Pololu Carrier with Sharp GP2Y0D810Z0F Digital Distance Sensor 10cm
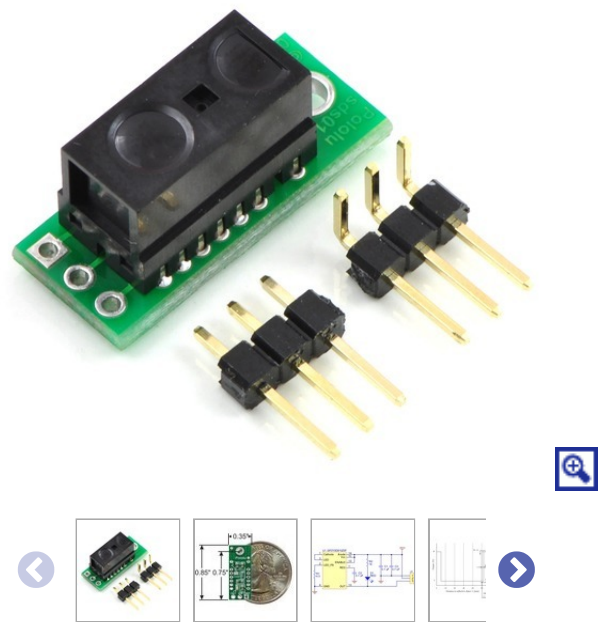
Pololu item #: 1134   **763** in stock

Price break	Unit price (US$)
1	5.95
10	5.35
50	4.75

Quantity: 1   Add to cart

backorders allowed   Add to wish list

This small digital distance sensor detects objects between **2 cm and 10 cm** (0.8″ and 4″) away. With its quick response time, small size, and low current draw, this sensor is a good choice for non-contact object detection, and our compact carrier PCB makes it easy to integrate into your project.

Select options: 10 cm ▼   Go ▶

.

Description   **Specs (9)**   **Pictures (8)**   **Resources (3)**   **FAQs (1)**   **On the blog (5)**

Overview

These sensors are a great way to quickly detect the presence of nearby objects. It consists of a Sharp **GP2Y0D805**, **GP2Y0D810**, or **GP2Y0D815** sensor module installed on our tiny **carrier board for these sensors**, which includes all of the external components required to make them work. The available versions offer three different sensing ranges:

- **Carrier with GP2Y0D805Z0F**: 0.5 cm to 5 cm

- **Carrier with GP2Y0D810Z0F**: 2 cm to 10 cm

- **Carrier with GP2Y0D815Z0F**: 0.5 cm to 15 cm

There are a few millimeters of hysteresis around the maximum range threshold and no hysteresis at the minimum range threshold. Note that these sensors will only tell you *if* there is an object within the detection range along their narrow lines of sight; they will not tell you how far away the object is.

With detection distances up to 150 mm and a typical sampling rate of almost 400 Hz, these sensors provides an attractive alternative to shorter-range **LED-phototransistor reflectance pairs** and longer-range but slower sensors such as the **Sharp GP2Y0A41SK0F analog distance sensor**. The output, Vo, is driven low when the sensor detects an object; otherwise, the output is high.

Some example applications include:

- break-beam sensor or photogate alternative
- non-contact bumper or obstacle detector
- a counter or timer of objects as they pass by

Using the sensor

The Pololu carrier board lets you interface with the GP2Y0D805, GP2Y0D810, or GP2Y0D815 sensor using a three-pin 0.1″ connector, such as the included 3×1 **straight male header strip** and 3×1 **right-angle male header strip**. You can connect to these pins with a **servo cable** or with a custom-made cable using **pre-crimped wires** and a **3×1 crimp connector housing**.

