

Electronics Optoisolator Breadboard Layout

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November 16, 2017

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- Many sensors and other device use 5V logic.

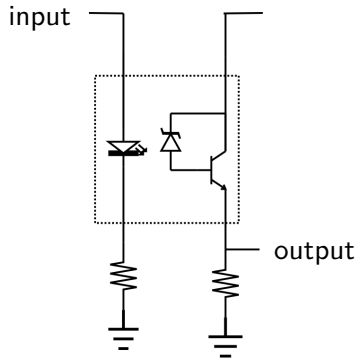
Optoisolator breadboard layout

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- Many sensors and other device use 5V logic.
- To mix the two, it is essential to protect the Raspberry Pi from potentially harmful voltages.

Optoisolator breadboard layout

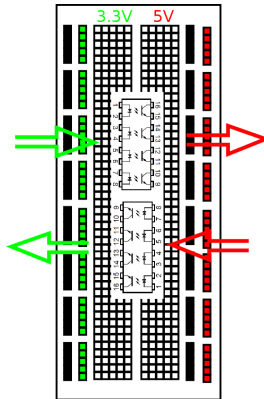
- The Raspberry Pi uses 3.3V logic.
- Many sensors and other device use 5V logic.
- To mix the two, it is essential to protect the Raspberry Pi from potentially harmful voltages.
- The best way to do this is with *optical isolation*.

Optoisolator circuit



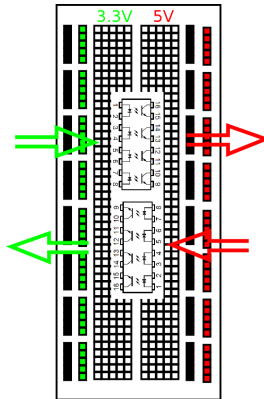
This is the configuration shown in the following figures.

Suggested layout



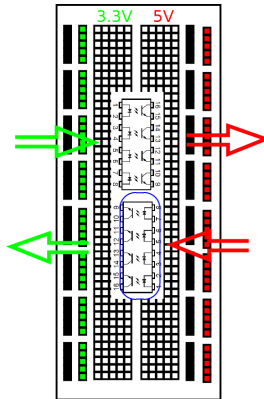
This has the Raspberry Pi on the left and the 5V “world” on the right.

Suggested layout



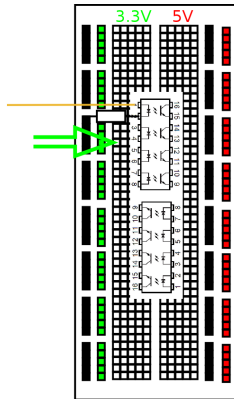
The left breadboard will have a **3.3V** supply, while the right will have a **5V** supply.

Suggested layout



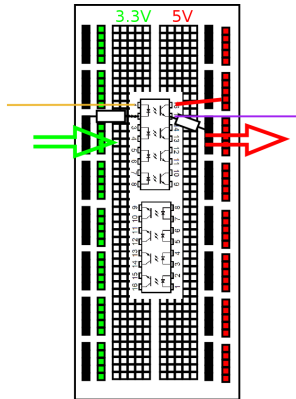
Note the bottom chip is turned around to have inputs on the right and outputs on the left.

Suggested layout



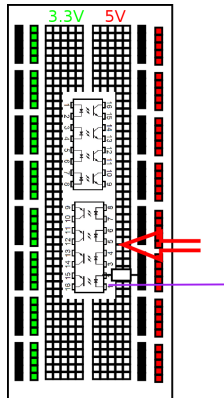
Signals *from* the Raspberry Pi will be 3.3V.

Suggested layout



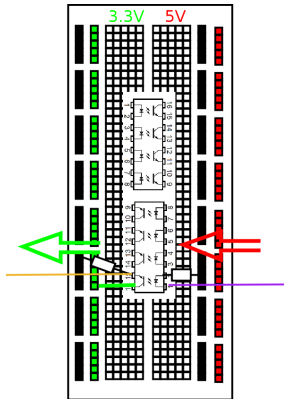
Signals *to* the outside will be **5V**.

Suggested layout



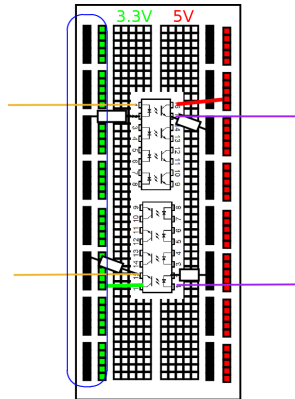
Signals *from* the outside will be 5V.

