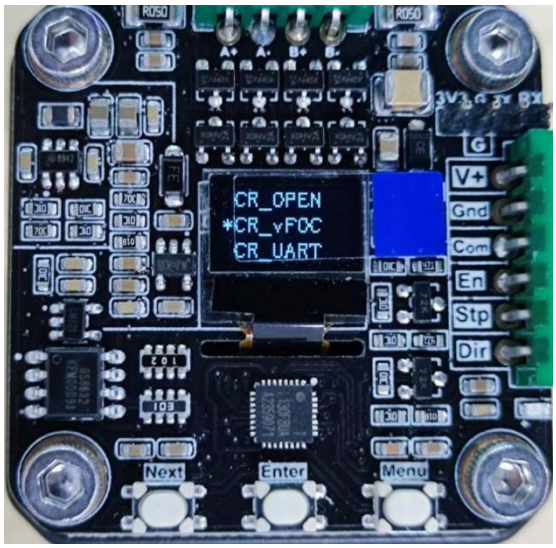
- **0.9 °** : The motor is a 0.9 degree.
- **1.8 °** : The motor is a 1.8 degree. (Default 1.8 °)

- Re-calibrate when MotType changes.

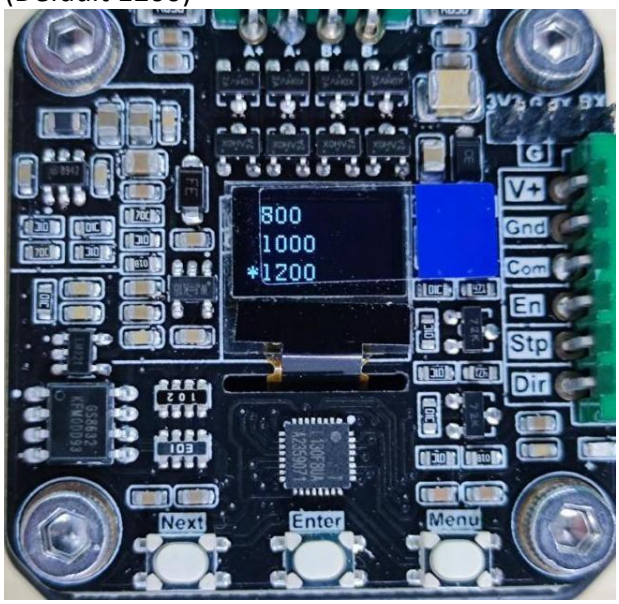


Mode: Control mode selection.

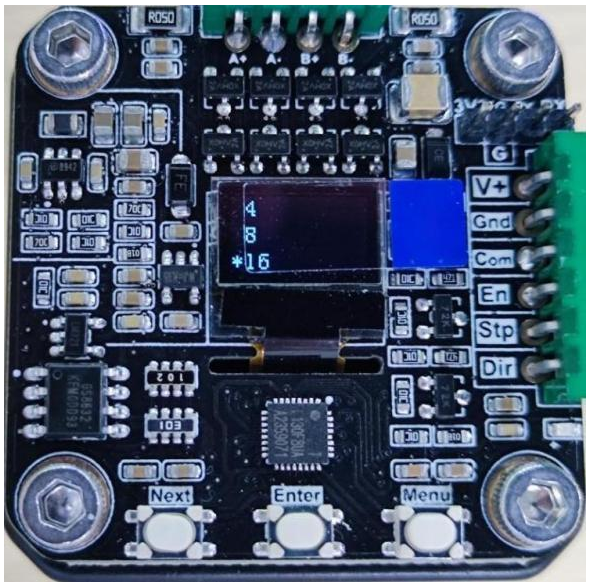
- **CR_OPEN**: Open loop control mode, the motor works without encoder.
- **CR_vFOC**: Pulse(Stp,Dir) input mode.(Default CR_vFOC)
- **CR_UART**: Serial mode, control motor direction by serial commands in UART mode.



