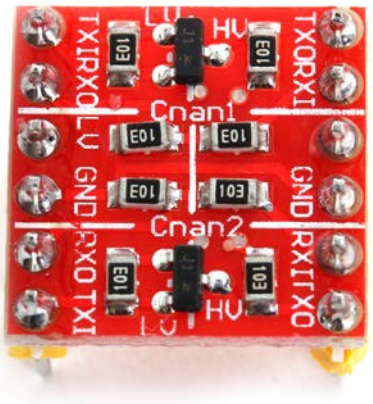
3.3V / 5V TTL Logic Level Converter Module(ST1167)

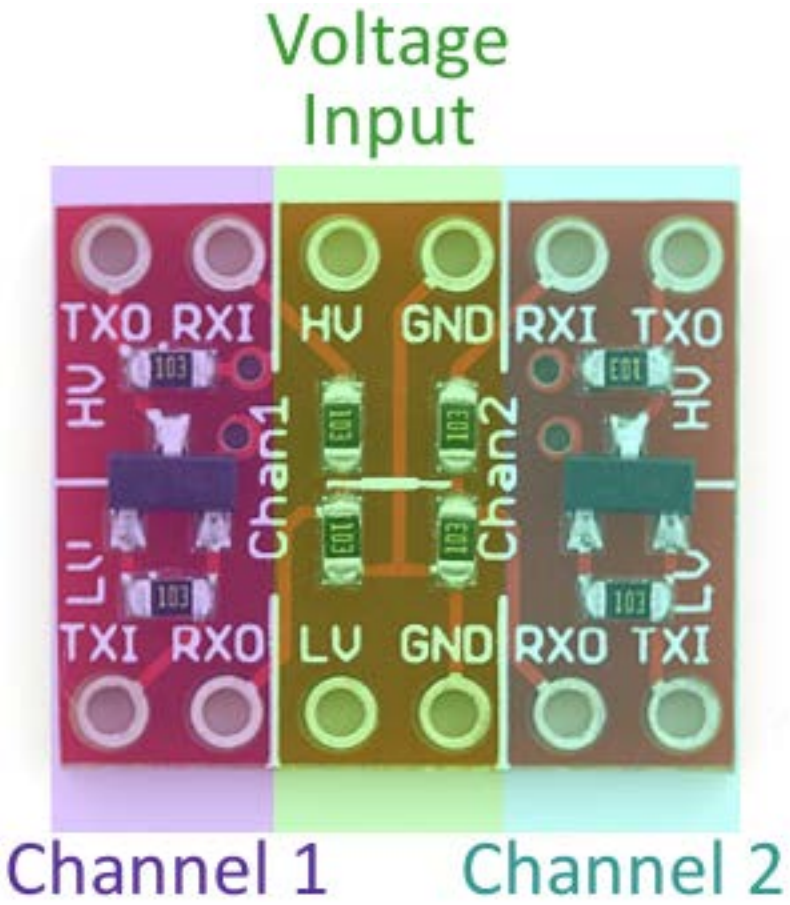


Specification

- Two channels of high-voltage logic and low-voltage logic bi-directional conversion
- Two channels of high-voltage logic conventer to a low-voltage logic One-way conversion
- Compatible with breadboard module ,it can be directly inserted in the breadboard
- Size:1.5cm X 1.5cm
- Instructions for use: [For example:High voltage of 5V ,low voltage of 3.3V]
- HV connect to 5V power supply
- LV connect to 3.3V power supply
- GND connect to negative.
- RXI input 5v TTL, the RXO output 3.3v TTL
- TXI input and output 3.3V TTL, TXO inputs and outputs 5V TTL, TXI and TXO bi-directional conversion

Board Overview

The LLC is designed to be very easy to use. Silkscreen indicators help identify which pins do what. There are twelve pins total – six on each side. We can divide them into groups of three to more clearly define how they relate:



