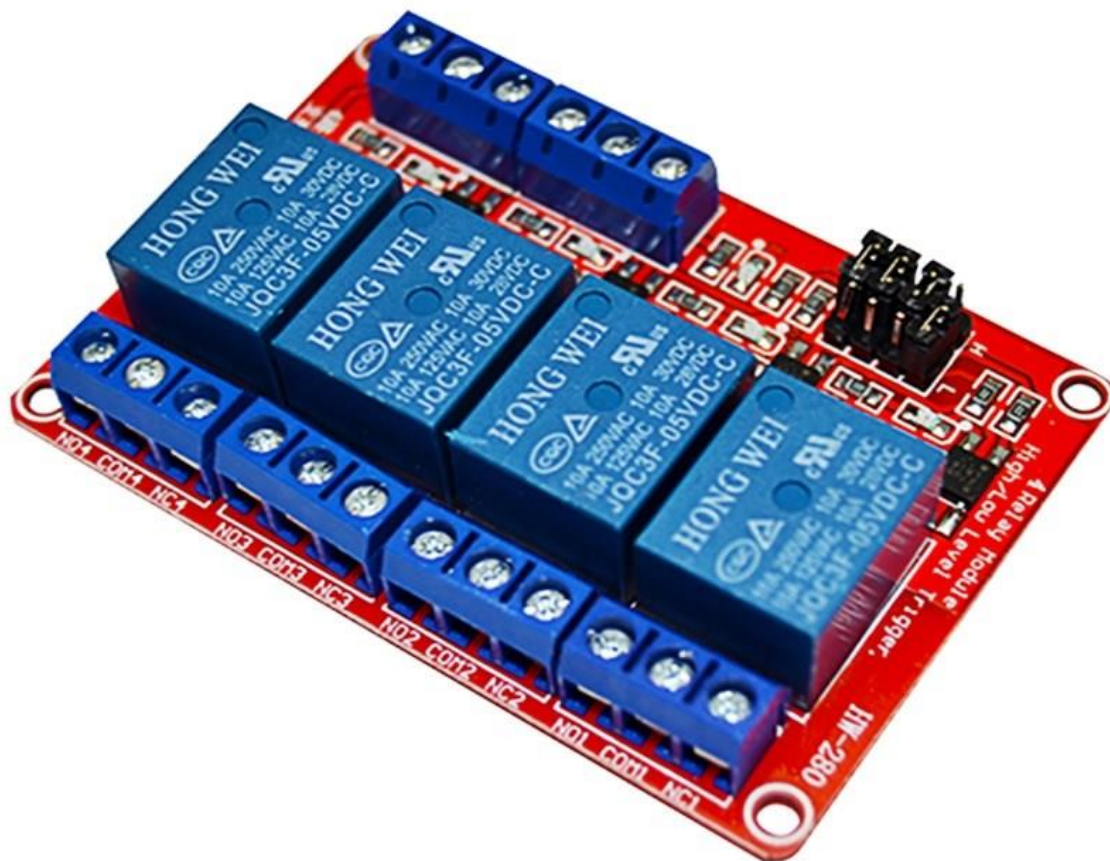




Four Channel Relay Module Wiring & Application Guide



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0.0 Safety Statement

All machinery, especially CNC or automated machinery, has inherent dangers and risks. It is the responsibility of the system designer to ensure that any systems built using any Viking Machinery Ltd. products are safe for use. Any technical information is provided as a reference only, and does not constitute a recommendation as to the fitness of use in any particular application.

Viking Machinery Ltd. strongly urges customers to seek expert advice when dealing with potentially dangerous electrical voltages and sources of mechanical energy. Information contained in this document does not constitute a substitute for expert advice.

Under no circumstances should this product ever be used in a safety critical application, or to switch high energy loads (known as “Mains” or low voltage).