Ma: Set working current in CR_OPEN mode.
In CR_vFOC and CR_UART mode,the current will be automatically adjusted.
(Default 1200)



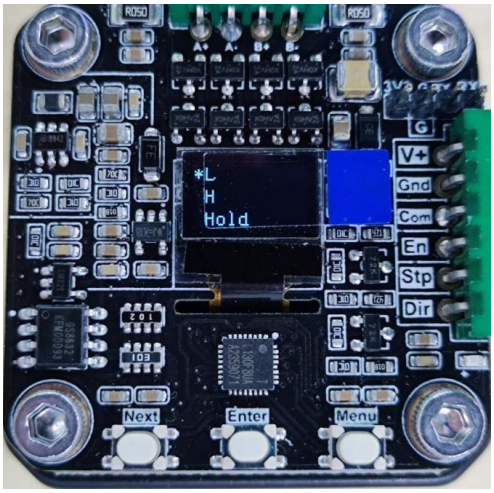
MStep: Set microsteps.
Support 1 to 256 steps.(Default 16)



En: Set effective level of EN pin.

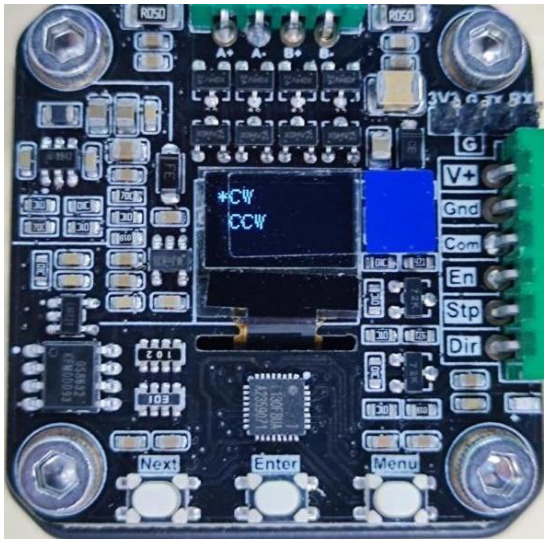
- **L**: Input low level is valid and enable(0V).(Default L)
- **H**: Input high level is valid and enable(>3.3V).
- **Hold**: Stay on active. At this moment,EN pin is free from external control.

- If motor doesn't respond pulse commands or easily and manually turn shaft around,that say the driver board is disable.

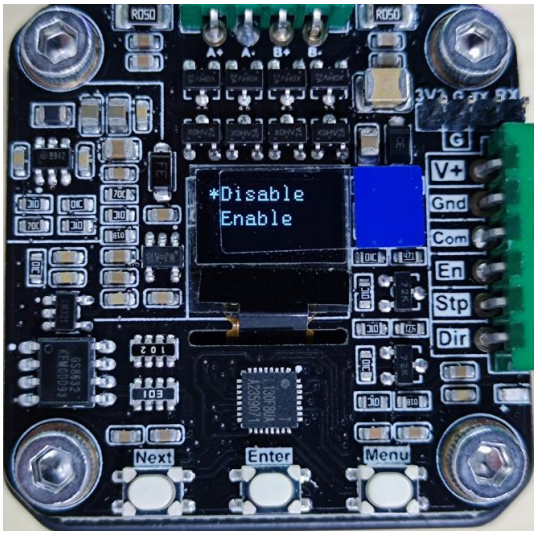


Dir: Set motor positive direction

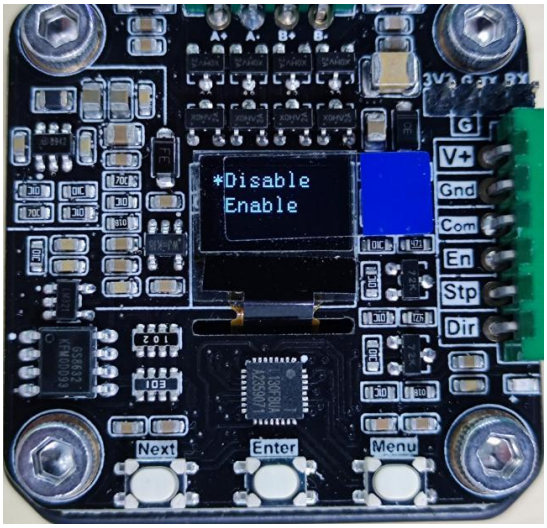
- **CW**: Define clockwise rotation is positive. (Default CW)
- **CCW**: Define counterclockwise rotation is positive.



