

< JSMOTOR-A Manual >

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1. Introduction

The JSMOTOR-A BOARD is a stepping motor driver board. This product is able to drive two stepping motors independently. Two SLA7024M (Sanken) chips are employed as drivers, allowing 1.5A to be delivered to each motor. It has a phase selection option, enabling the user to select either a 2 phase or 1-2 phase driving method. It has separate enable signals and current limit potentiometers. This board can be connected to the JS51-AP1, JS8255-AP1, or the JS8255-MADP boards.

2. Parts List

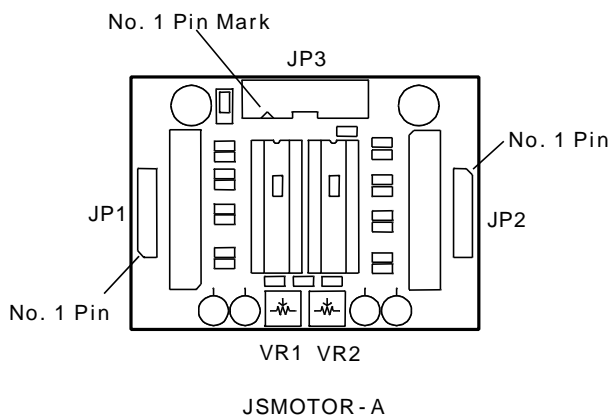
JSMOTOR-A Board 1pc, 14pin Flat Cable 1pc, CD or diskette.

3. Stepping motor interface

Stepping motors usually have six control wires. Connect them to the JP1 or the JP2. Use a Molex 5264 connector to connect the motor's wires to the JP1 or the JP2. The following table shows connector pin numbers, and the wires' names and colors of two commonly used stepping motors.

Pin Number	1	2	3	4	5	6
Wire name	A	Center A	/A	B	Center B	/B
PK243-01A	Black	Yellow	Green	Red	White	Blue
103H546-0440	Orange	White	Blue	Red	Black	Yellow

Note : 45 °angled edge(miter) indicates No. 1 pin on the silkscreen for the JP1, JP2.



4. Control board interface

Use the provided 14-pin flat cable to connect a control board (CPU board) to the JSMOTOR-A board. When the JSMOTOR-A is connected to a user-designed board, pay particular attention to the motor power (MVCC) connection. Refer to the schematic.

5. Power

Two different power sources are required to control the JSMOTOR-A board. One is a DC 5V(VCC) for logic and the other is a DC 9~25V (MVCC) for the motors.

6. Control Signals

Control signals are all input signals. Refer to the schematic regarding pin assignment.

CLK_A : Clock for motor A. Motor A turns according to the clock signal.

DIR_A : Direction of motor A. 0= counterclockwise, 1= clockwise.

EN_A : Enable of motor A. 0= disable, 1=enable

CLK_B : Clock for motor B. Motor B turns according to the clock signal.

DIR_B : A direction of motor B. 0= clockwise, 1= counterclockwise.

EN_B : Enable of motor B. 0= disable, 1=enable

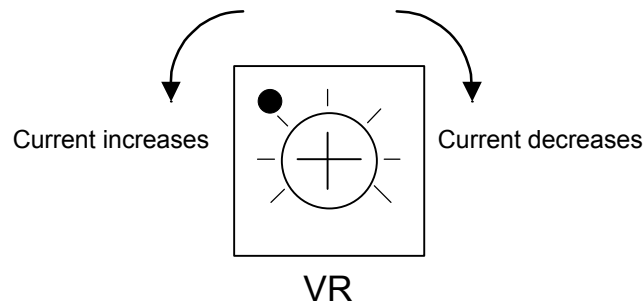
PHASE : Select the motor's driving method (coil driving method). 0=1-2 phase, 1=2 phase

Note : A clock means a signal that changes its voltage level from low to high and high to low.

0V → 5V → 0V

7. The motor's current limitation

Current drives the motor. On the board, the variable resistor adjusts the motor driving current. The left (JP1) motor's current is controlled by the VR1 and the right (JP2) motor's current is controlled by the VR2. The motor's torque is proportional to the current. To adjust the current, turn the corresponding variable resistor either clockwise or counterclockwise.

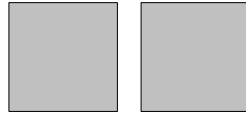


8. Jumpers

Take a look at the bottom of the board. There are two SMD (Surface Mounting Device) jumpers. Those are not individual parts. Each jumper (JMP1, JMP2) consists of two square copper pads on the bottom of the PCB. The jumpers are not connected. The user connects them by soldering when required.

JMP1 : Short this jumper when fixed 1-2 phase driving is desired. The phase signal wire of the JP3 must be open. When fixed 2 phase driving is desired, open the jumper and do not connect anything to the phase signal line. To use an external signal to select the driving method, open the jumper and use the JP3's phase signal line.

JMP2 : Short this jumper to permanently enable the two motors or to control(enable or disable) them by the one of the EN_A or the EN_B signal.



