8-Channel Relay for Raspberry Pi Pico

Industrial 8-Channel Relay Module For Raspberry Pi Pico, Power Supply Isolation, Photocoupler Isolation

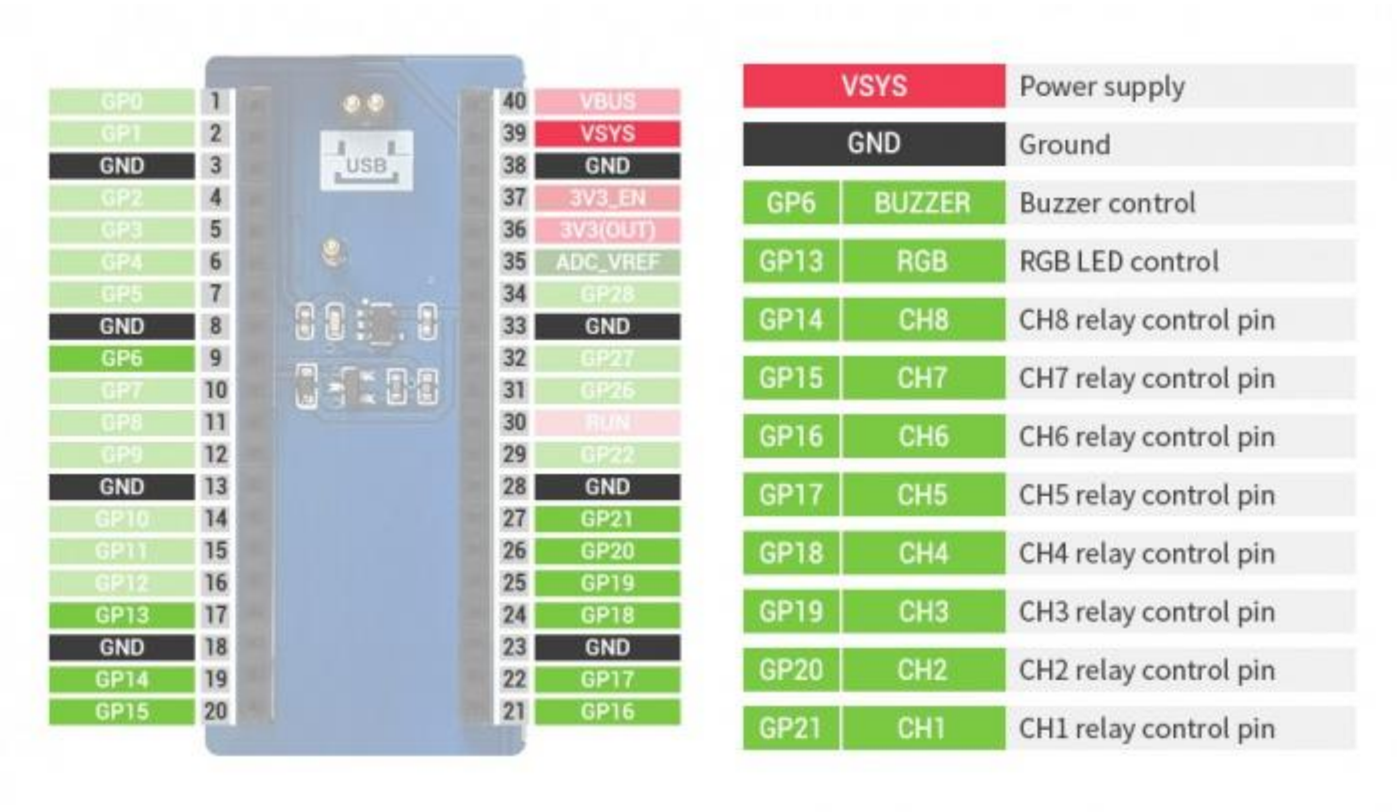
Features

- Onboard unibody power supply isolation, provides stable isolated voltage, needs no extra power supply for the isolated terminal
- Onboard photocoupler isolation, prevent interference from external high-voltage circuit connected to the relay
- High-quality relay, contact rating: 10A 250V AC or ≤10A 30V DC
- ABS protection enclosure with rail-mount support, easy to install, safe to use
- Breakout USB port and BOOT pin, make it easy to debug without disassembling the enclosure
- PWR indicator, RGB LED, and passive buzzer outside the enclosure

Specifications

- Operating voltage: 5V
- Communication Protocol: USB
- Communication interface: Micro USB
- Relay channel: 8 ch
- Contact form: 1NO 1NC

