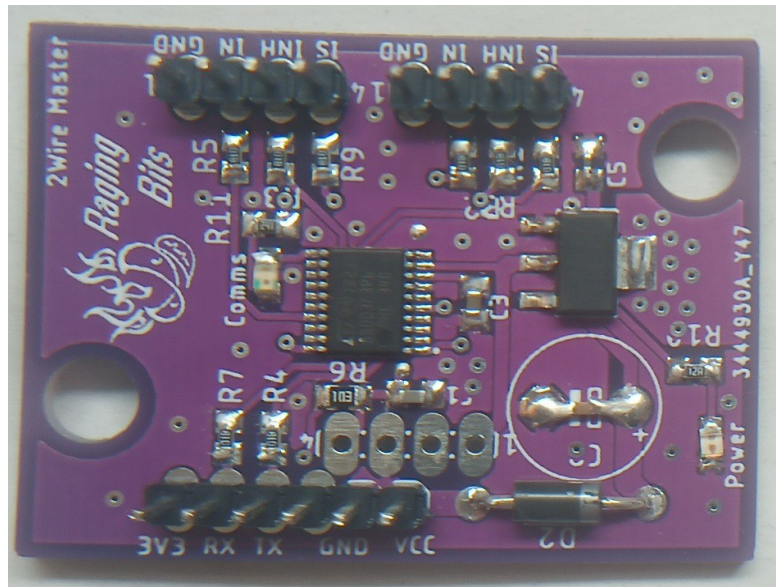# Raging Bits *ByWire* Master

Top level specs

Full ByWire control for 2 half bridges

Serial TTL

5V MIN to 14.5V MAX

Table of Contents

Notes and warnings

==!!!ATTENTION!!!==

Never power any other device that does ==NOT== support ByWire at the used voltage in the same power line!!!
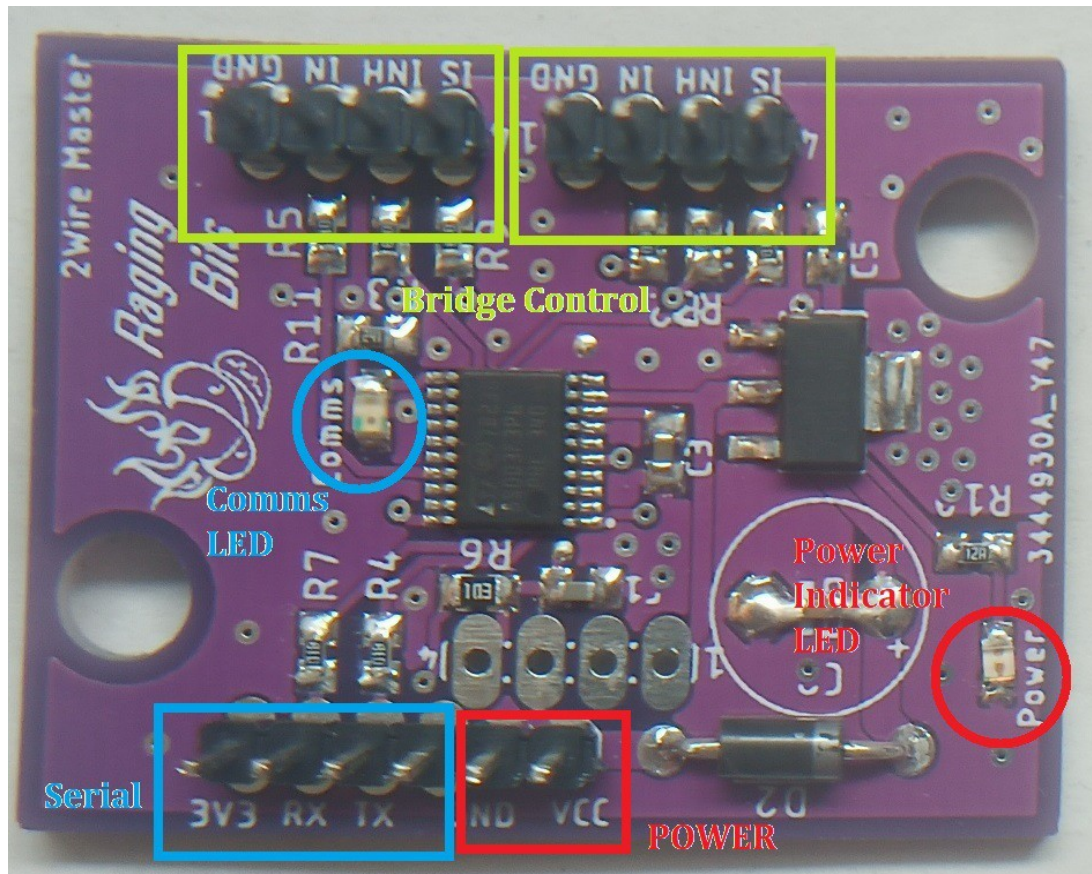**Never power more than 12V as absolute maximum!!!**
Never attempt to tamper with other connectors or connection point that are not represented in this document!!!

Any of these actions will most likely partially or totally destroy the unit.

Device interface

PIN MAP

Power Connector

This connector provides the power for the unit.

Serial Connector

This connector allows the unit control via Serial TTL port.
UART speed at 9600 8 bits no parity (1start 1 stop bits).

Pinout:
 1 – 3.3V (It can only supply up to 50mA)
 2 – RX
 3 – TX
 4 – GND

Half Bridge Connectors

These connectors will interface the halfbridges of the power lines of the powering cable.

1 – GND
2 – IN – Bridge Enable
3 – INH – Analog bridge feedback
4 – IS – Bridge polarity output control signal

INTERFACE AND COMMANDS

LEDs

Comms LED will blink RED with every command sent.

Power LED lights green when the device is powered.

Commands

ByWire is a single direction protocol, where data only flows from central device to peripheral devices.

Each command is composed by Address and Data.

Depending on the device in the other end of the address, the data may be different.

Address 255 is broadcast address.

Functional work

Several commands can be sent toguether, but the device will only send the commands after the serial port input silences for 10ms or more, meanwhile acumullating all the commands to be sent.

At this point the device will send a 'B' indicating that is busy sending all the commands received in the serial port. Any serial port input will be ignored while the device is busy.

After all the commands are sent and the device is ready for more, the device will send a 'R' indicating that is ready for more commands.

The maximum amount of input bytes supported per collection of commands is 128.

Ex. case: The central device powers up and the user will send a text string to a peripheral device with address 0x12 which for this example is a simple serial port output peripheral hanguing from the **ByWire** power wires.

Power on...

Serial from central device :< 'R'

Serial to central device :> 0x12 'H' 'e' 'l' 'l' 'o' ' ' 'W' 'o' 'r' 'l' 'd'

Serial silence...

Serial from central device:< 'B'

Command being sent...

Serial from central device:< 'R'

Ex. case: The central device powers up and the user will send commands to a peripheral device with address 0x02, wich is a 10W **ByWire** light, to turn on at 100% and set it to purple with RGB data 0 80 255.

Power on...

Serial from central device :< 'R'

                |---First command---| |-------- Second command---------|

Serial to central device :> 0x02 0x02 0x00 0x64 0x02 0x04 0x01 0x00 0x50 0xFF

Serial silence...

Serial from central device:< 'B'

Command being sent...

Serial from central device:< 'R'

PICTURES OF INTEREST