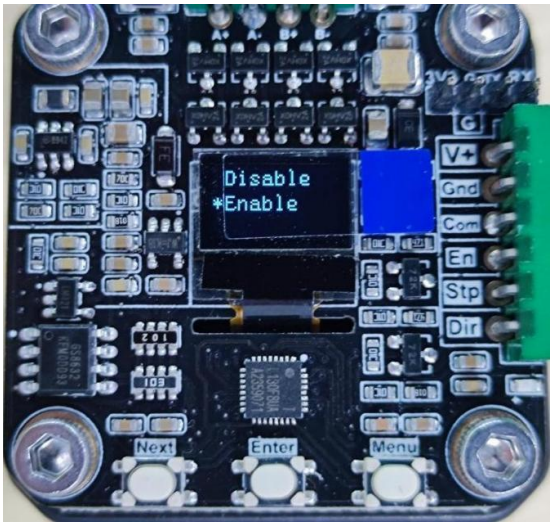
AutoSDD: Oled Sleep Mode.
Disable: turn off oled
Enable: turn on oled
Oled will be off in 7sec after click disable.Press any one button will wake up.



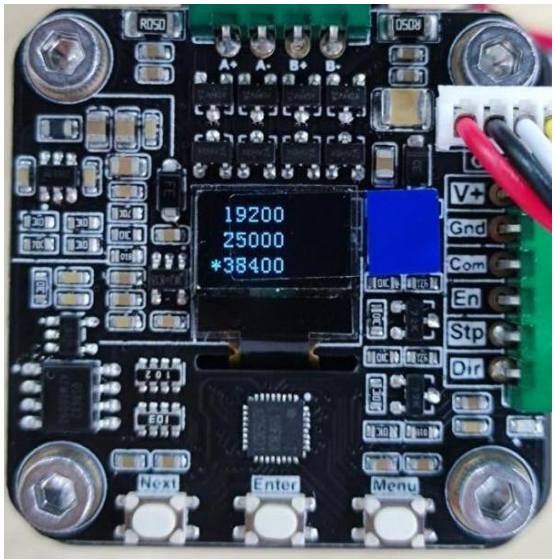
Protect: Blocked protection function. (Default Enable)
This protection will be triggered when motor gets blocked.And driver board will auto-shut down. Also,error say “Wrong Protect Enter..”.



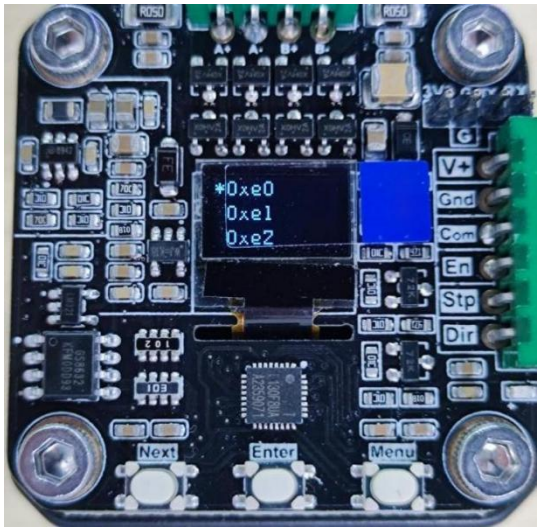
MPlyer :Internal 256 microstep interpolation. (Default Enable)
Interpolate current microstep to 256,effectively reduce vibration and noise.



UartBaud: Baudrate of usart serial.
Disable (Default Disable)
9600
19200
25000
38400
57600
115200

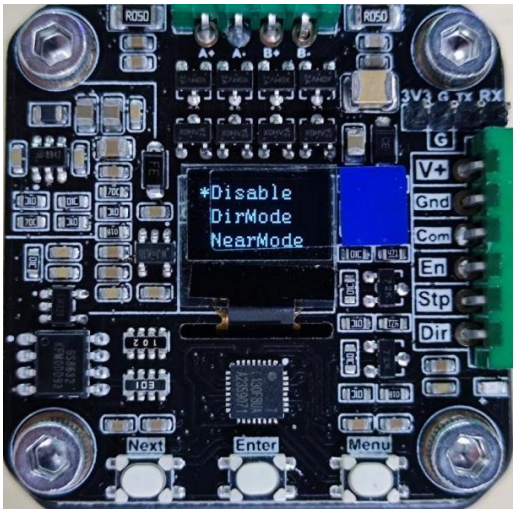


UartAddr: Serial port ID
0xe0
0xe1
.
.
.
0xe9
(Default: 0xe0)

