WJ-S4 Controller User Manual

1. Introduction

The WJ-S4 controller is designed to control four step motors at the same time. It can receive command from a PC(Personal Computer) or MCU(Micro Controller Unit) through serial port or USB port. By using this module, the engineers can easily control the step motors or other motors which drived by pulses. The controller is shown in figure 1 and its typical application is shown in figure 2.
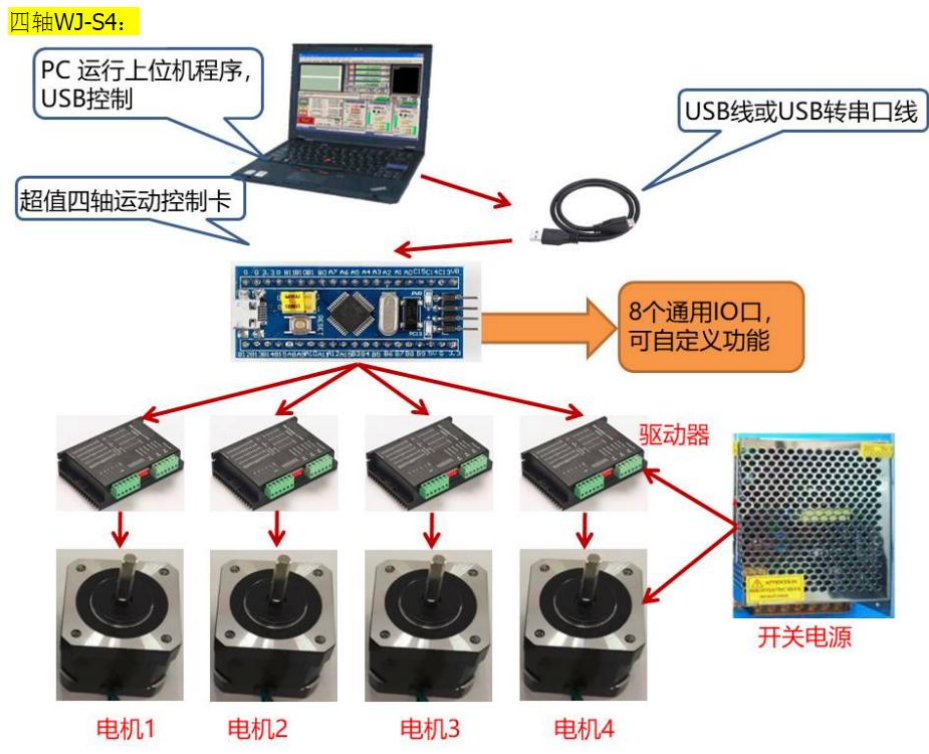

Figure 1 WJ-S4 controller

Figure 2

From figure 2, one can see that the controller use a serial port or USB port to communicate with the PC. The OS on the PC can be Windows or Linux. If one chooses the serial port, the driver program should be installed before using the controller. Typical USB to serial port driver is ch340 or PL2303.

2. Command format and function details

The WJ-S4 use a string command to drive the step motor. The string is made up of three part. The command type + command number + parameters list. For example, we use M01 3200 3200 3200 3200 to move 4 step motors at the same time. M stands for Move, 01 is the command number and stands for position mode. The last four 3200 are the pulses of each step motor. The other command is shown as a command list as below. The rotating direction can be modified by changing the parameters from positive numbers to negative ones such as -3200. If the parameter for one axis is 0, that axis will not rotate.

command	description	
M01 3200 3200 3200 3200	Move specified pulses	
M02 60 60 60 60	Move in specified speed(r/min)	
M03 1 1 1 1	Stop emergency	
M04 1 1 1 1	Stop smoothly	
M05 60 60 60 60	Find home position	
S04 3200 3200 3200 3200	Set the steps per rotation	
Q01	Query the firmware version	
Q02 axis	Query the axis parameters	
Q03	Query the axis state	

3. IO pins location

Pulses:
PULSE1 -A0
PULSE2 -A1
PULSE3 -A2
PULSE4 -A3

Directions:
DIR1 -A4
DIR2 -A5
DIR3 -A6
DIR4 -A7

GPIOs: General output
OUT0-B0

OUT1-B1
OUT2-B10
OUT3-B11

GPIOs: General input
IN0-B8
IN1-B7
IN2-B6
IN3-B5

Emergency stop pins:
EMG0-B12
EMG1-B13
EMG2-B14
EMG3-B15

Home pins:
HOME1 -C14
HOME2 -C15
HOME3 -A15
HOME4 -B9