ZK-SMC01 CNC Stepper Motor Controller

1.Parameters:

1>.Product name:ZK-SMC01 CNC Stepper Motor Controller
2>.Input voltage:DC 5V-30V
3>.Control shafts:Single axis
4>.Suitable motor:42/57 step motor(Nema17/23 motor)
5>.Control speed:0.1-999RPM
6>.Forward pulses number:1-9999999
7>.Reverse pulses number:1-9999999
8>.Loop times:1-9999
9>.Forward delay time:0.0-999.9s

10>.Reverse delay time:0.0-999.9s
11>.Subdivision:1/2/4/8/16/32/64/128
12>.Acceleration and deceleration control:Yes
13>.Input reverse polarity protection:Yes
14>.Control modes:Auto/Manual/Setup
15>.Work Temperature:-20℃~85℃
16>.Work Humidity:5%~95%RH
17>.Module Size:79*43*41mm

2.Setting methods:

1>.Running interface:
 1.1>.The first line displays rotating speed in RPM.
 1.2>.The second line displays delay time or loop times which can be set by F-10 menu.
 1.3>.Press CW button to clockwise/forward rotating.
 1.4>.Press CCW button to counterclockwise/reverse rotating.
 1.5>.Press RUN/STOP button to start or stop rotating.
 1.6>.Rotate the potentiometer to change the forward or reverse rotation speed. Note:the operation mode is different in different modes.
 1.7>.Keep press potentiometer more than 3second enter into parameter set mode.

2>.Parameter interface:
 2.1>.Rotate the potentiometer to change parameter F-01~F-13 after enter parameter set mode.
 2.2>.The selected parameter keeps blinking.
 2.3>.Press potentiometer to selected parameter value.
 2.4>.Modify Value Method 1: Directly rotate the potentiometer to change value.
 2.5>.Modify Value Method 2: Press the potentiometer again and the selected bit keep blinking. Then rotate the potentiometer to change value for this bit form 0 to 9. Modify other bits in the same method which can improve setup efficiency and save your time.
 2.6>.Press RUN/STOP button return to parameter(Note:parameter and parameter value are not the same).
 2.7>.Save and exit parameter set mode after keep press potentiometer more than 3second.

3.Function Parameter Table:

[F] Function Parameter Table			
Parameter	Function	Set Ranges	Defaults
F-01->?	Working mode selection. Refer to the Work Mode Table.	P01~P09	P01
F-02	Forward pulses number. High/Low bit change by press potentiometer: High 3Bit: Hxxx Low 4Bit: xxxx	1~9999999	1600
F-03	Forward rotation speed in RPM	0.1~999.9	10
F-04	Reverse pulses number. High/Low bit change by press potentiometer: High 3Bit: Hxxx Low 4Bit: xxxx	1~9999999	1600
F-05	Reverse rotation speed in RPM	0.1~999.9	10
F-06	Cycle work times('----' means infinite loop)	0~9999 or infinite loop	1
F-07	Forward in-position delay in second. +/-0.2s	0.0~999.9	0.0
F-08	Reverse in-position delay in second. +/-0.2s	0.0~999.9	0.0
F-09	Pulse numbers for one circle. Unit is *10. E.g. if step anglemar is 1.8 and subdivision is 8. So that the pulse numbers for one circle is 360/1.8*8=1600. So the set value should be 160.	1~9999	160

F-10	Set LCD display parameters:
	0:1st line display motor rotating speed in rpm.
	  2nd line display delay time in second.
	1:1st line display motor rotating speed in rpm.
	  2nd line display cycle work times.
		0 or 1	0

F-11	Set motor working state after press RUN/STOP button: 0:Slow down and stop. 1:Stop immediately.	0 or 1	0
F-12	Set the acceleration/deceleration level: 001 is the slowest and 100 is the fastest.	001~100	020
F-13	Set device address	001~255	001

4.Work Mode Table:

Work Mode	Work Process
F-01->P01	1. Function: The motor operates based on the rotation of the potentiometer, meaning that the motor can only be controlled by the potentiometer, and other buttons are not functional. 2. If the potentiometer is turned clockwise, the motor will rotate forward and the CW indicator will turn on. 3. If the potentiometer is turned counterclockwise, the motor will rotate in reverse and the CCW indicator will turn on.
F-01->P02	1.Function:Motor rotates when keep press buttons and stop if release button. 2.Motor rotates forward and CW indicator turns ON if keep press CW button. Motor stops if release the button.Rotating potentiometer to reset motor rotate speed in RPM. 3.Motor rotates reverse and CCW indicator turns ON if keep press CCW button. Motor stops if release the button.Rotating potentiometer to reset motor rotate speed in RPM.
F-01->P03	1.Function:Rotates at first press and stop press again. self-locking control. 2.Motor rotates forward and CW indicator turns ON if press CW button. Motor stops if press again.Rotating potentiometer to reset motor rotate speed in RPM. 3.Motor rotates reverse and CCW indicator turns ON if press CCW button. Motor stops if press again.Rotating potentiometer to reset motor rotate speed in RPM. 4.Note:please stops motor at first when the motor is running if need change the running direction.
F-01->P04	1. Function: The motor rotates a set number of pulses (F-02/F-04) and then stops, repeating the process for a set number of loops (F-06). 2. To rotate the motor forward, press the CW button. The motor will rotate continuously from F-02, stop for a delay time (F-07), and then repeat the process for a set number of loops (F-06). For example: Forward -> OFF -> ... -> Forward -> OFF. 3. To rotate the motor in reverse, press the CCW button. The motor will rotate continuously in reverse from F-04, stop for a delay time (F-08), and then repeat the process for a set number of loops (F-06). For example: Reverse -> OFF -> ... -> Reverse -> OFF. 4. The rotating potentiometer can be used to adjust the motor's rotation speed in RPM. 5. Note: If you need to change the motor's running direction, please stop the motor first if it is already running.
F-01->P05	1. Function: The motor rotates based on a specified number of pulses (F-02/F-04), then stops. This is followed by looping for F-06 times, after which the motor runs in the opposite direction and returns to the start position. 2. To rotate the motor forward continuously, press the CW button. The motor will start rotating from F-02, stop for a delay time of F-07, and then loop again for F-06 times. After the loop, the motor will reverse and return to the start position. This sequence will repeat continuously: Forward->OFF->....->Forward->OFF->Reverse. 3. To rotate the motor in reverse, press the CCW button. The motor will start rotating from F-04, stop for a delay time of F-08, and then loop again for F-06 times. After the loop, the motor will rotate forward and return to the start position. This sequence will repeat continuously: Reverse->OFF->....->Reverse->OFF->Forward. 4. To reset the motor's rotational speed in RPM, rotate the potentiometer. 5. Note: If you need to change the running direction of the motor, please stop it first when it is running.
F-01->P06	1. Function: The motor rotates for F-02/F-04 pulses, then stops and changes direction. It repeats this cycle for F-06 times. 2. To rotate the motor forward, press the CW button. It will rotate from F-02, stop for F-07 delay time, then reverse from F-04, and stop for F-08 delay time. It repeats this cycle for F-06 times. For example, Forward->OFF->Reverse->OFF....->Reverse->OFF->Forward->OFF. 3. To rotate the motor in reverse, press the CCW button. It will rotate in reverse from F-04, stop for F-08 delay time, then reverse from F-02, and stop for F-07 delay time. It repeats this cycle for F-06 times. For example, Reverse->OFF->Forward->OFF....->Forward->OFF->Reverse->OFF. 4. To adjust the motor rotation speed in RPM, rotate the potentiometer. 5. Note: When changing the motor's running direction, please stop the motor first if it is already running.
F-01->P07	1.Function:Motor rotates when keep press and stop if release button.Then running and return to start positive in the opposite direction. 2.Motor rotates forward and CW indicator turns ON if keep press CW button. Motor stops for time F-07 if release the button. Then reverse return to start positive. 3.Motor rotates reverse and CCW indicator turns ON if keep press CCW button. Motor stops for time F-08 if release the button. Then forward return to start positive. 4.Rotating potentiometer to reset motor rotate speed in RPM.
F-01->P08	1. Function: The motor rotates after a delay time of F-07/F-08, and then stops. This process is repeated for F-06 loops. 2. Press the CW button to rotate the motor forward from F-07, then stop for a delay time of F-08. This process is repeated for F-06 loops: ON -> OFF -> ... -> ON -> OFF. 3. Press the CCW button to rotate the motor in reverse from F-08, then stop for a delay time of F-07. This process is repeated for F-06 loops: REVERSE -> OFF -> ... -> REVERSE -> OFF. 4. Rotate the potentiometer to reset the motor's rotation speed in RPM. 5. Note: Please stop the motor first if you need to change the running direction while the motor is running.
F-01->P09	1. Function: The motor rotates forward from the pulse number F-02, then stops for time F-07, then rotates in reverse from F-04, stops for delay time F-08, and repeats this loop. The loop runs for F-06 times. 2. Rotate the potentiometer to adjust the motor's rotation speed in RPM. 3. Note: Please stop the motor first when it is running if you need to change its running direction.