1.0 Product Specifications

- Supply Voltage – 5VDC
- Control Voltage – 5VDC TTL
- Control Current – 4ma minimum
- Low Voltage Threshold – Below 1.5VDC
- High Voltage Threshold – 3-5VDC
- Operating Current – 190mA
- Number of channels – 4 or 8, depending on modal
- Approximate dimensions 4 channel – 73mm (W) x 55mm (D) x 19mm (H)
- Approximate dimensions 8 channel – 140mm (W) x 55mm (D) x 19mm (H)
- Maximum DC switching capability – 5A @ 24VDC

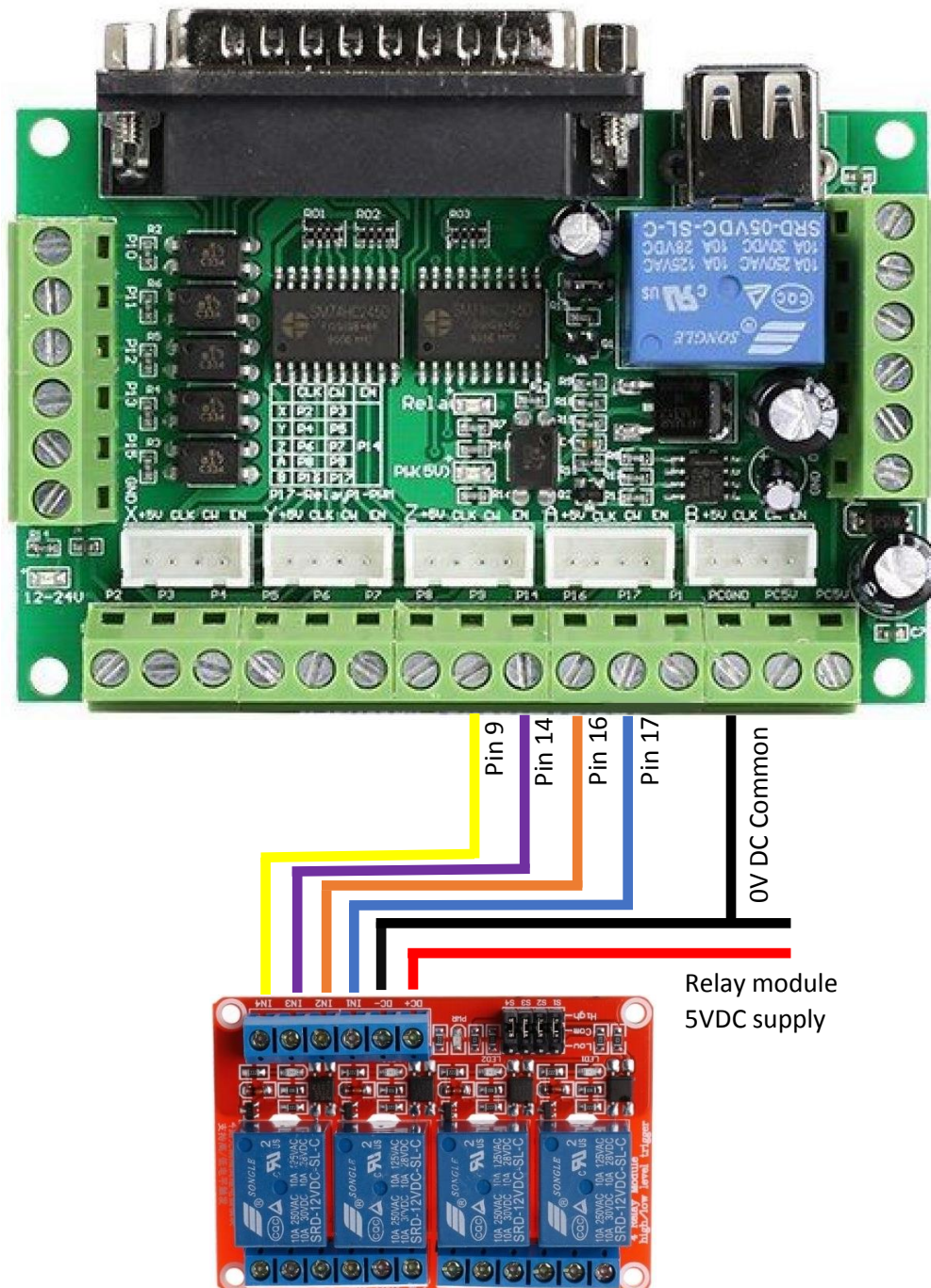
2.0 Scope of Document

This document is designed to give an overview of the wiring options for the four channel, opto-isolated relay module. Wiring examples are given for typical CNC and microcontroller examples. These are by no means exhaustive, but are a good starting point for beginners.

4.0 Wiring to a CNC B.O.B

The 5 axis CNC breakout board that Viking Machinery supplies can be wired as shown. This breakout board has the correct voltages across all input pins for the voltage that the board requires. If your BOB has inputs that are NOT at a logic voltage (5V typically) then you will need to protect the relay module inputs from the voltage coming from the BOB.

