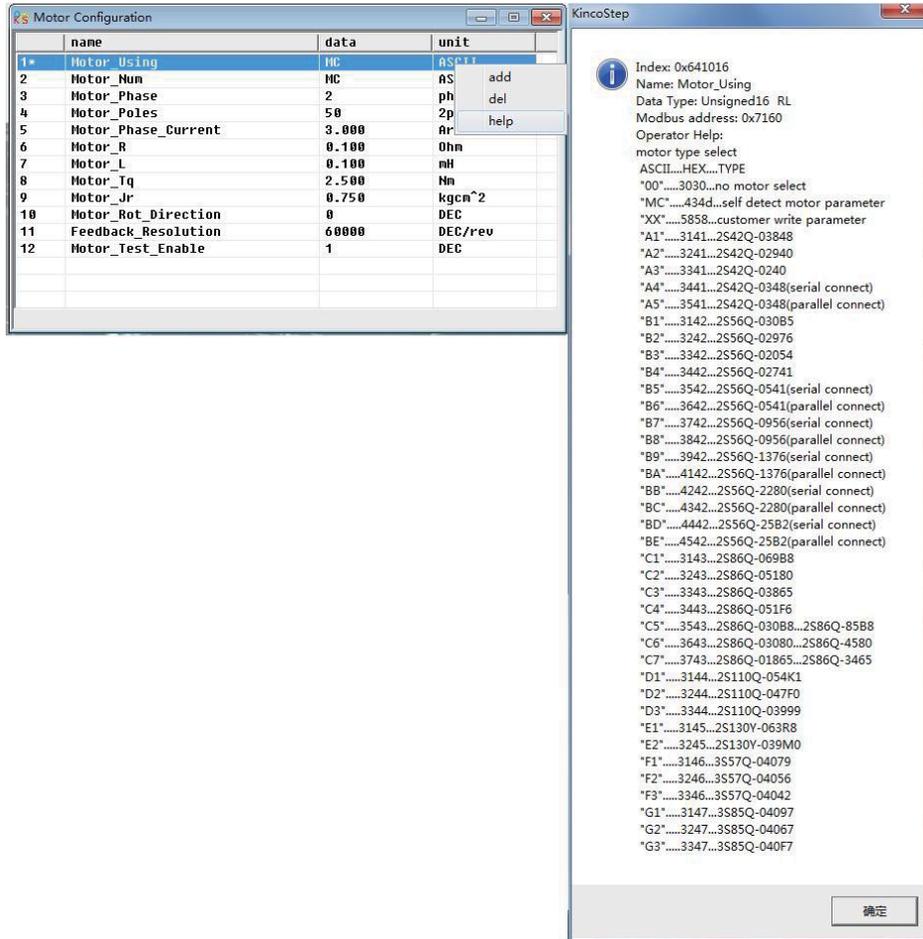


CM880A Stepper Motor Drive Operating Guide

I . Motor configuration

If you prefer to select Software to creative motor parameters, please download **Kinco Step Software for FM_CM** from www.kinco.cn first, and use console wire(with the connector from RS232 to RJ45) to connect your software and run it.



Picture 1-1 Motor configuration

There are 3 kinds of method for user to set up motor parameters.

1. Automatic detect motor parameters (defaulted motor type as MC)

As for drive setting is defaulted as below, Motor type: MC; Motor phase: 2Motor phase current: 3A (Arms). **If phase current isn't 3A, please set it for your motor.** Driver defaulted setting is for 2 phase motor, if connect with 3 phase motor, the LED will show error. So, please change the phase from 2 to 3, and save motor parameter and reboot driver.

