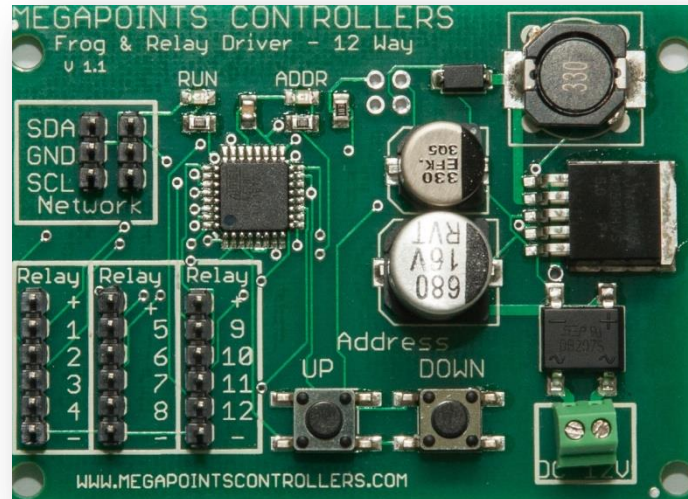


# MegaPoints Relay Driver

Drives up to 12 opto-isolated relays over a network.



## User guide

Revision 4      May 2021

© MegaPoints Controllers 2021

Email: [info@megapointscontrollers.com](mailto:info@megapointscontrollers.com)

## Contents

Requirements.....	3
Features .....	3
Connecting up .....	4
Relays .....	4
Network .....	4
Scenarios .....	4
Connect frogs to the relay .....	4
Frog polarity with Servo Controller.....	5
Three way points hook up .....	7
Direct drive from DCC module .....	8
Network via MultiPanel control.....	8
Contacting us .....	8

## Requirements

The relay driver board requires 12 volts from a regulated power supply. DO NOT connect to an old style transformer.

This board will drive 5 volt opto-isolated relays. Do not attach conventional relays to the output pins as you will damage the board.

## Features

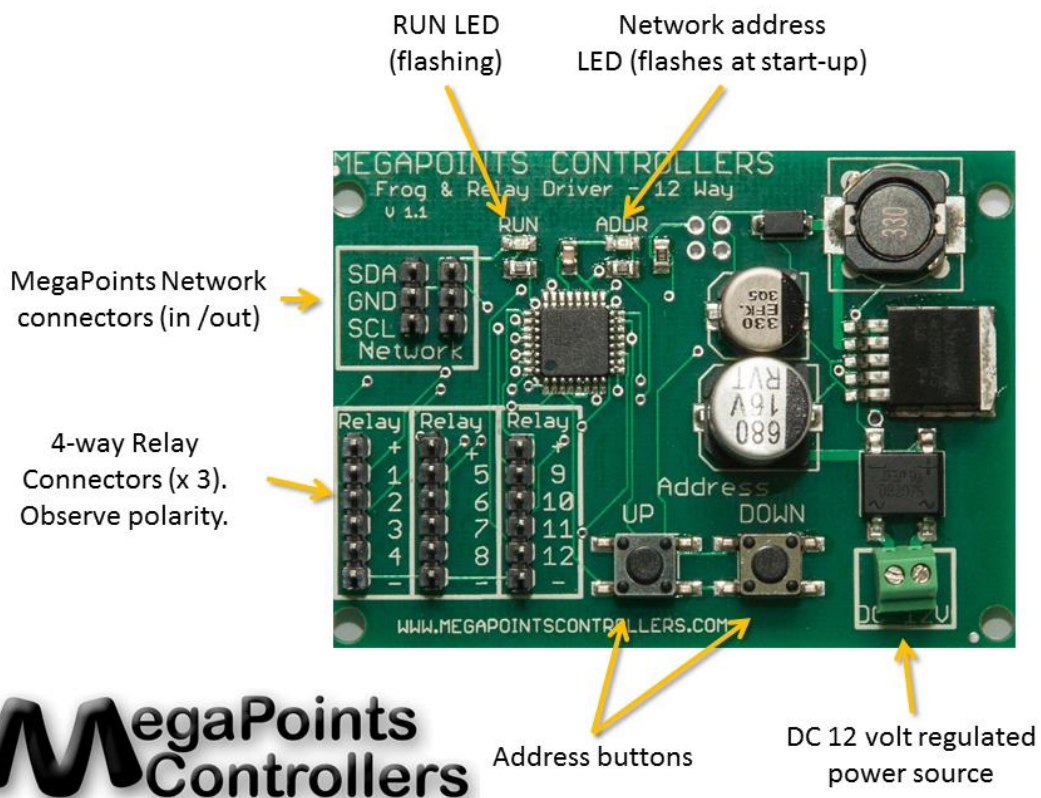
The relay driver board offers a flexible way to automatically switch frog polarity, control Tortoise type stall motors or provide networked relays around your layout. It can be controlled directly from a standalone MegaPoints Servo Controller, directly with DCC via our DCC module or from our MultiPanel and optionally Router.