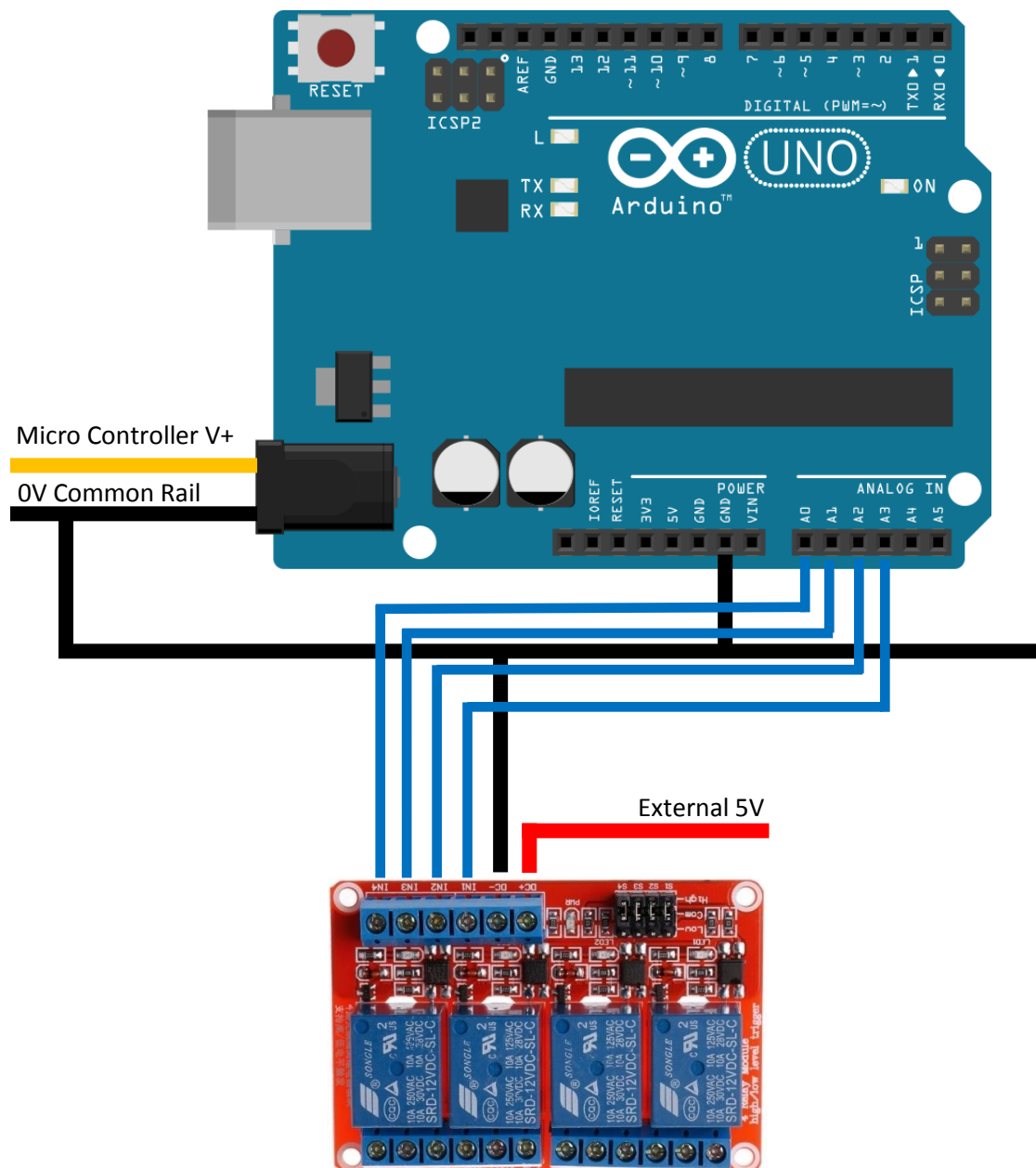
You can wire your relay module input pins to any of the BOB output pins you like. It is important to pull up your BOB output pins to avoid relay flutter (our BOB has these built in).



