DockerPi 4 Channel Relay SKU: EP-0099

Main page
Recent changes
Random page
Help about MediaWiki

Tools

What links here
Related changes
Special pages
Printable version
Permanent link
Page information
Cite this page

Contents [hide]

DockerPi 4 Channel Relay

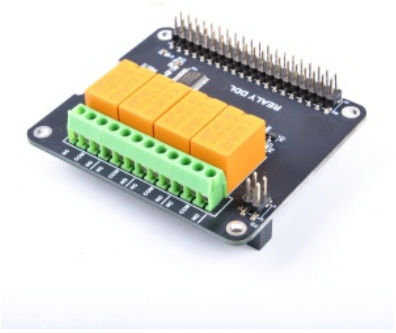
Description

DockerPi 4 Channel Relay is a member of the DockerPi Series,more commonly used in IOT applications.

DockerPi 4 Channel Relay can relay AC/DC, instead of traditional switches, to achieve more ideas.

DockerPi 4 Channel Relay can stack up to 4, and can be stacked with other DockerPi expansion board. If you need to run for a long time, we also recommend that you use our DockerPi Power expansion board to provide more power.

Features



- DockerPi Series
- Programmable
- Control directly(without programming)
- Extend the GPIO Pins
- 4 Channel Relay
- 4 Alt I2C Addr Support
- Relay Status Leds
- Support 3A 250V AC
- Support 3A 30V DC
- Can Stack with other Stack board
- Independent of the mainboard hardware (require I2C support)

Official Compatibility Test

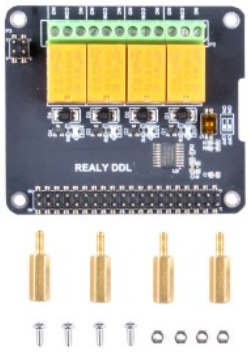
Not only support the following development boards, other development boards can be compatible if they have I2C peripherals. (Note: some software changes may be required)

Platform	DockerPi 4 Channel Relay	Notes
Raspberry Pi All Platform	√	Not Include CM Series & EOL Platform

Gallery

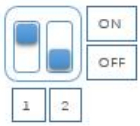
Package Include

- 1 x Docker Pi 4 Channel Relay
- 1 x Instructions
- 4 x M2.5*12 + 6 Copper stick
- 4 x M2.5*6 Nut
- 4 x M2.5*6 Half-round head screw



