

# Qwiic dToF Imager - TMF8820

SEN-19036

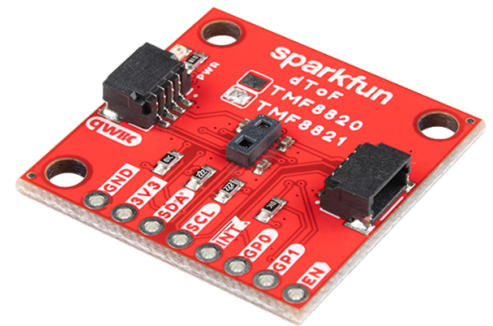
## Product Overview

09/22/2022

For the most up-to-date information, visit [www.mouser.com](http://www.mouser.com) or the supplier's website.

## Description

The SparkFun Qwiic dToF TMF8820 Imager is a Direct Time-Of-Flight (dToF) sensor. The dToF device is based on a Time-To-Digital Converter (TDC), histogram technology to achieve a 5000mm detection range, and Single Photon Avalanche Photodiode (SPAD). The dToF TMF8820 Imager includes a single modular package with an associated Vertical Cavity Surface Emitting Laser (VCSEL) from AMS. Due to its lens on the SPAD, it supports a very wide, dynamically adjustable field of view and 3x3 multizone output data. A Multi-Lens Array (MLA) inside the package above the VCSEL widens up the Field Of Illumination (FOL). The TMF8820 provides distance information together with confidence values on its I<sup>2</sup>C interface, and all processing of the raw data is performed on-chip. The high-performance on-chip optical filter blocks most of the ambient light and enables distance measurements in sunlight environments and dark environments.



All communication is enacted exclusively via I<sup>2</sup>C to make it even easier to get readings by utilizing the handy Qwiic system, so no soldering is required to connect it to the rest of the system. The TMF8820 offers one enable (EN) pin and two configurable GPIO pins, which are broken out as PTH pads. The board also includes I<sup>2</sup>C pull-up resistors and power LED, each configurable via jumpers. This version has a footprint that uses the Qwiic Standard size (1inch x 1inch).

This sensor is great for projects such as Laser Detect Autofocus - LDAF (mobile phone), presence detection (computing and communication), distance measurement for camera autofocus, collision avoidance (robotics), object detection, and light curtain (industrial).

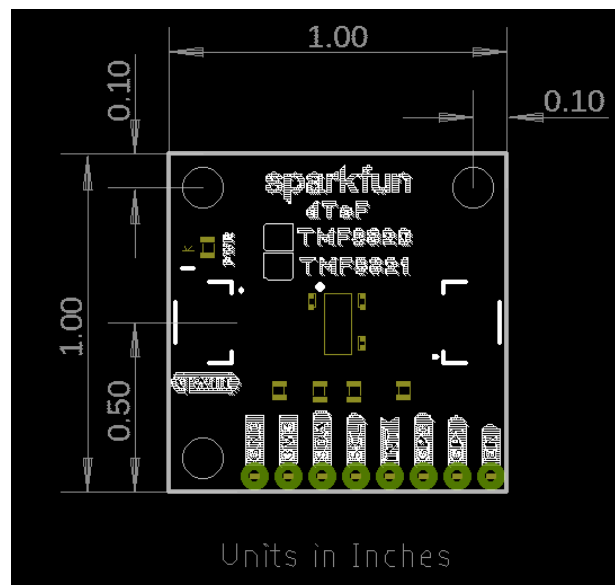
## Specifications

- 2.7V to 3.6V of operating voltage range
  - (Typical 3.3V via Qwiic cable)
- -30°C to 70°C operating temperature range
- Current consumption:
  - 8µA (standby)
  - 57mA (active)
- 10mm to 5000mm at 30Hz measurement range
- 1inch x 1inch (2.54cm x 2.54cm) board dimensions

## Features

- AMS TMF8821 Multi-zone Time-of-Flight Sensor Dual microphones:
  - 2Direct ToF technology with high sensitivity SPAD detection
  - 3 x 3 configurable multi-zone configuration with multi-object detection
  - Fast Time-To-Digital Converter (TDC) architecture
  - Sub-nanosecond light pulse
  - On-chip histogram processing
  - High-performance on-chip sunlight rejection filter and algorithm
- Field of View: adjustable up to 63° diagonally
- Power LED (configurable via jumper)
- I<sup>2</sup>C pull-ups (configurable via jumper)
- Breakout Pads:
  - 1 x Ground
  - 1 x Power
  - 1 x I2C Port
  - 1 x Interrupt
  - 2 x GPIO
  - 1 x Enable
- Light source: Class 1 940nm VCSEL
- Maximum read rate: Up to 30Hz
- Two Qwiic connectors
- I<sup>2</sup>C address: 0 x 41

## Board Dimensions



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## Mouser Part Number

[View Part](#)

To learn more, visit <https://www.mouser.com/new/sparkfun/sparkfun-qwiic-dtof-imager-tmf8820/>