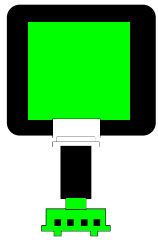




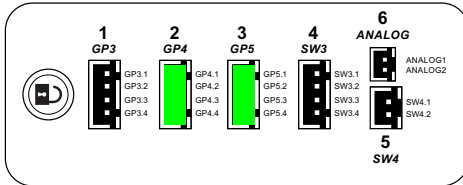
DOBOT Magician V1/V2

INPUT / OUTPUT GUIDE



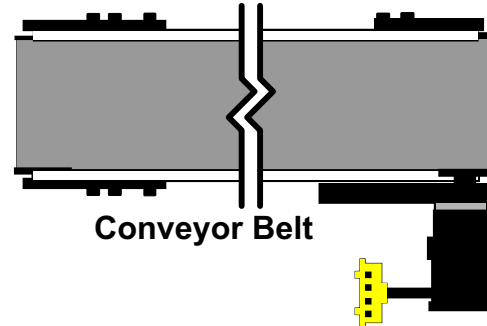
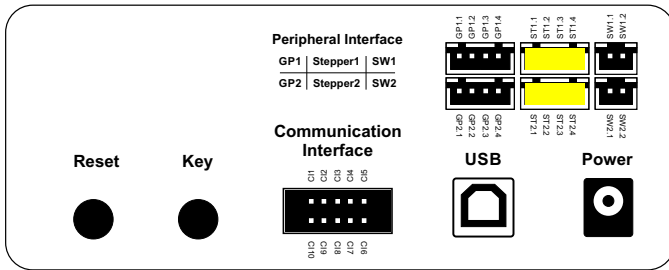
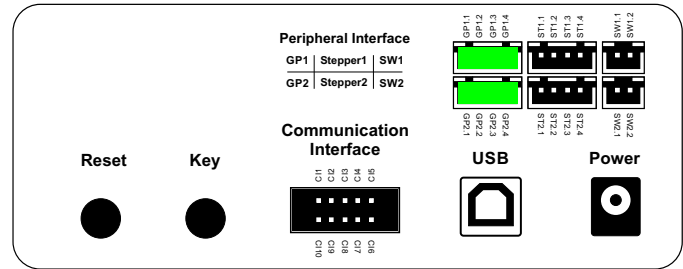
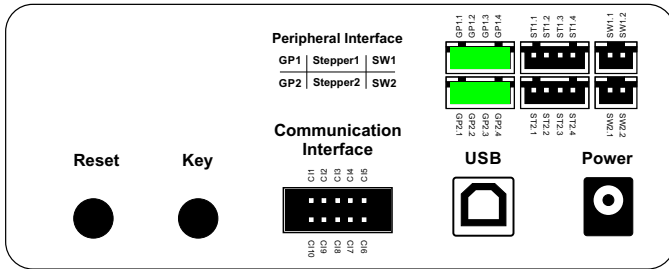
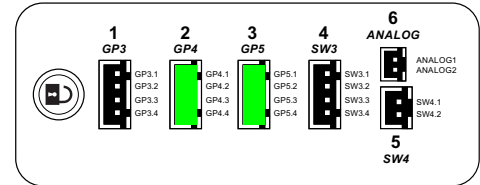
GP1
GP2
GP4
GP5