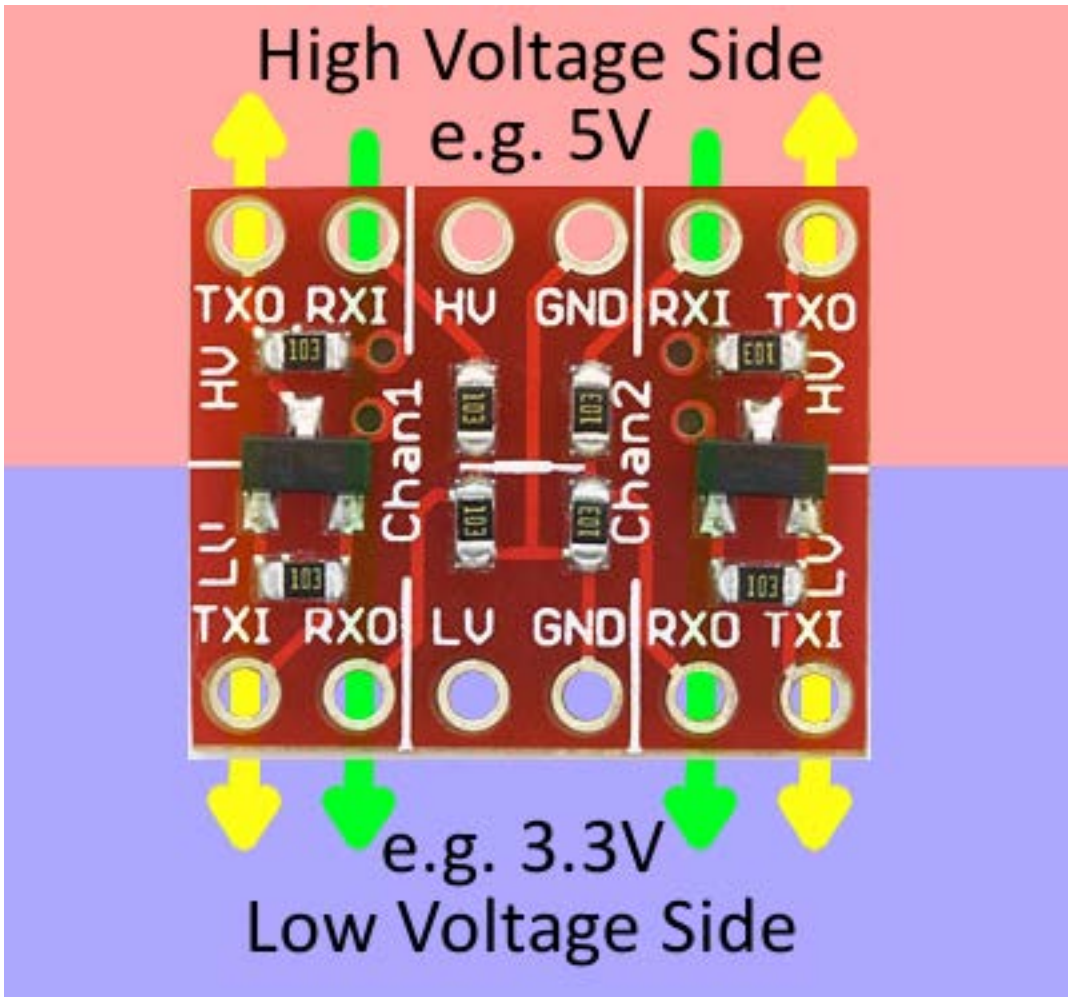
The middle section of the board is where the reference supply for your high and low voltages should go. Supplying voltage to all four of these pins is **required**. If you're converting 3.3V to 5V (and vice-versa), for example, you'd run 5V into the "HV" side, and 3.3V into the "LV" input. Make sure each is grounded too!

The outer pins correspond to inputs and outputs for channels 1 and 2. Each channel has one voltage divider and one MOSFET shifter.

The labels on these pins – "RXI", "RXO", "TXI", and "TXO" – help describe what each pins does:

- **RXI** – High voltage **input** to voltage divider from high-voltage device. Signal will be shifted down and sent to low-voltage device on "RXO" pin.

- **RXO** – Low voltage **output** from voltage divider to low-voltage device. Signal is shifted down from “RXI” input.
- **TXI** – Low voltage **input/output** of MOSFET circuit. This pin interacts with “TXO” on the high side. Bi-directional, but this is the only shifter that will shift **from low to high**.
- **TXO** – High voltage **input/output** of MOSFET circuit. This pin interacts with “TXI” on the low side. Bi-directional, but this is the only shifter that will shift **from low to high**.



To send a signal from the low-voltage side to the high-voltage side (e.g. from 3.3V to 5V), the signal must be input at “TXI”. It’ll pass through the converter and come out as a higher voltage on the “TXO” (transmit output) pin.

On the other hand, a signal that strictly travels from high to low-voltage should pass from “RXI” to “RXO”.

Sending a signal from the high side to the low side is less restricted. We can use either the bi-directional channel or the voltage divider, but we may need to leave the bi-directional channel for converting from low-to-high.

Reference

https://learn.sparkfun.com/tutorials/retired---using-the-logic-level-converter