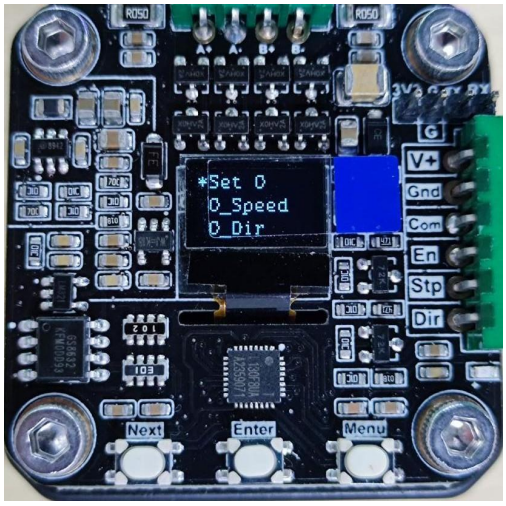


0_Mode: The motor will go back to zero point when power on.

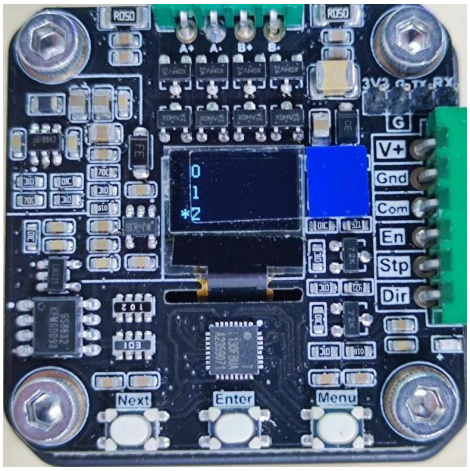
- **Disable**:Turn off auto-home function.(Default Disable)
- **DirMode**: Motor direction,CW or CCW.
- **NearMode**: The direction closest to Home.



Set 0:Auto-home. (Eanble O_Mode)



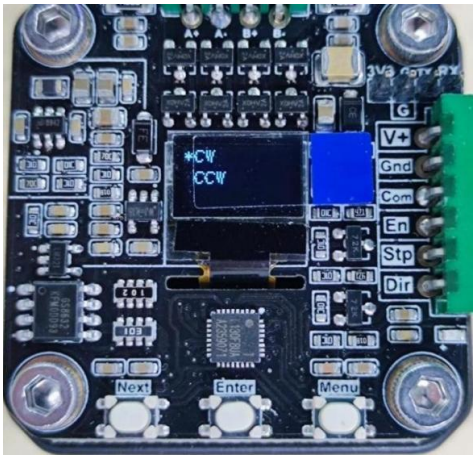
0_Speed: Speed of Homing.
0: fastest.
...
4: slowest.



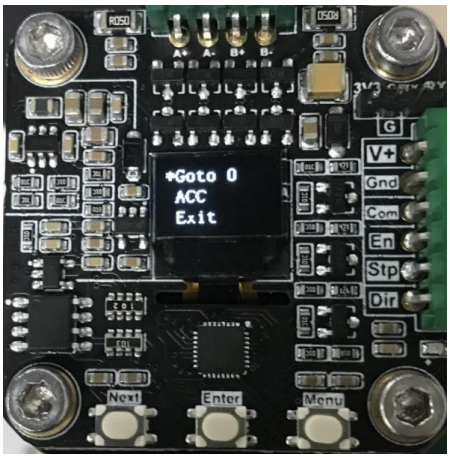
0_Dir :Homing direction.

- CW: Clockwise(Default CW)
- CCW: Counterclockwise.

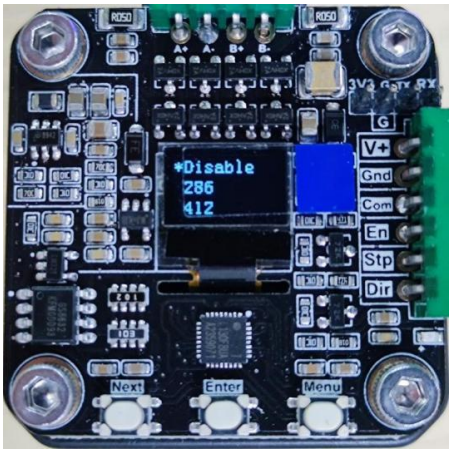
- For NearMode, 0_Dir mode is as the same as actual direction.Or will fail to home.