2. Select motor type

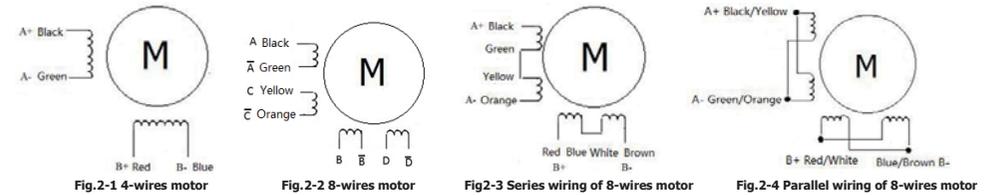
if you do not like to use the detect motor parameters, users also can select the right motor type, then the parameters will be listed into the dialog by automation. As for the motor type, you can select motor type first, then click right key of your mouse to find the help and click it, then you will see the motor type list.

3. User defined (Motor type as XX)

If you selected the motor which are not in such list, please set up your motor type as XX, the parameters need to finish by user.

II . 4 or 8 wires stepper motor wiring

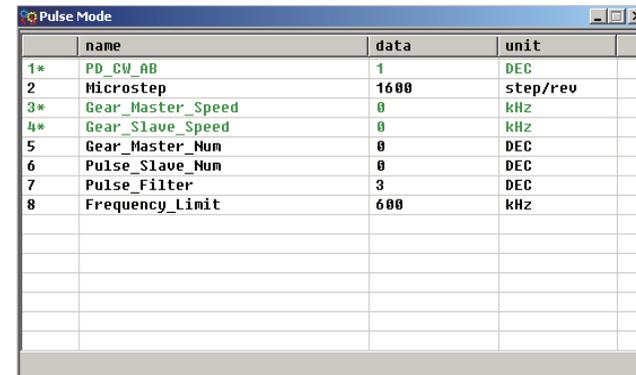
For 4 or 8-wires stepper motor wiring, its wires colour see below figure. and 8-wires motor have two ways wiring, and their performance are different. Parallel wiring will decrease the inductance of winding, suitable for high speed running. But it's requires bigger current to reach the target torque. Series wiring will increase the inductance of winding, it's suitable for low speed running, requires the smaller current to reach target torque, see figure 2-3 and 2-4.



III. Current settings

As for factory settings of Motor phase current, defaulted as 3A (Arms)/4.2A(peak). General, the range of the current is from 0A (Arms) /0A (Peak) ~5.7A(Arms)/8A(Peak), which can change by user. Need to save motor parameters and reboot driver if you modified the value.

IV. Micro-step settings



Picture 4-1 Micro-step setting

The setting of micro-step in pulse mode (-4 mode). The micro-step settings : Micro-step equal to the number of per revolution/ (360° / Step angle)

Note: The number of pulses per revolution must larger than or equal to 200 for 2 phase motor setting. for 3phase motor, the number must larger than or equal to 300.

V. Common object List

All objects are created based on the CANopen data format, the data in the table below expressed in hexadecimal mode. CANopen address consists Index + Sub-index components. With Index (16-bit address), Sub-index (8 seats address) expressed register addressing, bits 08 means the register will store 1 byte length data, bits 10 means 2 byte length data, bits 20 means 4 byte length data. Access to this register should pay attention its read-write property, read or write identification (RW), read-only or write-only logo (RO, WO).