Color Sensor
V1 GP2
V2 GP1, 2, 4, 5



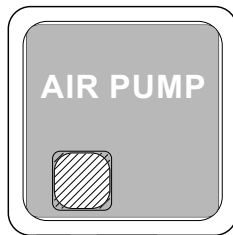
GP1
GP2
GP4
GP5

IR Sensor V1 & V2

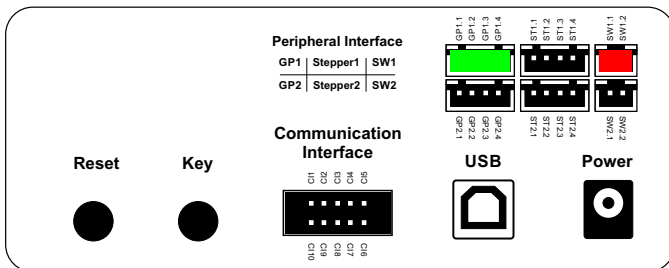


Conveyor Belt

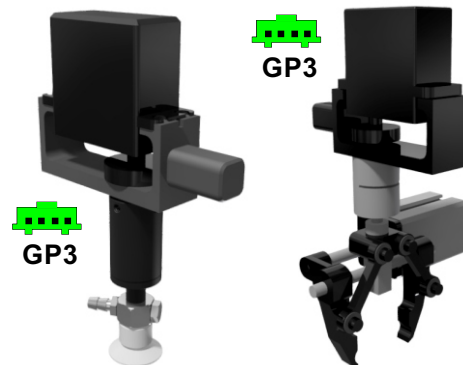
STEPPER 1
STEPPER 2



SW1 GP1

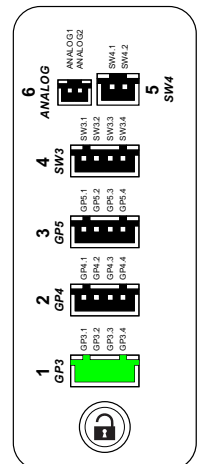


Wrist Rotate Servo

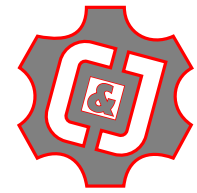


GP3

GP3



DOBOT Magician



Digital Signal Guide



Power OFF

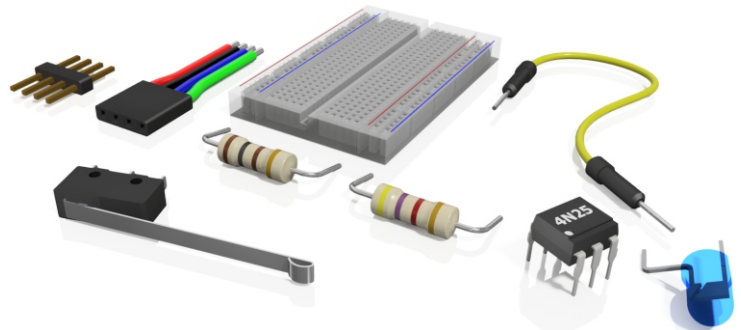


WARNING

NEVER wire anything to the Dobot Magician while it has power **ON**
ALWAYS shutdown the Dobot before making connections or damage to the robot could occur.

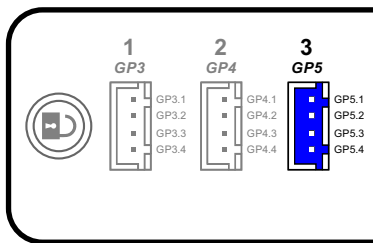
Parts Needed for Safe Communication

- Four Pin Male Headers
- Four Pin Jumper Wires
- 100Ω Resistors
- 4.7kΩ Resistors
- Breadboard
- Optical Isolators 4N25
- LEDs
- Jumper Wires
- Limit Switch



Test INPUT Communication to Dobot

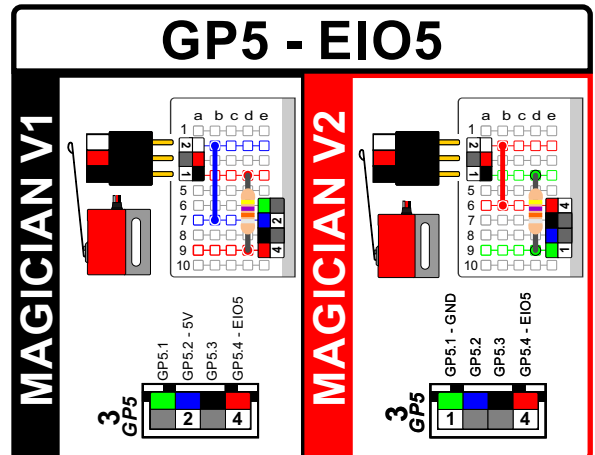
- Four Pin Male Headers
- Four Pin Jumper Wires
- 4.7kΩ Resistors
- Breadboard
- Limit Switch