Goto 0: Back to zero point.
(Enable 0_Mode and Set 0)



ACC: Set acceleration value.
Disable
286
…
1042



Restore: Reload to default parameters.
Re-power after restore.Reset baudrate to get communication.

Exit :Exit the parameter setting menu.

2.5 Parameter Configuration Tips

Low speed mode
ACC : Disable
MPlyer : Enable (the motor runs more smoothly)

High-speed mode
MPlyer : Disable
ACC:Choose the right acceleration, the motor will rapidly respond.

Part 3 Error List

Error	Solution
Not Cal	Click “Cal” and calibrate the motor
Waiting V+ Power	Check V+ pin and plug 7-28v power
Offset Current Error!	Chip or mos gets burned
Phase Line Error! Reverse Lookup Error!	Wrong cable wiring.Adjust cable sequence.phase pin of the motor is A+, A-, B+, B-.
Magnet Loss! Enter…	Check the magnet
Magnet Error! Enter…	Check the communication of encoder
Motor Type Error!	1.There are other devices plugging to driver board. 2.Too much glue on magnet and into motor shaft.
Coming Back to Origin…	Homing,wait
Back to Origin Fail!!!	Probably motor get blocked
Wrong Protect Enter…	Blocked protection gets triggered. Try re-power or Disable on Protect.

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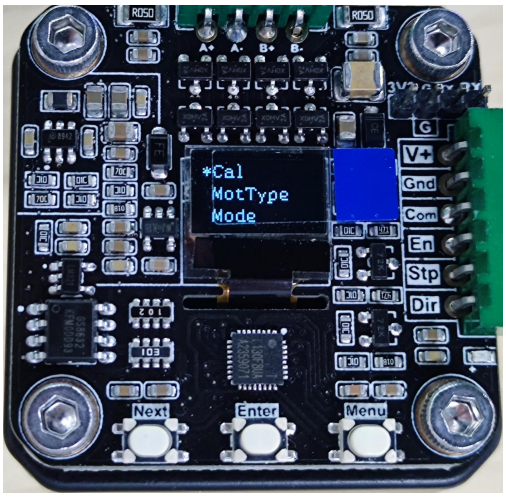
Part 4 Calibration and Control

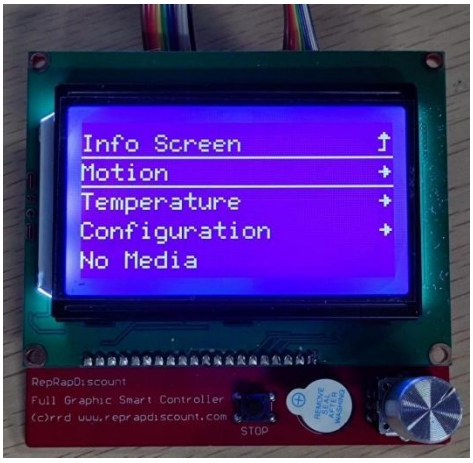
4.1 Calibrate the motor

Select Cal,it will take 1-2min to complete.



4.2 Control the motor on LCD12864

Press and select Motion



Move Axis->Move X->Move 10mm

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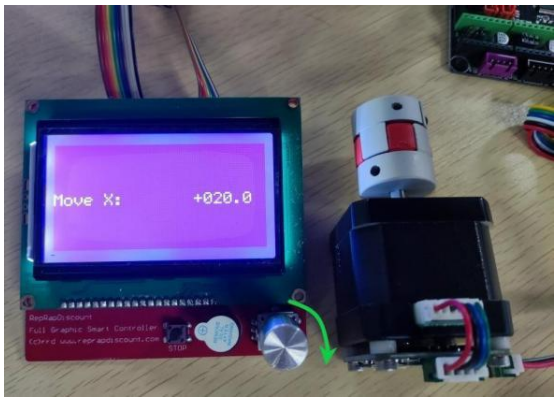
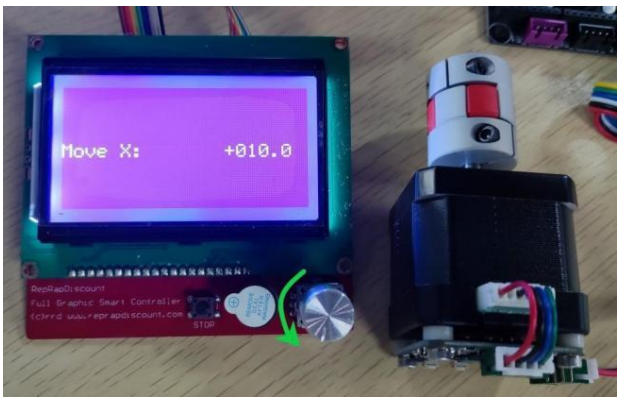
Turn right to increase.While turn left to decreases.