The square pad is ground, the middle pad is VIN (2.7 – 6.2 V), and the remaining pad is the sensor output, OUT. Depending on your power source, you might notice an increase in performance by placing a large (>10 uF) capacitor between power and ground somewhere near the sensor.
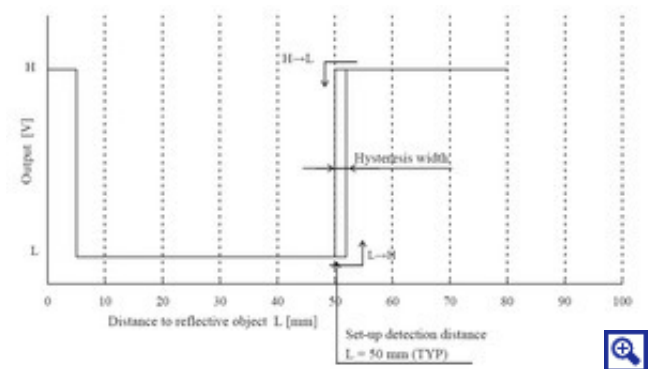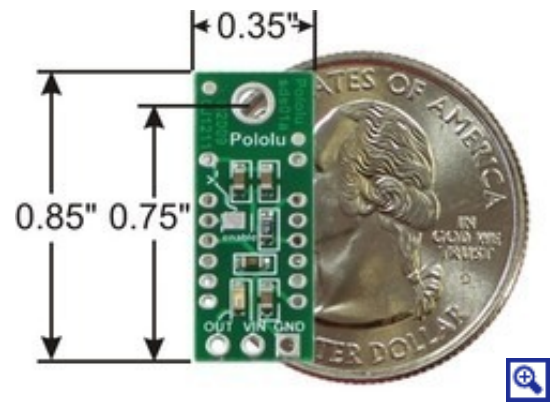
A red LED on the back of the PCB lights when the output is low, indicating that the sensor is detecting something. With the LED in the circuit, the low output signal will be around 1 V. If so desired, you can disable this LED by cutting the trace between it and the OUT pin where it is marked on the silkscreen or by desoldering the LED, in which case the low voltage will be below 0.6 V.

Sharp GP2Y0D805Z0F digital distance sensor 5 cm measuring characteristics.

Sharp GP2Y0D810Z0F digital distance sensor 10 cm measuring characteristics.

The GP2Y0D805, GP2Y0D810, and GP2Y0D815 have an optional enable input that can be used to put the sensor into low-power mode. The Pololu carrier board connects this input to Vcc so that the sensor is always enabled, but you can solder a wire to the pad labeled "enable" on the back of the PCB if you want control over this input. Note that you will need to cut the trace that connects the enable line to Vcc on the PCB if you want to be able to disable the sensor. This trace is marked on the silkscreen, and there is a caret that indicates where we suggest you make the cut.
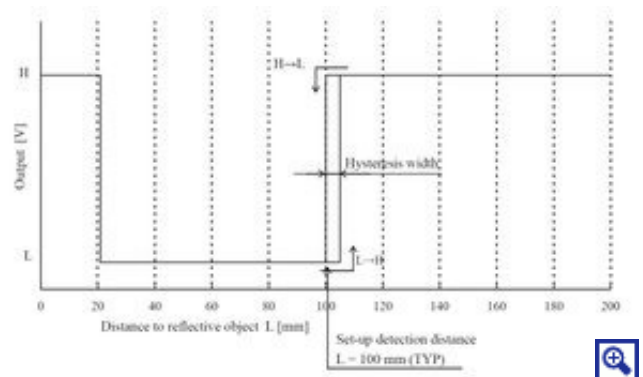
The carrier board has a 0.086″ mounting hole for a #2 or M2 **screw**. You can make the module more compact by cutting or grinding off this portion of the PCB if you do not need the mounting hole.