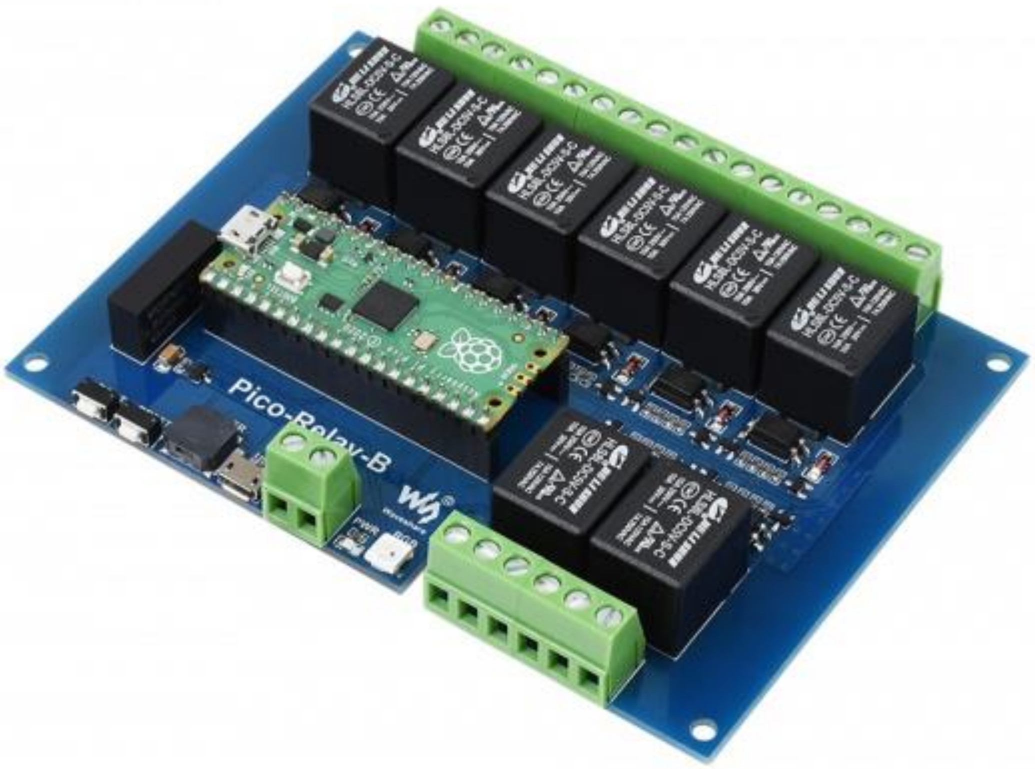
Pinout



VSYS		Power supply
GND		Ground
GP6	BUZZER	Buzzer control
GP13	RGB	RGB LED control
GP14	CH8	CH8 relay control pin
GP15	CH7	CH7 relay control pin
GP16	CH6	CH6 relay control pin
GP17	CH5	CH5 relay control pin
GP18	CH4	CH4 relay control pin
GP19	CH3	CH3 relay control pin
GP20	CH2	CH2 relay control pin
GP21	CH1	CH1 relay control pin

Hardware connection

Relay B	Pico	Description
VCC	VSYS	Power input
GND	GND	Ground
CH1	GP21	Control pin of Channel 1
CH2	GP20	Control pin of Channel 2
CH3	GP19	Control pin of Channel 3
CH4	GP18	Control pin of Channel 4
CH5	GP17	Control pin of Channel 5
CH6	GP16	Control pin of Channel 6
CH7	GP15	Control pin of Channel7
CH8	GP14	Control pin of Channel 8
RGB	GP13	Control pin of RGB LED
BUZZER	GP6	Control pin of buzzer



Setup environment

Please refer to Raspberry Pi's guide: https://www.raspberrypi.org/documentation/pico/getting-started/

Raspberry Pi

1. Open a terminal of Raspberry Pi
2. Download and unzip the demo codes to directory Pico C/C++ SDK

```
sudo apt-get install p7zip-full
cd ~
sudo wget  https://www.waveshare.net/w/upload/a/a1/Pico-Relay-B_code.7z

7z x Pico-Relay-B_code.7z -o./Pico-Relay-B_code
cd ~/Pico-Relay-B_code
cd c/build/p
```

C

1. Hold the BOOTSEL button of Pico, and connect the USB interface of Pico to Raspberry Pi then release the button.
2. Go into the build directory and add the SDK path.

```
cd ~/Pico-Relay-B_code/c/
cd build
```

```
export PICO_SDK_PATH=../../pico-sdk
```