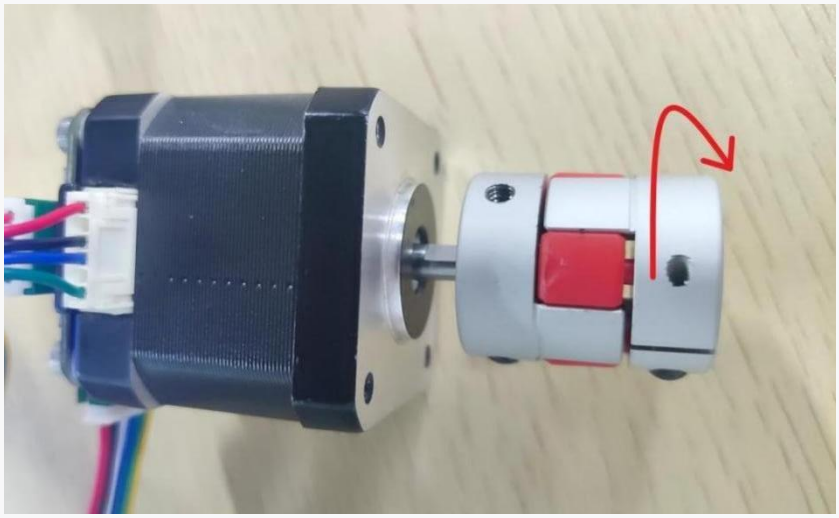




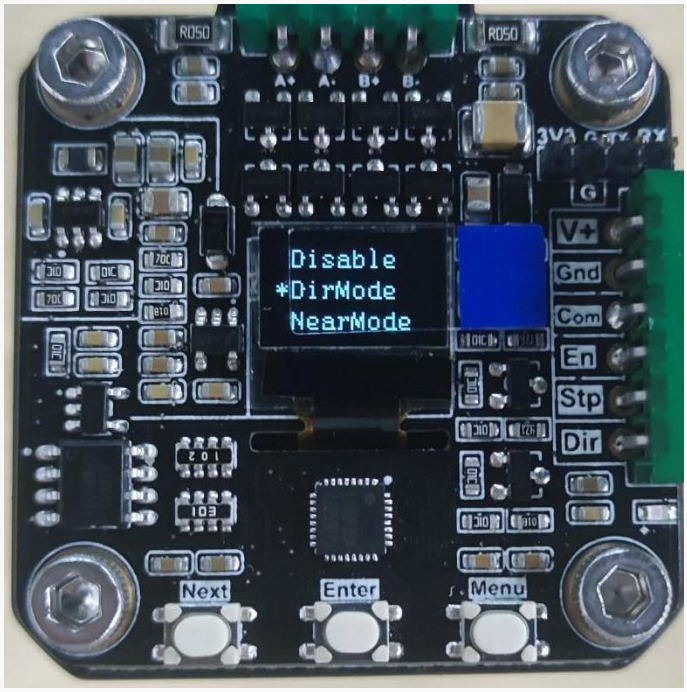
Part 5 Auto Home

Enable CR_vFOC or CR_UART mode.

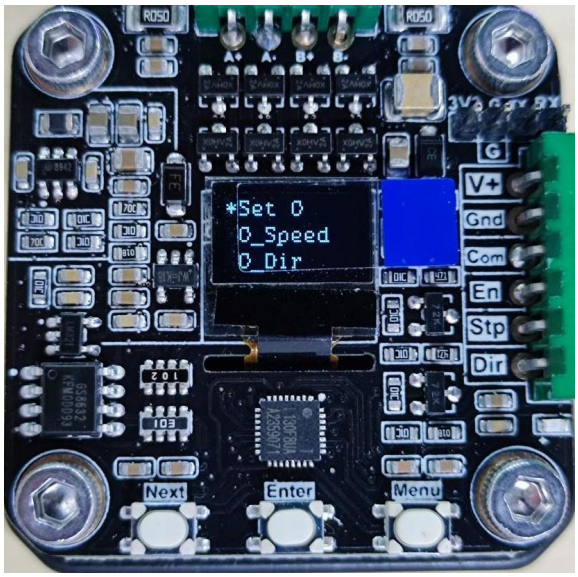
5.1 Firstly,rotate the motor to original point.