Device Address Map

DIP switch status icon	Device Address

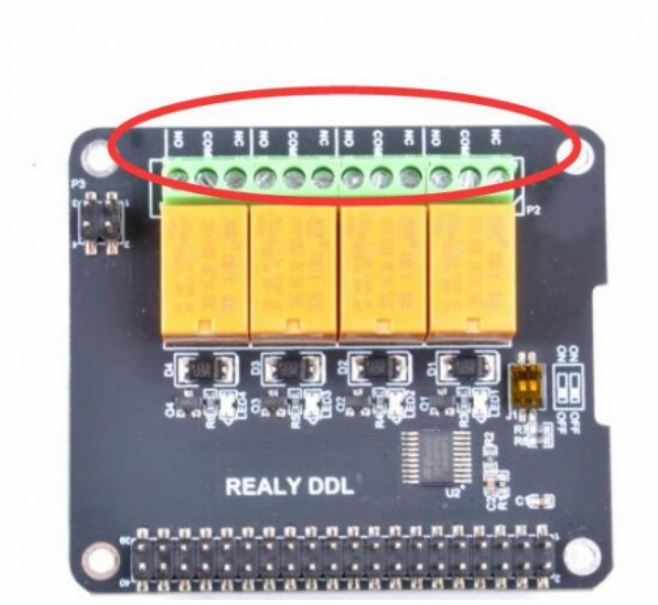
	0x10
	0x11
	0x12
	0x13

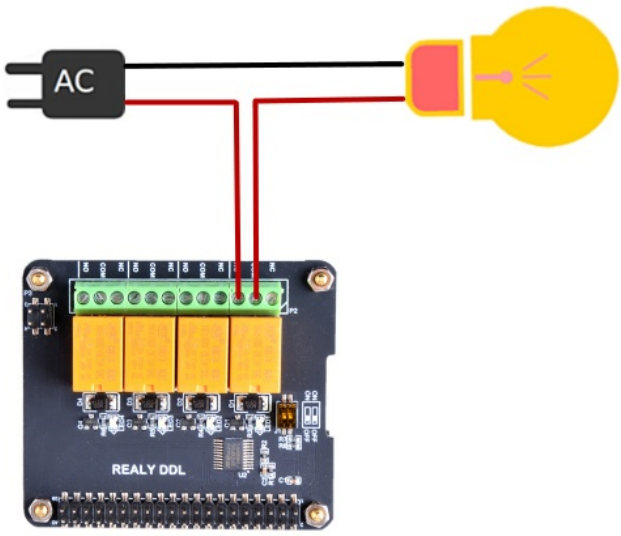
Register Map

Register Number	Function	Value
0x01	Relay 1	0(FULL OFF) - 1/255(ON)
0x02	Relay 2	0(FULL OFF) - 1/255(ON)
0x03	Relay 3	0(FULL OFF) - 1/255(ON)
0x04	Relay 4	0(FULL OFF) - 1/255(ON)

How to connect electrical device

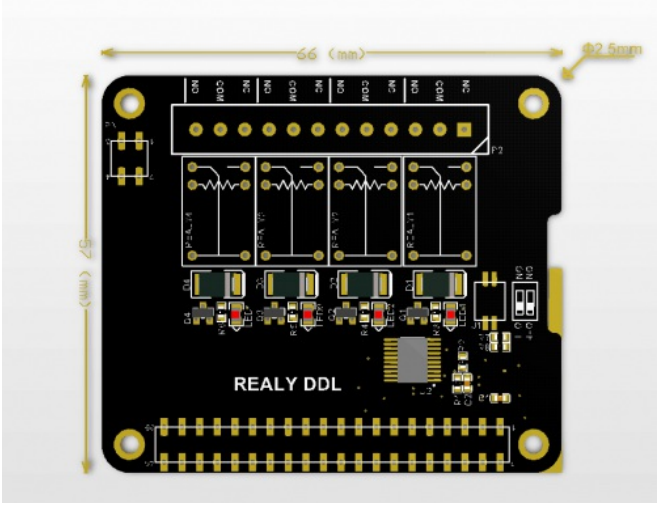
Please pay attension to this mark on the board:





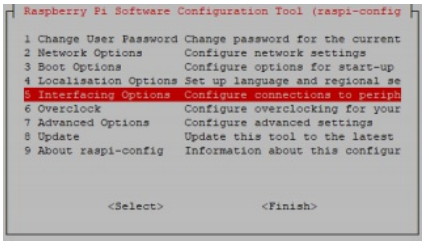
- NC = Normal Close
- COM = Common
- NO = Normal Open

Mechanical Drawing

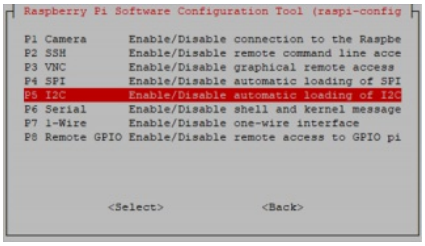


Configuring I2C(Raspberry Pi)

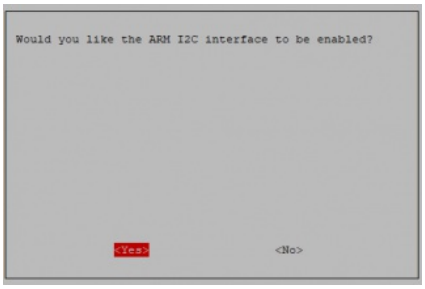
Run sudo raspi-config and follow the prompts to install i2c support for the ARM core and linux kernel
Go to **Interfacing Options**



then **I2C**



Enable!



Done!

