adafruit
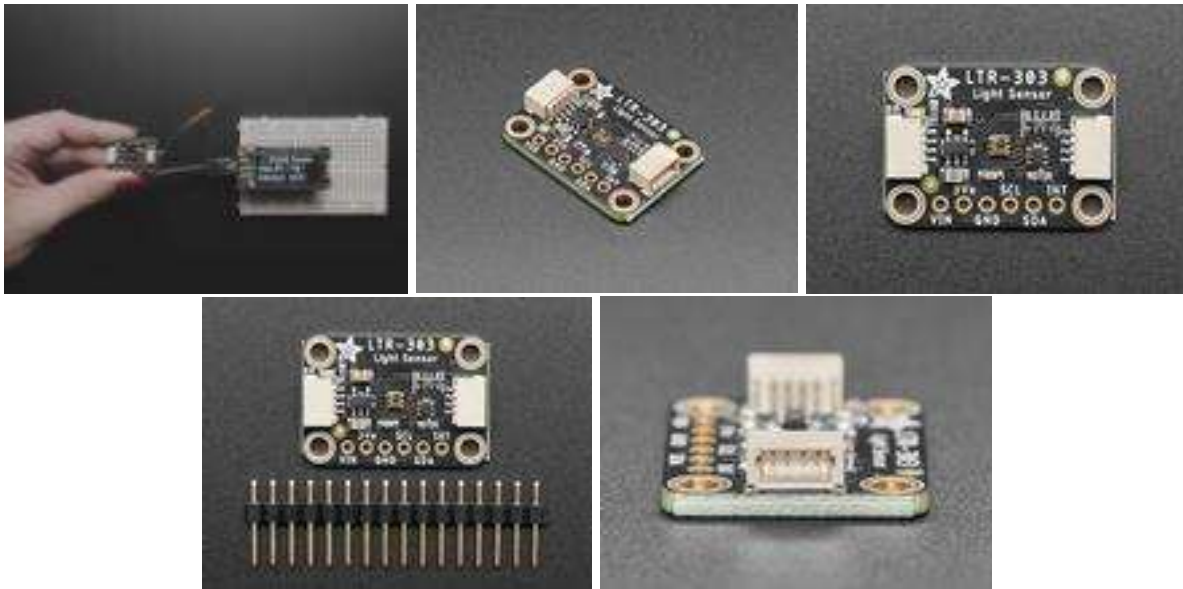
LTR–303 Light Sensor – STEMMA QT / Qwiic

Product ID: 5610

Description

The Adafruit LTR–303 Light Sensor a simple and popular low–cost I2C digital light sensor that is easy to integrate into your project for reliable and wide–ranging light measurements.

Perfect for a wide range of project use cases: Should we turn up the brightness of our display or dim it to save power? Which direction should your robot move to stay in an area with the most light? Is it day or night? All of these questions can be answered with the help of the LTR–303. It's a small, capable and inexpensive light sensor that you can include in your next project to add the detection and measurement of light.

The LTR–303 provides 16–bit light measurements for both Infrared and Visible+IR spectrums. Subtract one from the other to get human–visible light. Thanks to configurable gain and integration time settings, the LTR–303 can measure from 0 to 65K+ lux.

The 303 (compared to the '329) also comes with alert and IRQ capabilities so you can have a pin trigger when the reading goes above or below threshold values. Great if you want ultra–

low power usage. If you *don't* need a version with interrupt output, check out the Adafruit LTR-329 which is basically the same sensor but without the IRQ capability.

Sensors tend to come in small packages and the LTR-303 is no different. Not much bigger than a grain of rice, this handy light-sensing friend needs some help to be used by folks experimenting and without the desire or tools to work with surface mount parts. We're here to help!

Packaged on a PCB in our STEMMA QT form factor, the LTR-303 comes integrated with a voltage regulator and level shifting circuitry to allow it to be used with 3.3V devices, like a Feather M4 or Raspberry Pi, or 5V devices, such as an Arduino. Rather than working with the itty bitty little contacts on the sensor, the PCB it's packaged on breaks out all the pins to a standard 0.1" / 2.54mm pitch header.

To make things easier and a bit more flexible, we've also included SparkFun Qwiic compatible STEMMA QT connectors for the I2C bus so you don't even need to solder! Just plug in a compatible cable and attach it to your MCU of choice, and you're ready to load up some software and measure some light. QT Cable is not included, but we have a variety in the shop.

To help with the software part we've written a library that you can use with CircuitPython / Python devices as well as computers like the Raspberry Pi by installing it using PyPi. You can even use it on a full-sized computer by using an MCP2221 breakout. Arduino users can use our LTR-303 Arduino library with lots of examples to get started fast.

YouTube link: https://www.youtube.com/watch?t=661&v=fg33TGDi43U&feature=emb_imp_woyt

Technical Details

LTR-303ALS-01 Specifications:
- I2C interface with up to Fast Mode @ 400kbit/s with address 0x29 (cannot be changed)
- Ultra-small ChipLED package
- Built-in temperature compensation circuit
- Low active power consumption with standby mode
- Operating temperature range from -30 C to +70 C

- RoHS and Halogen free compliant
- Light Sensor close to human eye spectral response
- Immunity to IR / UV Light Source
- Automatically rejects 50 / 60 Hz lighting flicker
- 6 dynamic ranges from 0.01 lux to 64k lux
- 16-bit effective resolution
- Interrupt output capability

Product Dimensions: 25.3mm x 17.7mm x 4.8mm / 1.0" x 0.7" x 0.2"
Product Weight: 1.9g / 0.1oz

LTR-303 Datasheet