Suggested layout



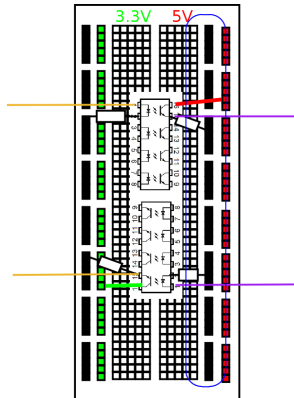
Signals to the Raspberry Pi will be **3.3V**.

Suggested layout



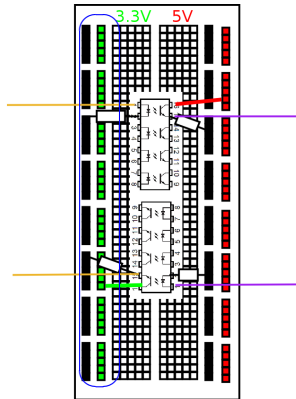
Ground for the Raspberry Pi side can be on the left.

Suggested layout



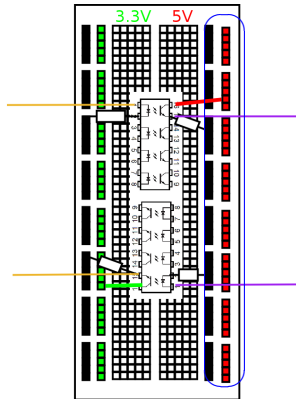
Ground for the other side can be on the right.

Suggested layout



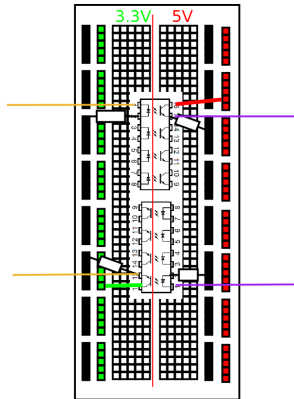
Power for the Raspberry Pi side can be on the left.

Suggested layout



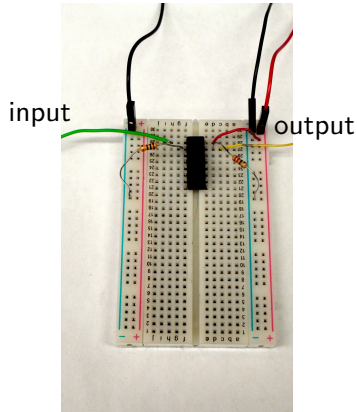
Power for the other side can be on the right.

Suggested layout



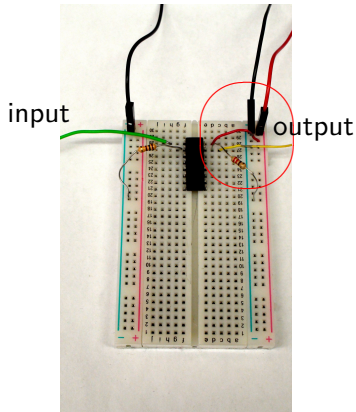
If no wires cross the centre of the breadboard, there will be no chance of damaging the Raspberry Pi.

Clean Wiring



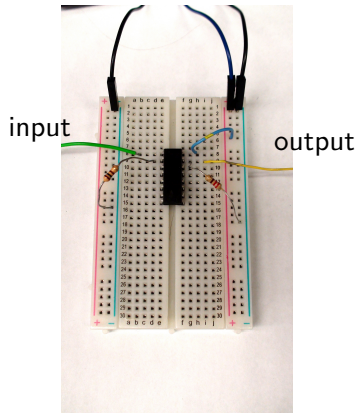
From Pi to 5V world

Clean Wiring



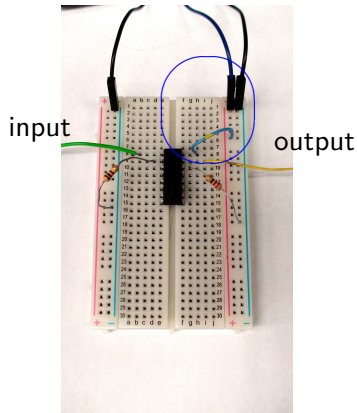
The only supply is 5V on the “world” side.

Clean Wiring



From 5V world to Pi

Clean Wiring



The only supply is 3.3V on the Pi side.