Feature summary

- Operating voltage: 2.7 V to 6.2 V
- Average current consumption: 5 mA (typical)

- Distance measuring range
  - GP2Y0D805Z0F: 0.5 cm to 5 cm (0.2″ to 2″)
  - GP2Y0D810Z0F: 2 cm to 10 cm (0.8″ to 4″)
  - GP2Y0D815Z0F: 0.5 cm to 5 cm (0.2″ to 6″)

- Output type: digital signal (low when detecting an object, high otherwise)

- Steady state update period: 2.56 ms typical (3.77 ms max)

- Enable pad can optionally be used to disable the emitter and save power (this feature requires you to cut a trace first)

- Size without header pins: 21.6 mm × 8.9 mm × 10.4 mm (0.85″ × 0.35″ × 0.41″)

- Weight without header pins: 1.5 g (0.05 oz)
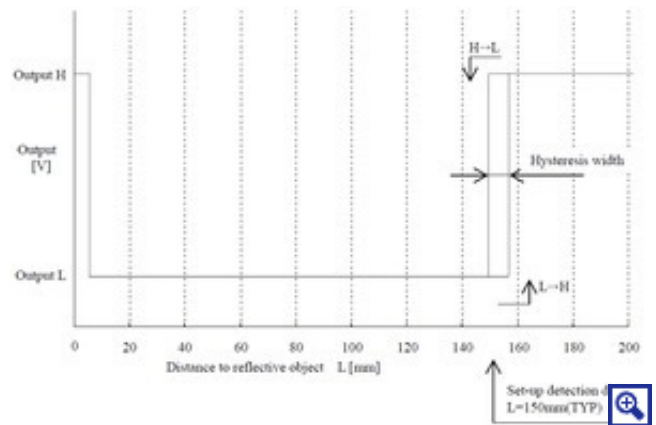
Sharp GP2Y0D815Z0F digital distance sensor 15 cm measuring characteristics.
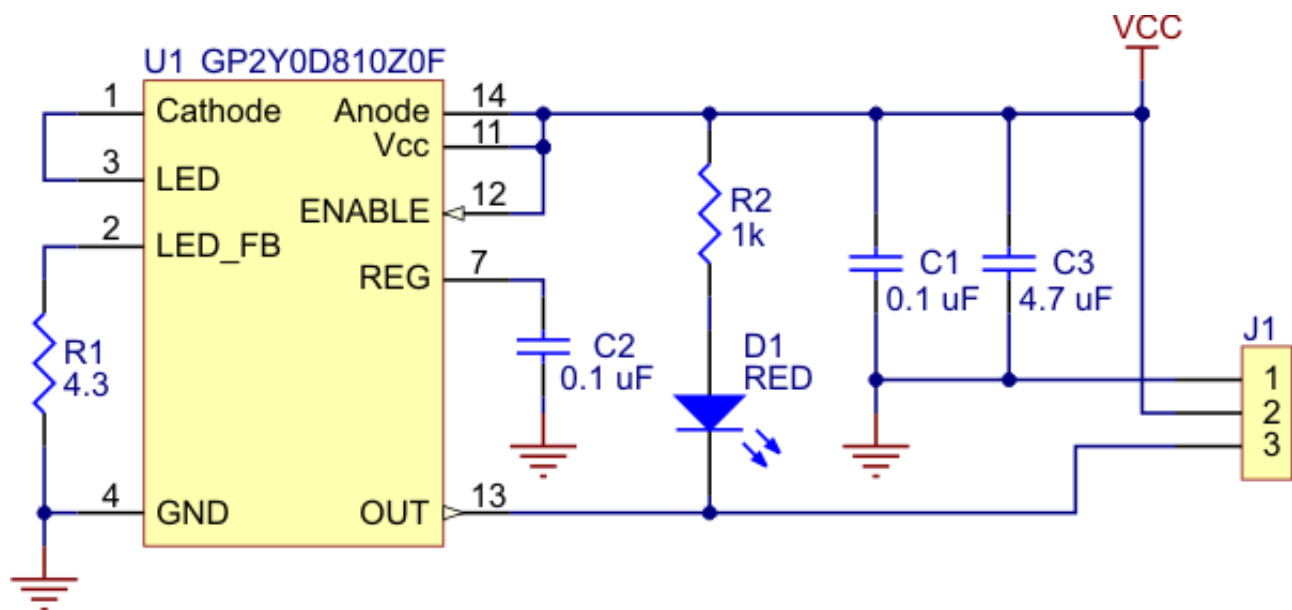
Pololu carrier for Sharp GP2Y0D805Z0F, GP2Y0D810Z0F, and GP2Y0D815Z0F sensors schematic diagram.

