

A-Vision Solutions – Raspberry Pi 12-24V MOSFET interface expansion

General

This extension is equipped with 4 digital 12-24V 2A outputs and 12 bi-directional (12-24V) digital inputs/outputs (max 5mA).

ATTENTION! The total combined current of all outputs is up to 3A. Furthermore, the inputs/outputs are **not** galvanically isolated.

Furthermore, this extension also provides a 5V power supply for the Raspberry Pi itself.

All I/O are equipped with a screw terminal connector.

Preparation

This Raspberry Pi does not require any further preparations.

Used GPIO

The table below shows which I/O is connected to which GPIO ([BCM](#) numbering).

Interface	Raspberry Pi	
I/O 0	GPIO4	
I/O 1	GPIO5	
I/O 2	GPIO6	
I/O 3	GPIO16	
I/O 4	GPIO17	
I/O 5	GPIO18	
I/O 6	GPIO25	
I/O 7	GPIO26	
I/O 8	GPIO27	
I/O 9	GPIO22	
I/O 10	GPIO23	
I/O 11	GPIO24	
O 12	GPIO12	2A
O 13	GPIO13	2A
O 14	GPIO14	2A
O 15	GPIO15	2A

Installation

The Raspberry Pi 12-24V interface HAT is equipped with a 40p header, which means you can place this on top of your Raspberry Pi.

Drivers

No specific drivers are needed for this HAT, just like the standard GPIO pins.

PCB layout

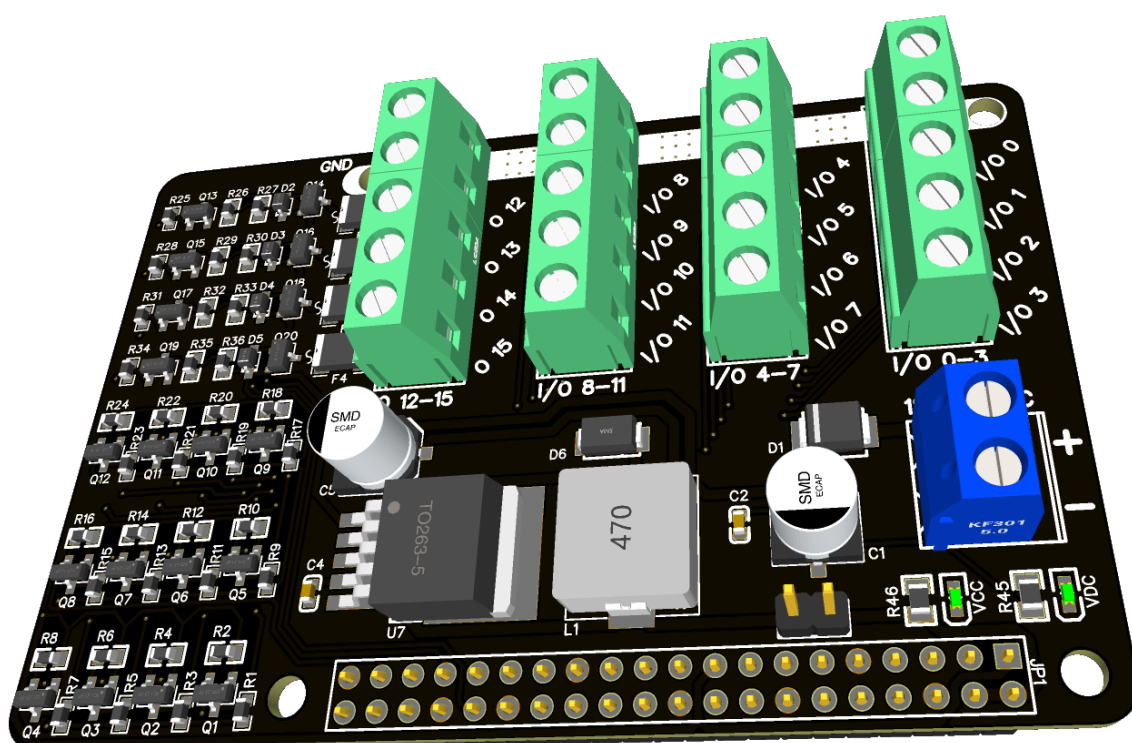
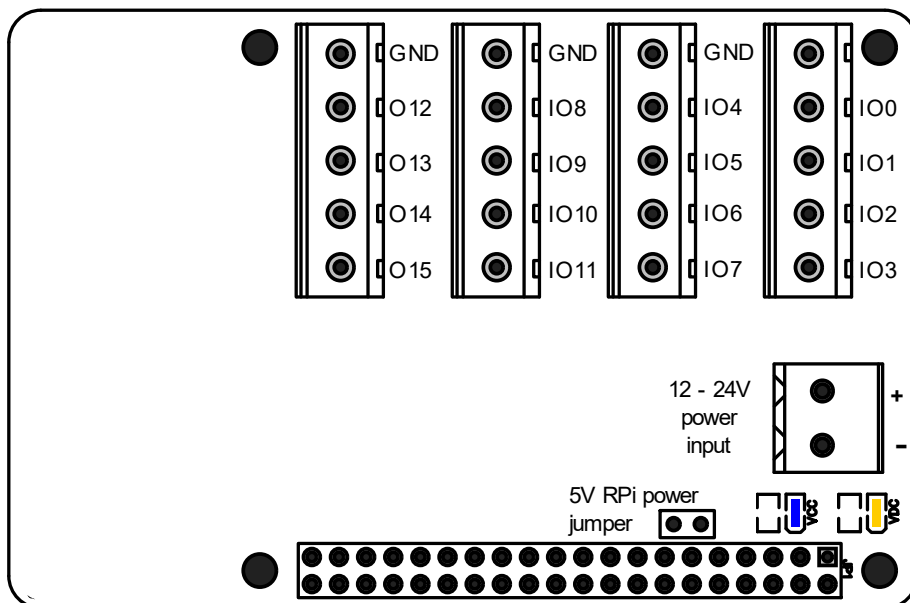
The layout of the PCB is as shown below.