See the connection diagram below. Connect the power using any polarity.

MegaPoints Controllers use static sensitive components that must be handled with care.

Avoid touching any components or the circuit printed on the bottom of the board.

Avoid placing the board on any metallic surfaces including track.



When power is applied you will observe the following boot up sequence:

- Each LED will alternately flash around 8 times.
- The ADDR LED will flash twice (indicating default network address #2).
- The RUN LED will flash approx. once per second to indicate the unit is running.

## Connecting up

Our web site has a video dedicated to the operation and connection of the relay driver board. We suggest taking a look at this for examples of how to connect devices.

## Relays

Connect each of the 4-way relay boards (sold separately) to the appropriate relay connector. Observe correct polarity here. I use the black connector to the bottom to indicate the ground. Each connector is wired as follows:

Pin #	Purpose
1	(top) Positive power
2	Relay #1 output
3	Relay #2 output
4	Relay #3 output
5	Relay #4 output
6	(bottom) Ground

## Network

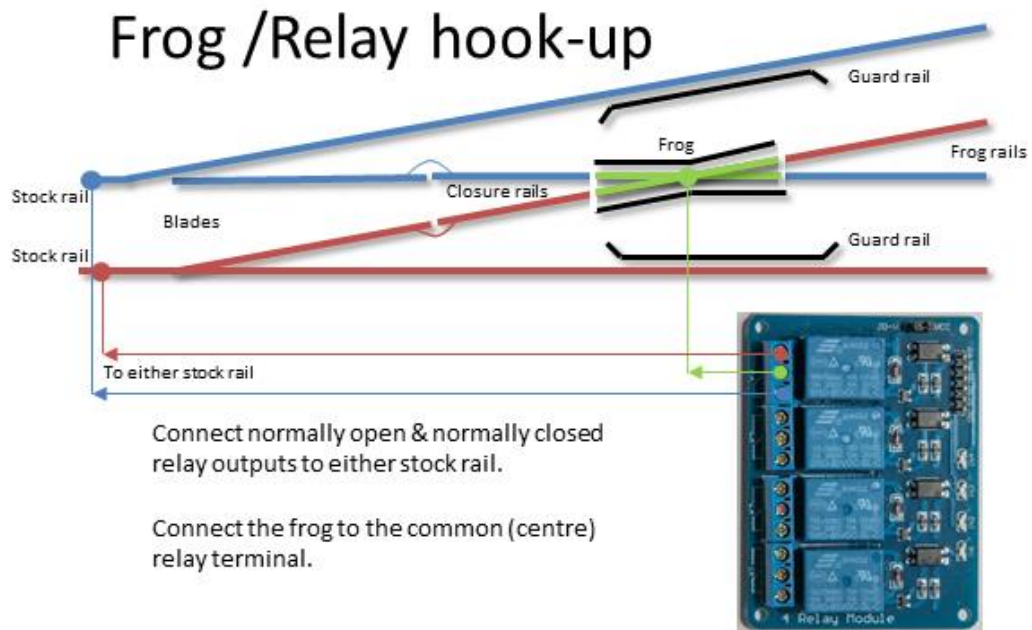
Connect the included network cable to your MegaPoints Network. Match up the SDA and SCL connections.