5.0 Wiring to a Microcontroller

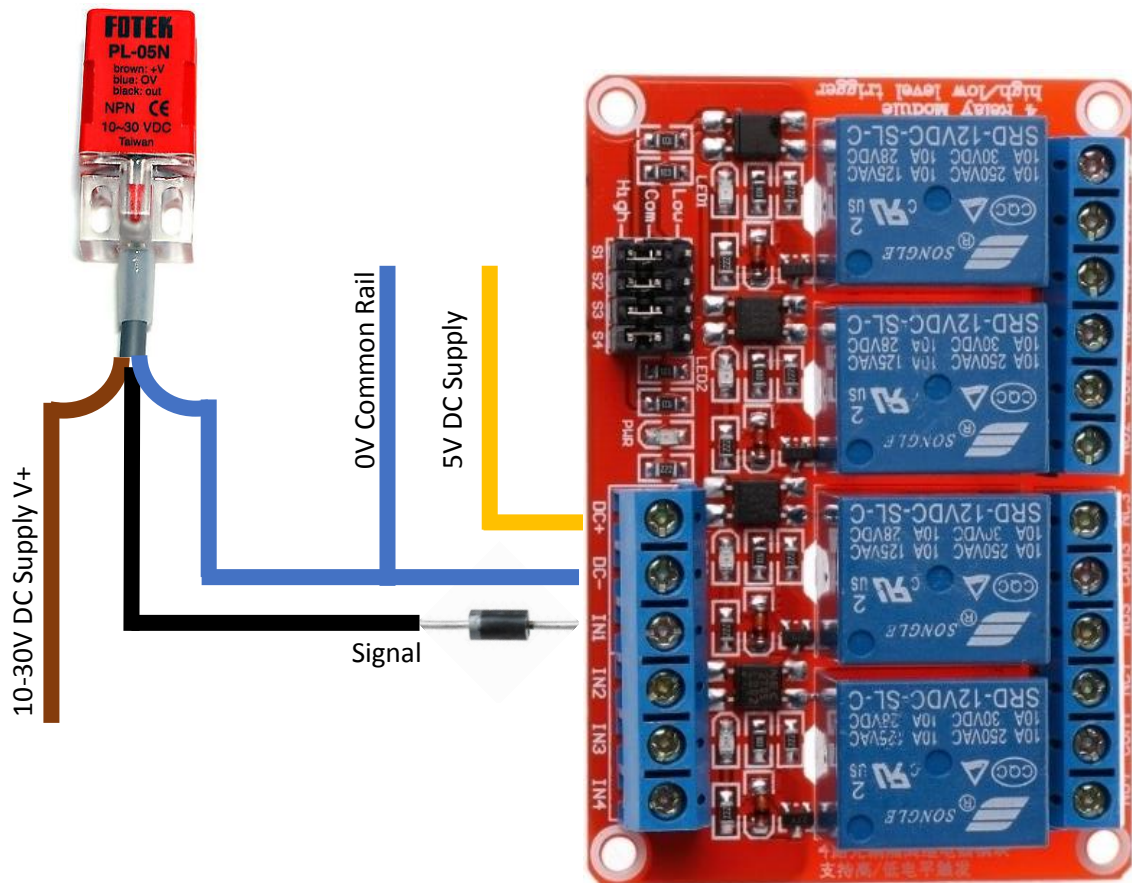
For this example, we will use the popular Arduino micro controller. The principle is the same for most 5V TTL input devices (Arduino, Raspberry Pi, etc.). To avoid relay 'flutter' it is important to set your microcontroller output pins as pulled-up/pulled down. Usually this can be accomplished via software, but if not then you will need to wire an external pull-up/down resistor.

In this example we have wired to the Arduino's analogue pins for a neat diagram. They would be used as digital outputs in the software.



6.0 Wiring to a Proximity Sensor

Sometimes you will want to switch a power load with a proximity sensor. The easiest way to do this is to use a relay module. The wiring diagram below shows the typical wiring for one channel on our four-channel relay module, switched via the FOTEK PL-05N switch that we supply. We use a small diode to protect the 5V logic circuit from the higher voltage on the sensor. This particular board has inbuilt pull-up/down resistors so you do not need to wire an external one. You will need to make sure that the active high/low jumpers are set appropriately for your sensor style.



7.0 Reference Links

Viking Machinery - Home Page

www.vikingmachinery.co.nz

Viking Machinery - TradeMe Store

<https://www.trademe.co.nz/Members/Listings.aspx?member=4906214>

Viking Machinery - Email

vikingmachinerynz@gmail.com

Viking Machinery - Social Media

https://www.instagram.com/james_viking_machinery/

<https://www.thingiverse.com/VikingNZ/about>

https://www.youtube.com/channel/UCgnl_7dUO9MeNOyI_jWO5QQ?view_as=subscriber

<https://grabcad.com/james.hussey-3>

<https://github.com/Viking-Machinery>