When connecting the PCB, pay attention to the polarity of the 12-24V supply voltage.

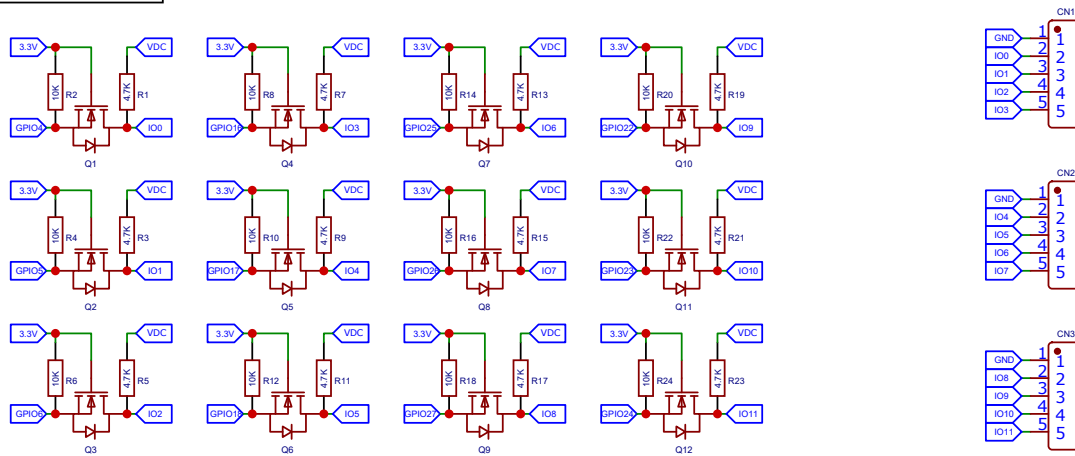
Furthermore, the inputs/outputs are connected between the ground (GND) and the output.

All inputs/outputs are equipped with a pull-up resistor.

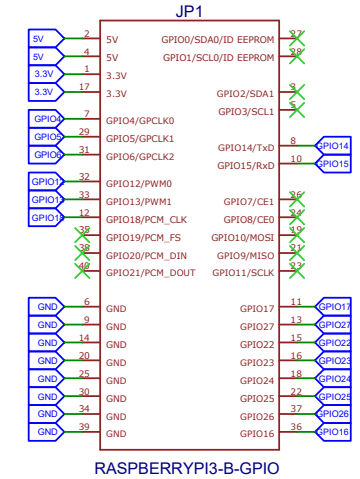
The 2A outputs are floating outputs.



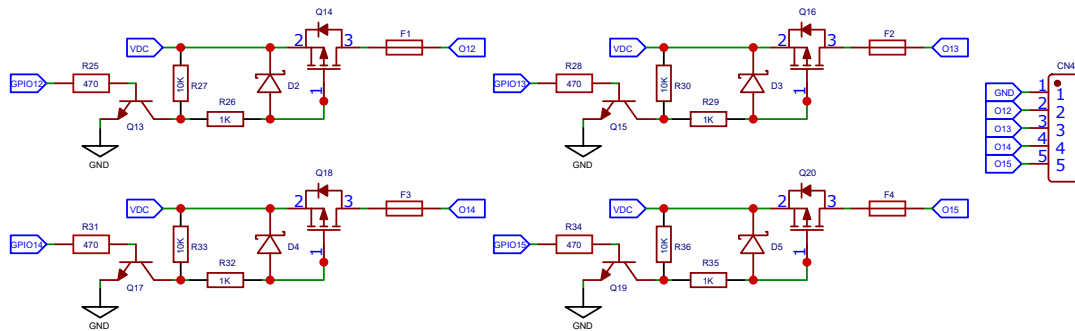
12 - 24V digital I/O



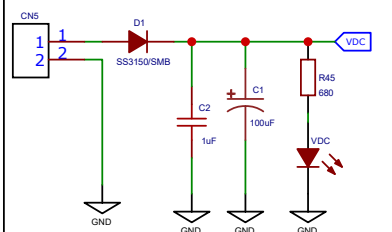
Raspberry Pi GPIO header



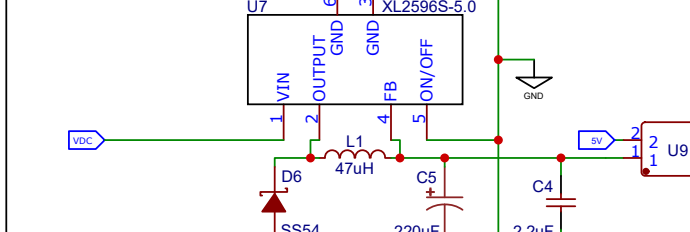
12 - 24V digital 2A outputs



12 - 24VDC power input



Power circuit (+5V output)



Notes

IO0 - IO11 : Max current 5mA

IO12 - IO15 : Max output current 2A
Total max combined current 3A (this is limited by D1)

TITLE: Raspberry Pi 12-24V MOSFET I/O		REV: 1.0
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