Direct control without programming(Raspberry Pi)

- Turn on channel No.1 relay

`i2cset -y 1 0x10 0x01 0xFF`

- Turn off channel No.1 relay

`i2cset -y 1 0x10 0x01 0x00`

- Turn on channel No.2 relay

`i2cset -y 1 0x10 0x02 0xFF`

- Turn off channel No.2 relay

`i2cset -y 1 0x10 0x02 0x00`

- Turn on channel No.3 relay

`i2cset -y 1 0x10 0x03 0xFF`

- Turn off channel No.3 relay

`i2cset -y 1 0x10 0x03 0x00`

- Turn on channel No.4 relay

`i2cset -y 1 0x10 0x04 0xFF`

- Turn off channel No.4 relay

`i2cset -y 1 0x10 0x04 0x00`

Program in Language C(Raspberry Pi)

Create source code and name it "relay.c"

```
#include <stdio.h>
#include <wiringPi.h>
#include <wiringPiI2C.h>

#define DEVCIE_ADDR  0x10
#define RELAY1  0x01
#define RELAY2  0x02
#define RELAY3  0x03
#define RELAY4  0x04
#define ON      0xFF
#define OFF     0x00

int main(void){
    printf("Turn on Relays in C\n");
    int fd;
    int i = 0;
    fd = wiringPiI2CSetup(DEVICE_ADDR);
    for(;;){
      for (i=1; i<=4; i++){
         printf("turn on relay No.$d", i);
         wiringPiI2CWriteReg8(fd, i, ON);
         sleep(200);
         printf("turn off relay No.$d", i);
         wiringPiI2CWriteReg8(fd, i, OFF);
         sleep(200);
      }
    }
```

```
    return 0;
}
```

- Compile!

```
gcc relay.c -lwiringPi -o relay
```

- Exec It!

```
./relay
```

Program in Python(Raspberry Pi)

The following code is recommended to be executed using Python 3 and install the smbus library:

```
import time as t
import smbus

DEVICE_BUS = 1
DEVICE_ADDR = 0x10
bus = smbus.SMBus(DEVICE_BUS)

while True:
    try:
        for i in range(1,5):
            bus.write_byte_data(DEVICE_ADDR, i, 0xFF)
            t.sleep(1)
            bus.write_byte_data(DEVICE_ADDR, i, 0x00)
            t.sleep(1)
    except KeyboardInterrupt as e:
        print("Quit the Loop")
```

Program in Java(Raspberry Pi)

- Create a new file named: I2CRelay.java and paste following code:

```
import java.io.IOException;
import java.util.Arrays;

import com.pi4j.io.i2c.I2CBus;
import com.pi4j.io.i2c.I2CDevice;
import com.pi4j.io.i2c.I2CFactory;
import com.pi4j.io.i2c.I2CFactory.UnsupportedBusNumberException;
import com.pi4j.platform.PlatformAlreadyAssignedException;
import com.pi4j.util.Console;

public class I2CRelay {

    // relay's register address.
    public static final int DOCKER_PI_RELAY_ADDR = 0x10;

    // channel of relay.
    public static final byte DOCKER_PI_RELAY_1 = (byte)0x01;
    public static final byte DOCKER_PI_RELAY_2 = (byte)0x02;
    public static final byte DOCKER_PI_RELAY_3 = (byte)0x03;
    public static final byte DOCKER_PI_RELAY_4 = (byte)0x04;

    // Relay status
    public static final byte DOCKER_PI_RELAY_ON = (byte)0xFF;
    public static final byte DOCKER_PI_RELAY_OFF = (byte)0x00;

    public static void main(String[] args) throws InterruptedException, PlatformAlreadyAssignedException, IOException,
UnsupportedBusNumberException {

        final Console console = new Console();

        I2CBus i2c = I2CFactory.getInstance(I2CBus.BUS_1);
        I2CDevice device = i2c.getDevice(DOCKER_PI_RELAY_ADDR);

        console.println("Turn on Relay!");
        device.write(DOCKER_PI_RELAY_1, DOCKER_PI_RELAY_ON);

        Thread.sleep(500);

        console.println("Turn off Relay!");
        device.write(DOCKER_PI_RELAY_1, DOCKER_PI_RELAY_OFF);
    }
}
```

- Compile it and running:

```
javac I2CRelay.java -classpath .:classes:/opt/pi4j/lib/'*'
```

```
sudo java -classpath .:classes:/opt/pi4j/lib/'*' I2CRelay
```

Git Repository

You can also clone the repository from github:

```
sudo apt-get update
sudo apt-get -y install git
git clone https://github.com/geeekpi/dockerpi
cd dockerpi/
```

Running Differenet program with different way.