## Scenarios

Follow the scenario below appropriate to your needs.

### Connect frogs to the relay

If connecting relays to frogs, connect the centre (*common*) to each frog and the normally open and normally closing terminals to each stock rail. If you get this the wrong way around and a short circuit occurs when passing over the frog, swap the two outer connectors around (*normally open/normally closed*).



### Frog polarity with Servo Controller

If you are using the Relay Driver in conjunction with a Servo Controller as a frog polarity switch, connect the included network cable to the Servo Controller. Ensure SDA matches with SDA on both boards. The relay network address should match the network address of the accompanying Servo Controller board. This ensures they will operate in tandem.

Power up both boards.

The Servo Controller should be in master mode and operated via directly attached toggle switches.

When the relay driver boots, observe the network address. It should flash twice to indicate the default network address of 2. Press the UP or DOWN buttons to change the address to 2 if it does not match your Servo Controller.

After setting the address remove the "Prog Inh" jumper above the "UP" address button. This will lock the changes and prevent accidental changes if a button is knocked (*applies to version 1.3 boards and later*).

With a relay connected to ports 1-4 operate the first four toggle switches and observe the relays move in conjunction with the servo operation (see diagram below).

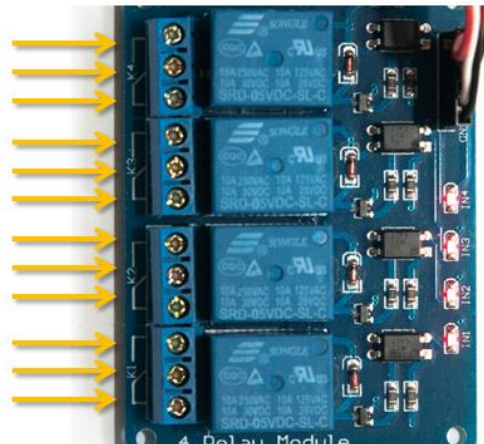
Each relay has three connectors.