Table 5-1 Common object list

Can open Address	Bits	Command Type	Unit	Object and Descriptions
6040+00	10	RW	Bit	Control_Word : change drive status 0x06 motor power-off 0x0F motor power-on 0x0B quick stop then power-off 0x2F-3F start absolute positioning immediately 0x4F-5F start relative positioning 0x103F start absolute positioning immediately when target-position change 0x0F-1F start find homing 0X80 reset drive error
6041+00	10	RO	Bit	Status_Word : show the status of drive
6060+00	08	RW	DEC	Operate Mode : 1:Position Mode, 3:peed Mode, -4:Pulse Mode, 6:homing Mode
6061+00	08	RO	DEC	Operate_Mode_Display : show actual operation mode
607A+00	20	RW	1rev=60000DEC, If 400step=1rev, then 1step equal to150DEC	Target_Position : In mode 1, if the control word is set to start moving, the position becomes valid command position.
6063+00	20	RO		Position_Actual : show motor actual position
6410+18	10	RW	step/rev	Microstep : the pulse number of motor per revolution
60FF+00	20	RW	DEC=(RPM*512*60000) /1875	Target_Velocity :max velocity in mode 3.
6081+00	20	RW		Profile_Velocity :max velocity in mode 1.
606C+00	10	RO	RPM	Real_Speed_RPM : show motor actual velocity , sampling period 10mS
6083+00	20	RW	DEC=(RPS/S*65536*60000) /4000000	Profile_Acceleration : defaultvalue:10rps/s
6084+00	20	RW		Profile_Deceleration : default value:10rps/s
6410+01	10	RW	HEX	Motor_Num : select motor type
6410+16	10	RO	HEX	Motor_Using : show in using motor type
6410+0B	10	RW	1Arms=10dec	Motor_Phase_Current : if change need to save and reboot.
6078+00	10	RO	1 Ap=1.414*Arms 1 Arms =79dec	Current_Actual : show motor actual phase current
6410+1A	08	RW	DEC	Motor_Phase : 2: two phase stepping motor 3: three phase stepping motor
6410+0C	10	RW	1mH=10dec	Motor_L : set motor inductance
6410+0D	10	RW	1Ω=100dec	Motor_R : set motor resistance
6079+00	10	RO	V	Real_DCBUS_Voltage : drive work voltage

2FF0+01	08	RW	DEC	Save_Control_Data : 1: Save control loop parameters 10: Initialize control loop parameters Note: save for control loop parameters, not include Parameter of Motor
2FF0+03	08	RW	DEC	Save_Motor_Data : 1: save motor parameters

VI. Error alarm and solution

Table 6-1 Error alarm and solution(slow flash is 0.5Hz ,fast flash is 5Hz)

Alarm	LED		Alarm reason	Solution
	RUN	ERR		
Internal Error	Slow flash	Fast flash	1. Motor type is wrong for driver 2. Driver's problem	1.Please refer CM880A Stepping Motor Drive User manual 2. Contact manufacturer
driver output short circuit	OFF	Fast flash	1. The short circuit of Motor phase 2. Driver's problem	1. Check Motor wiring 2. Contact manufacturer
Over voltage of DC bus	Fast flash	Fast flash	1. The voltage of power supply is too high 2. quick stop make too much energy	1. Check power supplier 2. Add braking resistor
Low voltage of DC bus	OFF	ON	1. The voltage of power supply is too lower 2. Rapid start	1. Check power supply 2. Reduce acceleration
Over temperature	OFF	Slow flash	Drive power module more than 80 ° C	Check the temperature is whether larger than 40° C
EEPROM Error	Fast flash/ Slow flash	ON	1. Drive firmware update caused 2. Driver's problem	Initialize the parameters first, and save and reboot driver
Motor Error	Fast flash	ON	1.unconnected motor or connected wrong 2. Motor configuration error	1. Check motor wiring 2.Please refer CM880A Stepping Motor Drive User manual
Logic voltage Error			Internal logic voltage of 15V or 5V not in range The output of 5V over current Overload or get stuck Bus communication is closed Input pulse frequency is over the max. value. IO port configuration external pre-enable signal, but no external valid signal input IO port configuration of the positive limit, the drive detects a valid signal input IO port configuration of the negative limit, the drive detects a valid signal input	Contact manufacturer
Overload of Output 5V				Please check the 5V load wiring
Following Error				Check load or reduce acceleration
Field bus Error				Check bus communication parameters
Input pulse frequency is too high				Check whether the input pulse frequency is larger than the max. value
External pre-enable signal				Check external wiring and confirm the input signal
Positive limit alarm				
Negative limit alarm				

Notes: 1.Please visit <http://www.kinco.cn> to download **CM880A Stepping Motor Drive User manual** or more information.

2. You can purchase the console wire (involved the connector from RS232 to RJ45) by contact our sales. As for the Part Number of console wire is 3.1.03.0064.