SMD JUMPER

9. Application

The JSMOTOR-A board can be used for robots, measuring systems, camera tilting, panning systems and more. It can be directly connected to the following boards.

JS51-AP1 : Application board for the JS8051-A1 CPU board.

JS8255-AP1 : Application board for the JS8255-B PC I/O card.

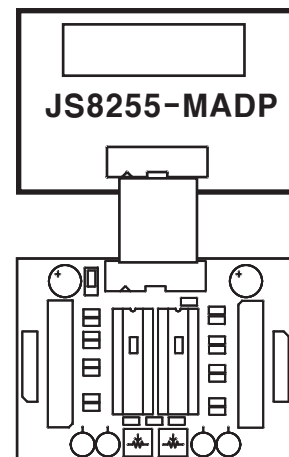
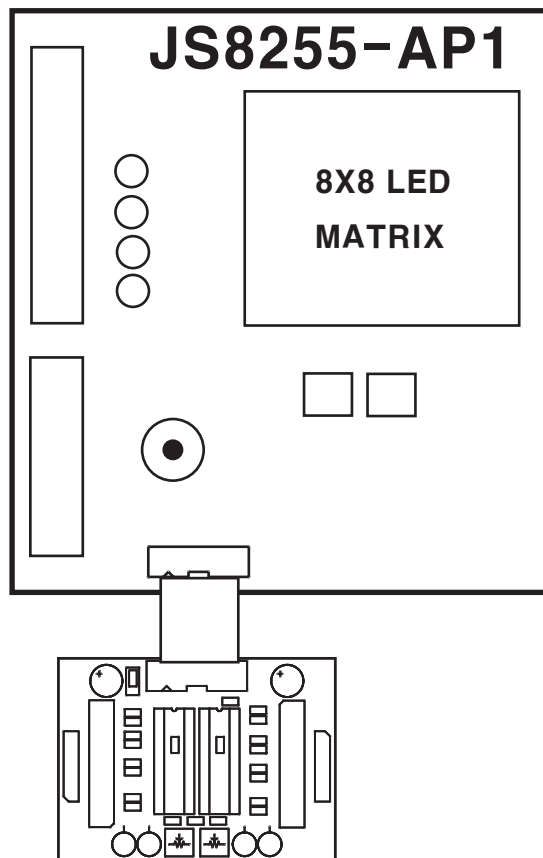
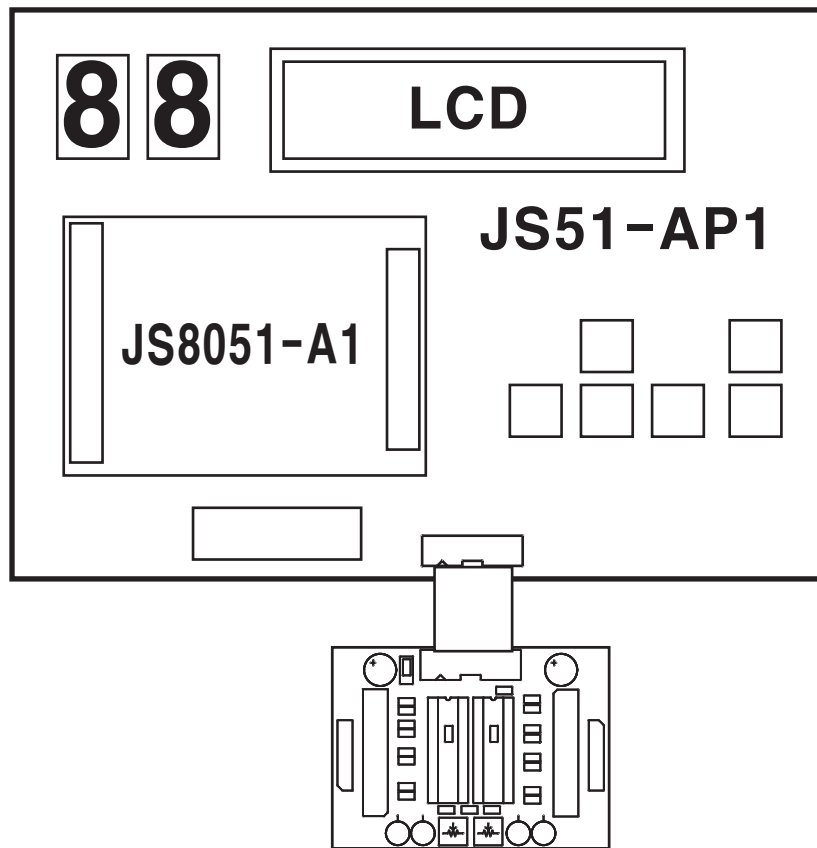
JS8255-MADP : An adaptor board which connects the JS8255-B PC I/O card to the JSMOTOR-A board.

10. Troubleshooting

This product has been factory inspected. If the motors do not work, follow the instructions below.

- Adjust the VR1 or the VR2 to ensure there is enough current.
- Check the signal wires between the motor and the board.
- Check for damage to the R4, R5, R6 and R7 resistors caused by excess current.

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JSMOTOR-A CONNECTION EXAMPLE