Alternative Sharp distance sensors

We carry several analog Sharp distance sensors as well: the **Sharp GP2Y0A51SK0F 2 – 15 cm**, the **Sharp GP2Y0A41SK0F 4 – 30 cm**, the **Sharp GP2Y0A21YK0F 10 – 80 cm**, and the **Sharp GP2Y0A02YK0F 20 – 150 cm**. These analog distance sensors have longer minimum detection distances and much slower response times than the GP2Y0D805, GP2Y0D810, and GP2Y0D815, but they can see farther and report the distance to the detected object rather than simply *if* an object is detected.
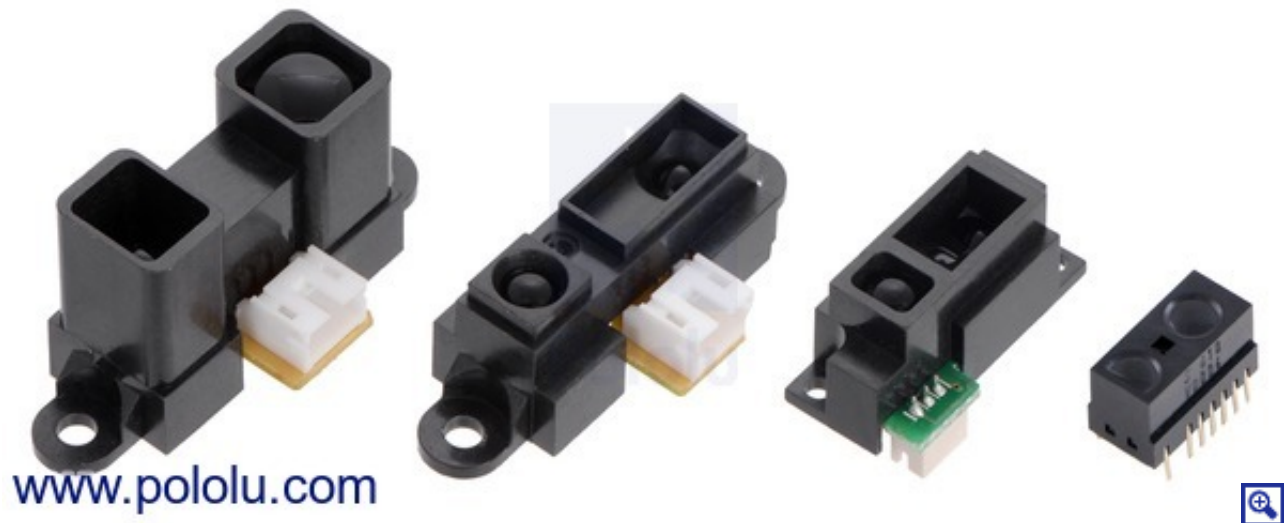
A variety of Sharp distance sensors. From left to right: GP2Y0A02, GP2Y0A21 or GP2Y0A41, GP2Y0A51, and GP2Y0D8xx.

We also carry the newer **Sharp GP2Y0A60SZ analog distance sensor** (10 – 150 cm), which outperforms the other analog Sharp distance sensors in almost all respects, offering a low minimum detection distance, high maximum detection distance, wide 3 V output voltage differential, high 60 Hz sampling rate, operation down to 2.7 V, and optional enable control, all in a smaller package.

Sharp GP2Y0A02YK0F Sensor 20-150cm (left) next to Pololu Carrier with Sharp GP2Y0A60SZLF Sensor 10-150cm (right).

Note: This product comes with the **GP2Y0D805Z0F**, **GP2Y0D810Z0F**, or **GP2Y0D815Z0F** soldered into the carrier PCB. We sell the sensor modules by themselves, and we sell the **carrier PCB without the sensor** for those who already have the sensor or who want to solder the board together personally.

People often buy this product together with: