I2C Simulator

Unprintable Content

This page contains material that is only viewable online. https://labjack.com/support/.

Referenceable: I2C FAQ/Common Questions

I2C FAQ/Common Questions

Q: Why are no I2C ACK bits being received?
- Double check to make sure pull-up resistors are installed.
- Double check to make sure the correct I/O lines are being used. It is preferred to do I2C communication on EIO/CIO/MIO lines instead of the FIO lines due to the larger series resistance (ESD protection) implemented on the FIO lines.
- Use an oscilloscope to verify the SDA and SCL lines are square waves and not weird arch signals (see "I2C_SPEED_THROTTLE" or use EIO/CIO/MIO lines).
- Use a logic analyzer (some oscilloscopes have this functionality) to verify the correct slave address is being used. EEVBlog post on budget friendly options. It is common to not take into account 7-bit vs 8-bit slave addresses or properly understand how LabJack handles the defined slave address and the read/write bits defined by the I2C protocol to perform read and write requests.
- Make sure your sensor is being properly powered. The VS lines of LJ devices are ~5V and the I/O lines are 3.3V. Sometimes this is a problem. Consider buying a LJTick-LVDigitalIIO or powering the sensor with an I/O line or DAC channel.

Q: I've tried everything, still no I2C Ack Bits...
- Try slowing down the I2C bus using the "I2C_SPEED_THROTTLE" register/option. Reasons:
  - Not all I2C sensors can communicate at the full speed of the LabJack. Check the I2C sensor datasheet.
  - The digital signals could be getting corrupted due to the series resistors of the I/O lines on the LabJack.
- Consider finding a way to verify that your sensor is still functioning correctly using an Arduino and that it isn't broken.
Q: Why is my device not being found by the I2C.search function?
- See I2C ACK bits.