Running Log:

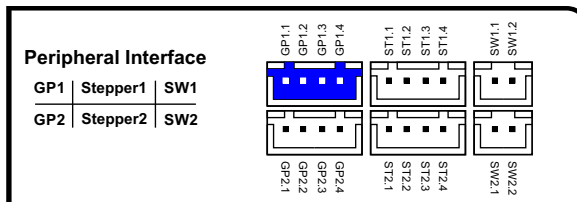
```
[17:07:08]0
[17:07:08]0
[17:07:08]0
[17:07:08]1
[17:07:08]1
[17:07:08]1
```

```
SetIOMultiplexing Type Input 3.3V EIO EIO05
repeat while true
do print GetLevelInput EIO EIO05
```

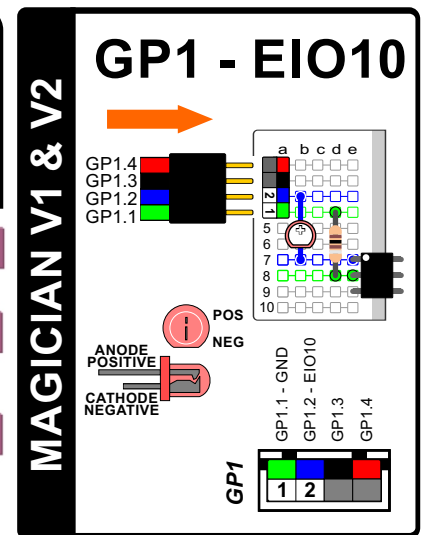
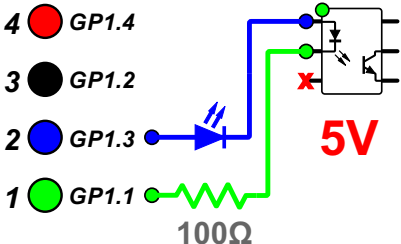


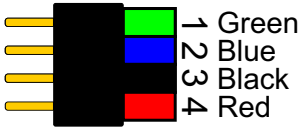
Test OUTPUT Communication from Dobot

- Four Pin Male Headers
- Four Pin Jumper Wires
- 100Ω Resistors
- Breadboard
- Optical Isolators 4N25
- LEDs



```
SetIOMultiplexing Type Output 5V EIO EIO10
repeat while true
do Set5VOutput EIO EIO10 IsEnabled ON
Delaytime 2 s
Set5VOutput EIO EIO10 IsEnabled ON
Delaytime 2 s
```





DOBOT Magician V1

Digital Signal Guide



Caution: NEVER wire anything to the Dobot Magician while it has power on. **ALWAYS** shutdown the Dobot before making connections or damage to the robot could occur.