3. Run the command cmake to generate the Makefile file

```
cmake ..
```

4. Run the command make to build and generate the executable file.

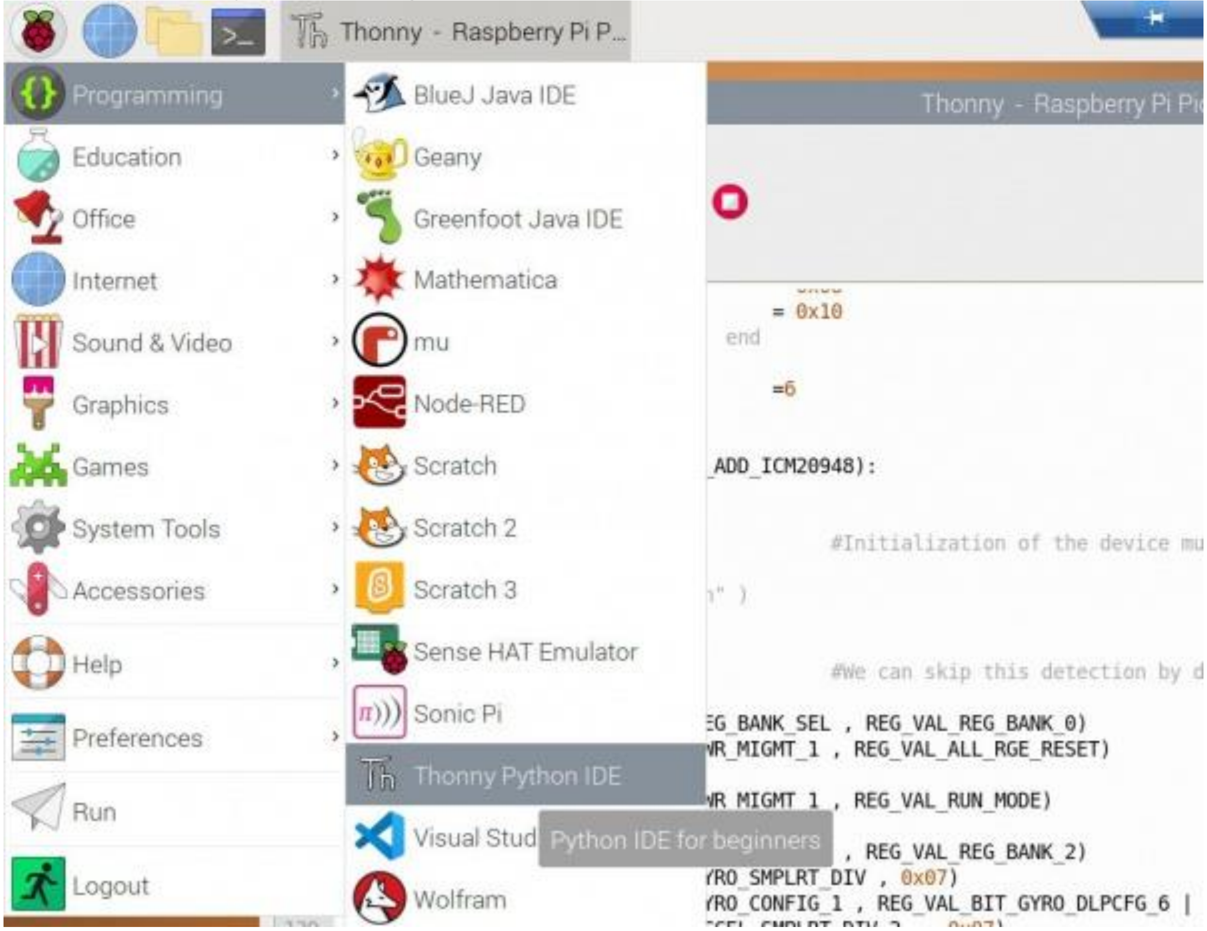
```
make -j9
```

4. after building, a uf2 file is generated. Press and hold the button of the Pico board, connect it to Raspberry Pi by USB cable and then release the button. Copy the main.uf2 file generated to the recognized movable disk (RPI-RP2).

```
cp main.uf2 /media/pi/RPI-RP2/
```

Python

1. Refer to Raspberry Pi's guides to setup Micropython firmware for Pico
2. Open the Thonny IDE, and drag the demo to IDE and run on Pico as below.



```
     = 0x10
end
     =6
_ADD_ICM20948):
            #Initialization of the device mu
h" )
            #We can skip this detection by d
EG_BANK_SEL , REG_VAL_REG_BANK_0)
WR_MIGMT_1 , REG_VAL_ALL_RGE_RESET)
WR_MIGMT_1 , REG_VAL_RUN_MODE)
           , REG_VAL_REG_BANK_2)
YRO_SMPLRT_DIV , 0x07)
YRO_CONFIG_1 , REG_VAL_BIT_GYRO_DLPCFG_6 |
```

3. Choose File -> Open -> Pico-Relay-B_test.py file and run it

Windows

- Download and unzip the demo to your Windows desktop, refer to Raspberry Pi's guides to set up the Windows software environment settings.
- Press and hold the BOOTSEL button of Pico, connect the USB of Pico to the PC with a MicroUSB cable. Import c or python program into Pico to make it run.

Document

- Schematic

Demo codes

- Demo codes

Software

- CKtszsss32 for Pico-Relay B

If you require technical support, please go to the Support