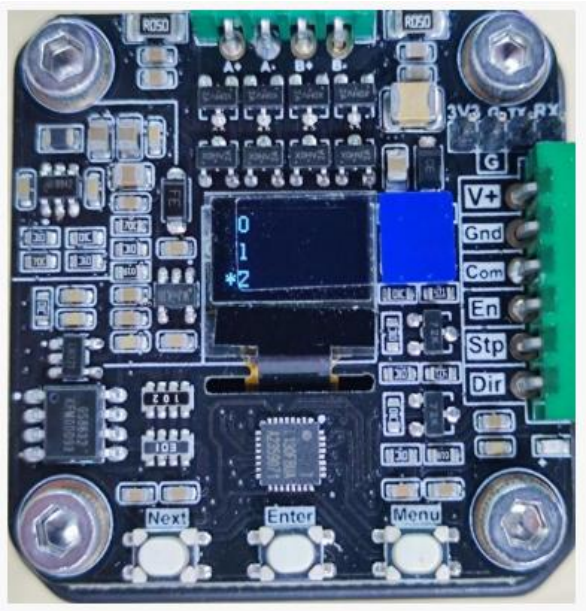
5.2 Start power,enable 0_Mode to “DirMode”



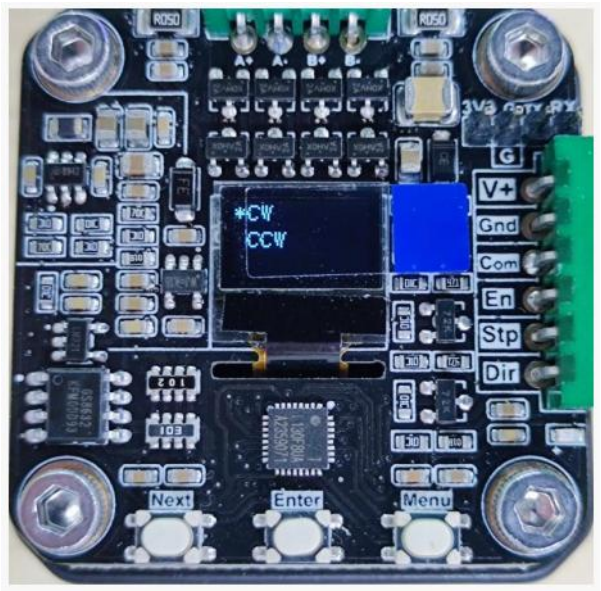
5.3 Press “Set 0” to set current position as original point.



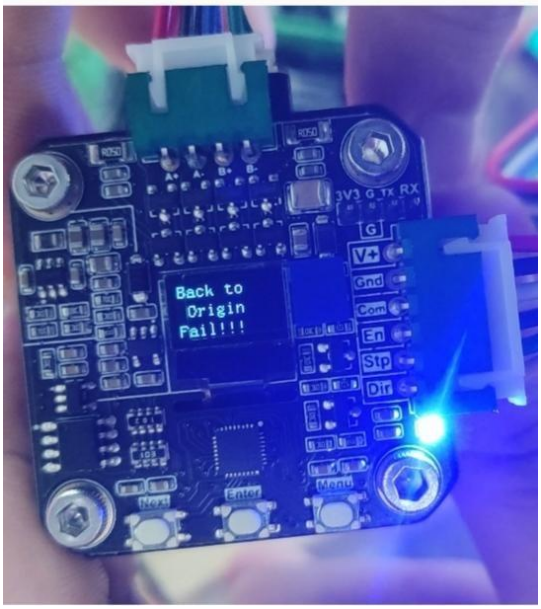
5.4 Set speed level to 2.



5.5 Set 0_Dir to “CW”.



-If enable NearMode,Oled will say Back to Origin Fail!!! Then re-select 0_Dir to “CCW”.



5.6 Finally,turn power off, and rotate the motor to any position.

Turn power on, the motor will automatically return to original point.