WARNING



Power OFF



WARNING



Power OFF

INPUTS

GP5

EIO-4

Signal ON = 1
Signal OFF = 0

3 GP5

EIO-5

Signal ON = 1
Signal OFF = 0

3 GP5

GP4

EIO-6

Signal ON = 1
Signal OFF = 0

2 GP4

EIO-7

Signal ON = 1
Signal OFF = 0

2 GP4

GP1

Peripheral Interface
GP1 Stepper1 SW1
GP2 Stepper2 SW2

EIO-10

4 GP1.4
3 GP1.2
2 GP1.3
1 GP1.1

GP1

EIO-11

4 GP1.4
3 GP1.2
2 GP1.3
1 GP1.1

GP1

GP2

Peripheral Interface
GP1 Stepper1 SW1
GP2 Stepper2 SW2

EIO-13

4 GP1.4
3 GP1.2
2 GP1.3
1 GP1.1

GP2

EIO-14

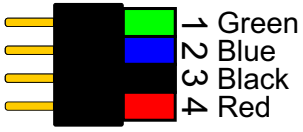
4 GP1.4
3 GP1.2
2 GP1.3
1 GP1.1

GP2

EIO-15

4 GP1.4
3 GP1.2
2 GP1.3
1 GP1.1

GP2



DOBOT Magician V2

Digital Signal Guide



Caution: NEVER wire anything to the Dobot Magician while it has power on. **ALWAYS** shutdown the Dobot before making connections or damage to the robot could occur.



