

iMDs03 manual



iXs Research Corporation

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1 . Introduction

iMDs03 is a 1ch DC motor controller, and it has MOSFET which on resistance is quite low, and it is achieved a high efficiency and high output power.

2 . Name of Pins

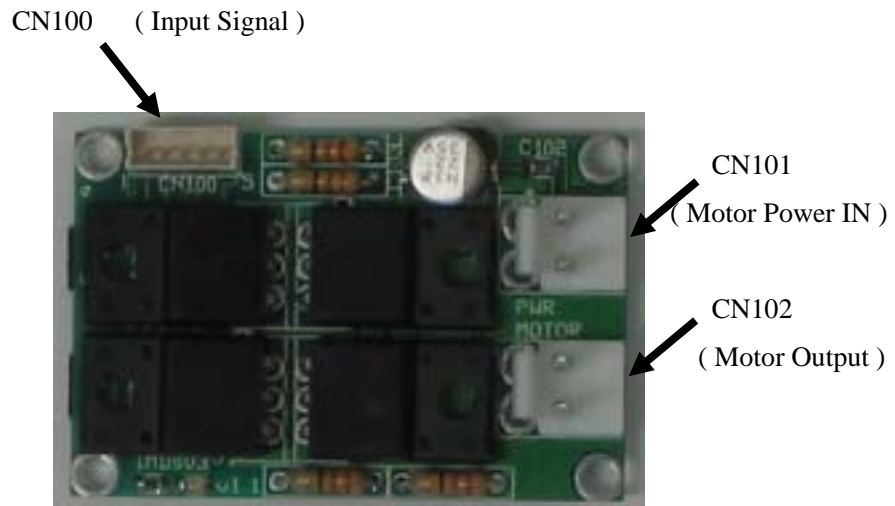


Fig.1 Name of each pin

3 . Pin Configuration

3 . 1 Input Signal Pin (CN100)

JST ZH series connector

Pin number	Function
Pin1	GND
Pin2	PWM (Positive logic)
Pin3	Break
Pin4	CW/CCW
Pin5	VCC

3 . 2 Motor Power IN (CN101)

JST VH series connector

Pin number	Function
Pin1	P_GND
Pin2	P_POWER

3 . 3 Motor Output (CN102)

JST VH series connector

Pin number	Function
Pin1	1
Pin2	2

4 . Input Signal

4 . 1 PWM signal

A input signal for iMDs03 is a positive logic PWM signal which voltage is from 0 to 5 [V] as Fig.2.

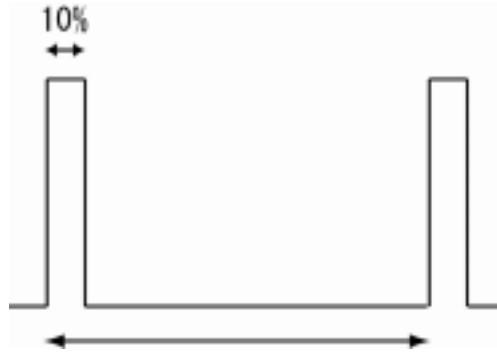


Fig.2 A positive PWM waveform (in case of 10% duty)

PWM pin is pulled up to VCC by 10k ohm resister, therefore, this pin level is Low (0% duty) when you don't connect to this pin anything.

4 . 2 BRAKE Signal

A brake function is caused by connection with motor pins to a ground. This signal is active low.

4 . 3 CW/CCW Signal

A CW/CCW can change the rotation direction of a motor. When it is CW (high), A motor run a clock wise direction, otherwise, it run a counter clock wise direction.

This signal is pulled up to VCC by 10k ohm resiser.

5 . Connection with other devices

5 . 1 How to connect with a iMCs01 motor controller

When you connect a iMDs03 with iMCs01, you can use a special cable (ZH5-double-15cm). Please connect or disconnect these cables during power is shut down.

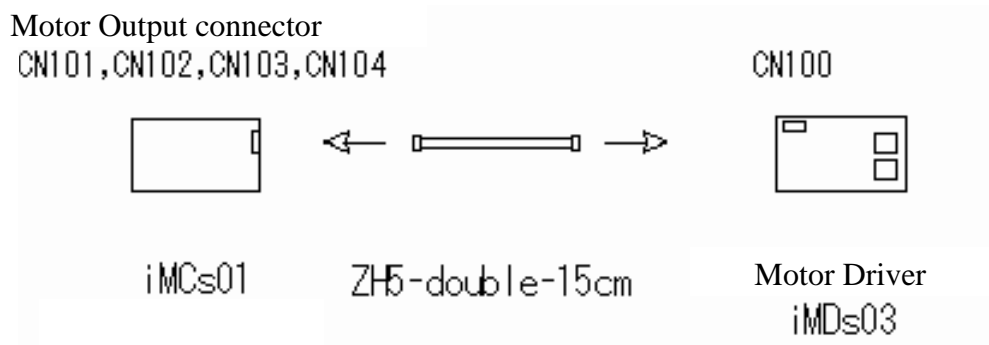


Fig.3 Connection with a iMCs01 motor controller

5 . 2 How to connect with a motor

When you connect a iMDs03 with a DC motor, you can use a special cable (VH2-single-40cm). Please connect or disconnect these cables during power is shut down.