Normally open  
**Relay #4** Common  
Normally closed

Normally open  
**Relay #3** Common  
Normally closed

Normally open  
**Relay #2** Common  
Normally closed

Normally open  
**Relay #1** Common  
Normally closed

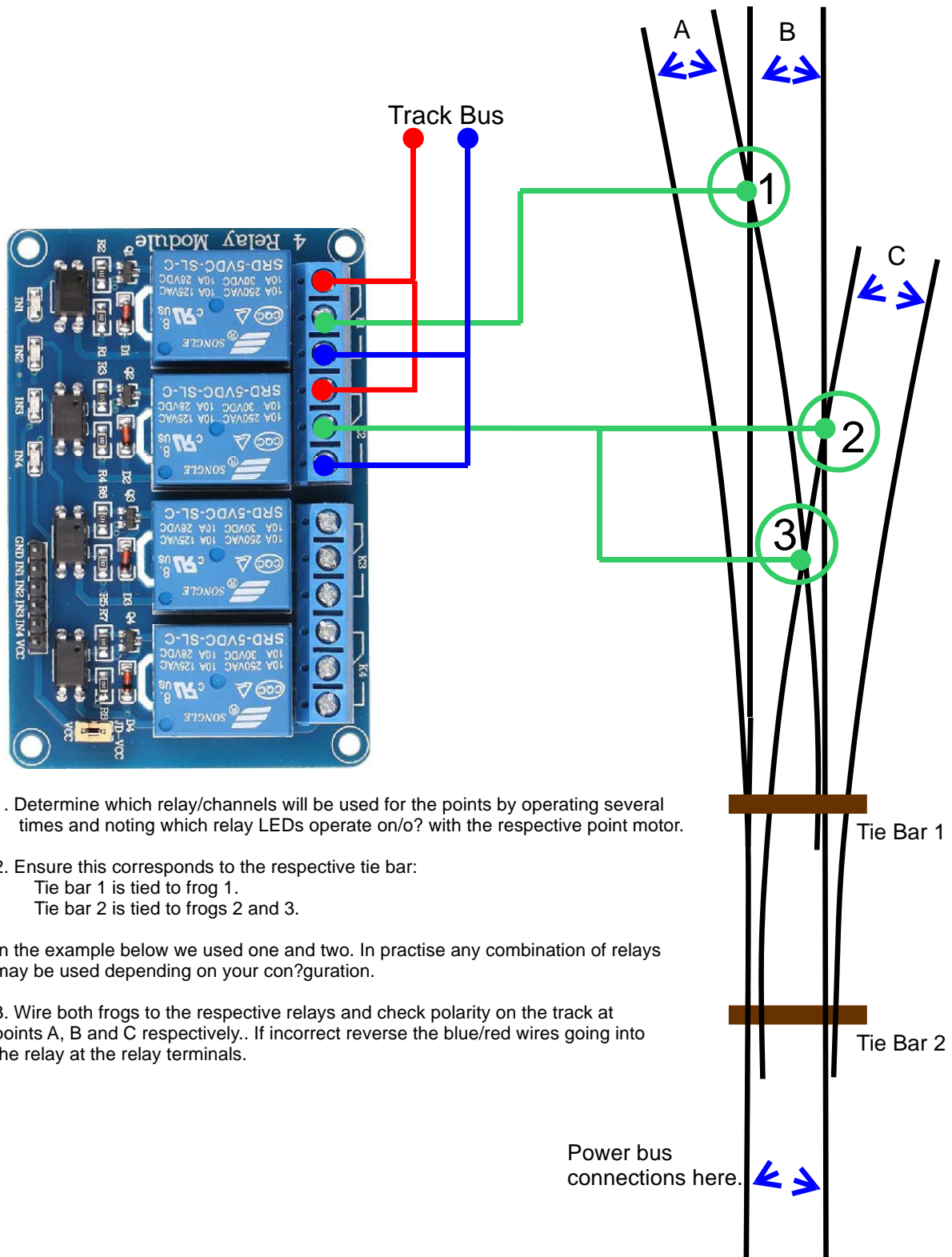


# MegaPoints Controllers

If connecting to frogs, connect the centre (Common) to each frog and the normally open and normally closing terminals to each stock rail. If you get this the wrong way around and a lock short circuits when passing over the frog simply swap the two outer connectors around.

### Three way points hook up

## Three way point frog wiring using relays.



1. Determine which relay/channels will be used for the points by operating several times and noting which relay LEDs operate on/o? with the respective point motor.

2. Ensure this corresponds to the respective tie bar:  
 Tie bar 1 is tied to frog 1.  
 Tie bar 2 is tied to frogs 2 and 3.

In the example below we used one and two. In practise any combination of relays may be used depending on your con?guration.

3. Wire both frogs to the respective relays and check polarity on the track at points A, B and C respectively.. If incorrect reverse the blue/red wires going into the relay at the relay terminals.

## Direct drive from DCC module

You can use the relay driver board in conjunction with the DCC module to drop relays onto your DCC bus. Follow this procedure:

- Connect the relay board to the DCC module with the included network cable (match SDA to SDA).
- When powered up verify the LEFT LED is flashing on the DCC module (simple mode).
- The DCC module has a default address of 1. See the DCC manual for details on how to change this.
- When the relay driver boots, observe the network address. It should flash twice to indicate the default network address of 2. Press the UP or DOWN buttons to change the address to 2 if it does not match.

You can now send an ON or OFF accessory command from your DCC handset. You will observe the corresponding relay click and LED toggle.

## Network via MultiPanel control

Connect the relay board to the MegaPoints network.

Set the corresponding network address as required.

You can use the same address as a Servo Controller if switching frog polarity, or use a unique address for independent operation.

## Contacting us

Web: [www.megapointscontrollers.com](http://www.megapointscontrollers.com)

Email: [info@megapointscontrollers.com](mailto:info@megapointscontrollers.com)

Phone: 07846 409320

All parts ©MegaPoints Controllers 2016

If you have any product improvement suggestions we'd be very pleased to hear from you.

*NOTE: We operate on a policy of continuous improvement. Colours, specifications and even the placement of components may vary from time to time. Documentation will continue to be updated to reflect changes or answer frequent customer questions.*