INPUTS

GP5

EIO-5 Signal ON = 0
Signal OFF = 1

GP5.1 - GND
GP5.2
GP5.3
GP5.4 - EIO5

3 GP5

Communication Interface: USB, Power

GP4

EIO-7 Signal ON = 0
Signal OFF = 1

GP4.1 - GND
GP4.2
GP4.3
GP4.4 - EIO7

2 GP4

Communication Interface: USB, Power

GP1

EIO-10

GP1.1 - GND
GP1.2 - EIO10
GP1.3
GP1.4

4 GP1.4
3 GP1.2
2 GP1.3
1 GP1.1

5V

100Ω

1 GP1

Peripheral Interface: GP1 Stepper1 SW1, GP2 Stepper2 SW2

EIO-11

GP1.1 - GND
GP1.2
GP1.3 - EIO11
GP1.4

4 GP1.4
3 GP1.2
2 GP1.3
1 GP1.1

3.3V

100Ω

1 GP1

Peripheral Interface: GP1 Stepper1 SW1, GP2 Stepper2 SW2

EIO-12

GP1.1 - GND
GP1.2
GP1.3
GP1.4 - EIO12

4 GP1.4
3 GP1.2
2 GP1.3
1 GP1.1

3.3V

100Ω

1 GP1

Peripheral Interface: GP1 Stepper1 SW1, GP2 Stepper2 SW2

GP2

EIO-13

GP2.1 - GND
GP2.2 - EIO13
GP2.3
GP2.4

4 GP2.4
3 GP2.2
2 GP2.3
1 GP2.1

5V

100Ω

1 GP2

Peripheral Interface: GP1 Stepper1 SW1, GP2 Stepper2 SW2

EIO-14

GP2.1 - GND
GP2.2
GP2.3 - EIO14
GP2.4

4 GP2.4
3 GP2.2
2 GP2.3
1 GP2.1

3.3V

100Ω

1 GP2

Peripheral Interface: GP1 Stepper1 SW1, GP2 Stepper2 SW2

EIO-15

GP2.1 - GND
GP2.2
GP2.3
GP2.4 - EIO15

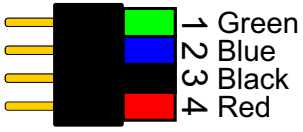
4 GP2.4
3 GP2.2
2 GP2.3
1 GP2.1

3.3V

100Ω

1 GP2

Peripheral Interface: GP1 Stepper1 SW1, GP2 Stepper2 SW2



DOBOT Magician

Signal Guide



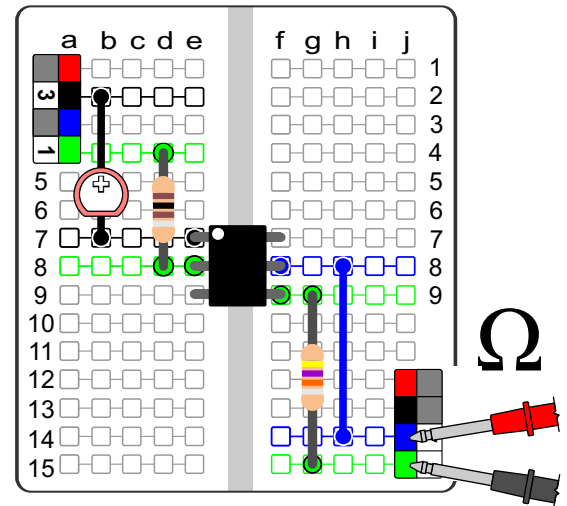
Check Optical Isolator with Volt Meter

WHY is the robot not receiving a signal from the handshake module? Wiring and programming are often the culprit. It could also be a damaged optical isolator. The LED on the INPUT side of the optical isolator helps us determine if the signal is actually being sent by the robot. Unfortunately, the OUTPUT side of the optical isolator will not allow us to use an LED as an indicator. We can however use a volt meter to measure the RESISTANCE across the optical Isolator to determine when a signal is ON or OFF. Use the Blockly program shown below to cycle the signal ON and OFF to see if the signal is getting across the optical isolator. When no signal is present, the voltmeter should read "O.L" or "---". When a signal is present it should read near the resistance value of the resistor used.

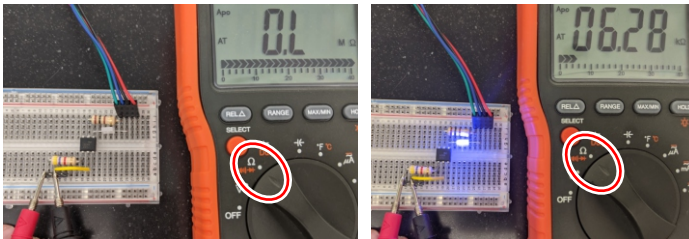
```

SetIOMultiplexing Type Output 5V EIO EIO10
repeat while true
do
  Set5VOutput EIO EIO10 IsEnabled ON
  Delaytime 2 s
  Set5VOutput EIO EIO10 IsEnabled ON
  Delaytime 2 s

```



Optical Isolator OFF = 0.L or ---
 Optical Isolator ON = 4.9+ kΩ



Caution: NEVER wire anything to the Dobot Magician while it has power on. **ALWAYS** shutdown the Dobot before making connections or damage to the robot could occur.



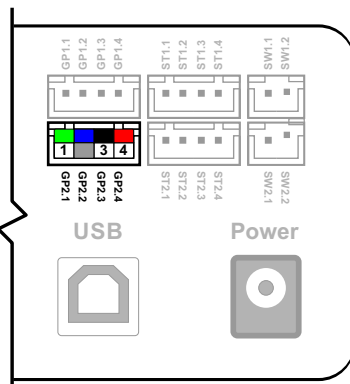
WARNING



Power OFF

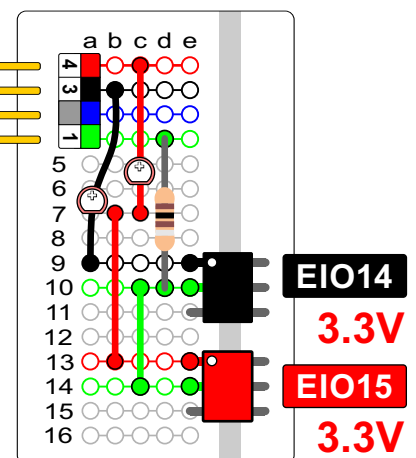
How to Use a Common GND

Can the ground (GND) be shared between multiple outputs? Yes, the ground can split among multiple optical isolators as a "shared" or common ground signal. The optical isolators then only need the signal wire to turn ON and OFF. See the illustration below.



EIO15 - GP2.4
 EIO14 - GP2.3
 EIO13 - GP2.2
 Common GND - GP2.1

Multiple Outputs from One Cable



WARNING



Power OFF

GP2 - EIO14 & 15