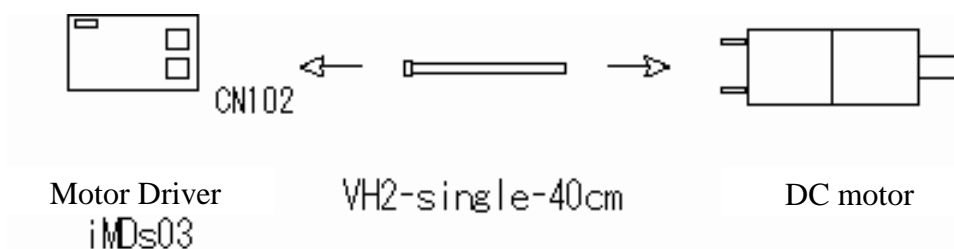


Fig.4 Connection with a DC motor

5 . 3 How to connect with a motor

When you connect a iMDs03 with a power supply (upto DC24V), you can use a special cable (VH2-single-40cm). Please connect or disconnect these cables during power is shut down.

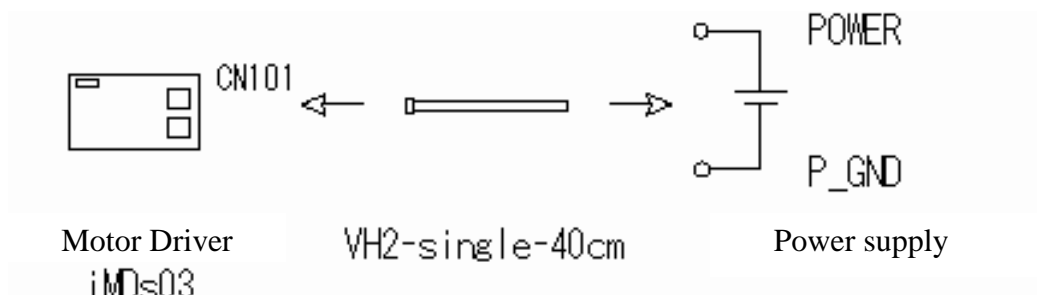


Fig.5 Connction with a power supply

6 . Earth (GND)

The GND of control side and motor side are separated in this board. This comes from an avoidance the problem of customer usage. Usually an earth problem is one of difficult problem to construct an electrical circuit.

There are some cases such to avoid going into a motor noise to a control circuit or to avoid making a GND loop.

Please select GND connection as your system convenient.

6 . 1 Case 1 (In case of minimize a GND loop)

In order to minimize a GND loop, you can connect a controller side GND and motor side GND in a iMDs03. Please be careful to use thin wire to connect both to avoid going into a motor noise to a control circuit.

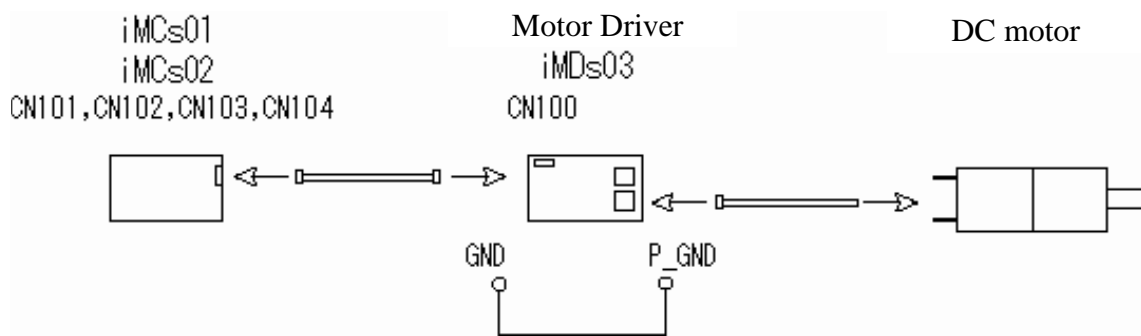


Fig.6 Case 1

6 . 2 Case 2 (In case of avoidance a complicated GND loop)

When you connect some iMDs03s simultaneously in your system, you have to avoid a complicated GND loop. Fig 7 shows a case of example of it. This means that when you connect some iMDs03 simultaneously, however, Both of GND of only one iMDs03 is connected, and the other iMDs03 GND are not connected.

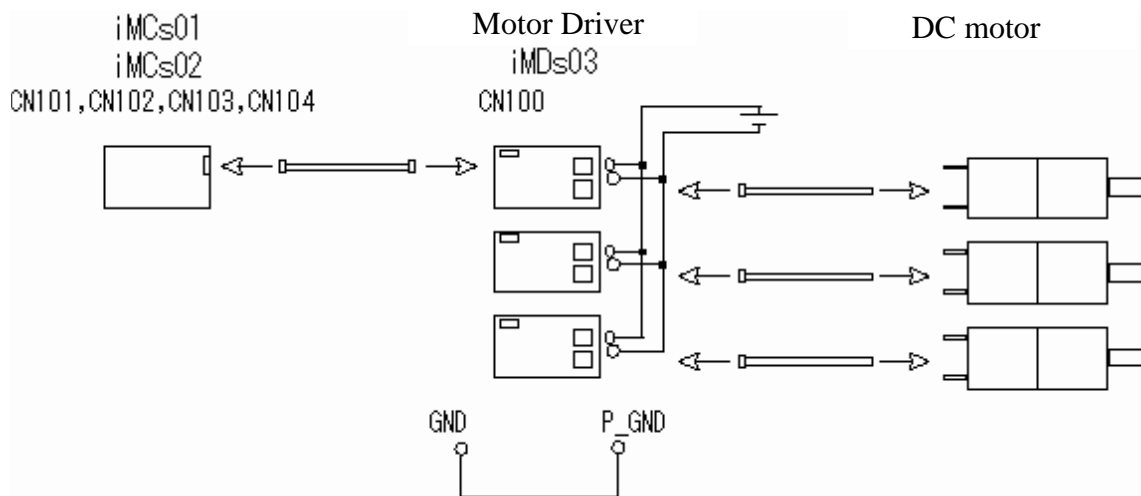


Fig.7 Case 2

6 . 3 Case 3 (In case of to avoidance a going into a motor noise to a control circuit)

If a motor noise is so huge, the noise goes into a controller board, and it may cause a malfunction of a iMDs03. Fig 7 shows a case of example of it. This means that you can connect both of GND close a point of each battery. Battery is one of a huge capacity and it makes a power rectify.

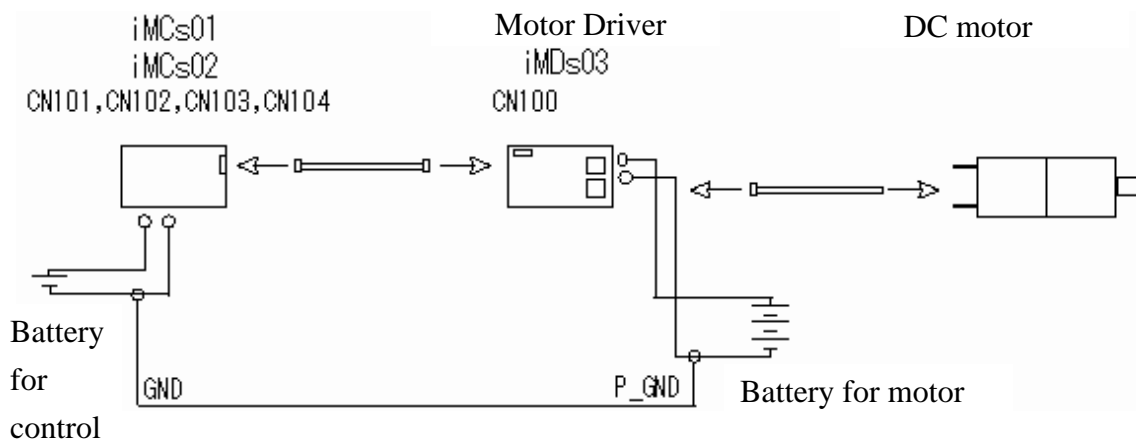


Fig.8 Case 3

However this circuit consist a huge GND loop, therefore, please select a optimal method as your system like.

7 . Attention

When you attach this board to other system such as a personal computer and when you install this software to a personal computer, the manufacturer doesn't have the responsibility the matching with your systems.

Manufacturer does not owe the responsibility the free exchange and compensation damages such as product's defect or trouble.

This product is only for research, industry and hobby, it does not take safety for life into account.

Manufacturer does not owe the responsibility for it. Do not use other purposes.

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