

# Fermion: TMF8801 ToF Distance Ranging Sensor (20-2500mm) (Breakout)

SEN0430

## Product Overview

02/02/2023

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

## Description

DFRobot Fermion: TMF8801 ToF Distance Ranging Sensor (20-2500mm) (Breakout) is a Time-of-Flight (ToF) distance ranging sensor that uses the time difference between light pulses to measure distance. This board provides single-zone detection of an object irrespective of the color, reflectivity, and texture of the object. The TMF8801 sensor offers high dynamic range and detection sensing measurements from 2cm to 250cm distances. This sensor can make highly accurate distance measurements within  $\pm 5\%$  and is capable of operation in dark environments and in the presence of sunlight.



The TMF8801 sensor features a built-in histogram that delivers dynamic cover glass calibration and crosstalk compensation. The on-chip sunlight rejection filters help minimize the background light and noise. This sensor outputs data through a I<sup>2</sup>C fast-mode communications interface and an integrated microcontroller. Typical applications include 3D face recognition, proximity detection, presence detection, object detection, distance measurement, and collision avoidance.

## Features

- 21° FOI to detect the object closest to the center
- 20mm to 2500mm distance sensing
- Enables dark and sunlight environment distance measurement within  $\pm 5\%$
- A built-in histogram for compensating for dirt and smudges on cover glass
- 940nm VCSEL Class 1 Eye Safety
- Low power consumption:
  - 940 $\mu$ A power consumption at 10Hz (proximity mode)
  - 26mA power consumption at 60Hz (distance and proximity mode)
  - 0.26 $\mu$ A power-down current consumption (EN=0)

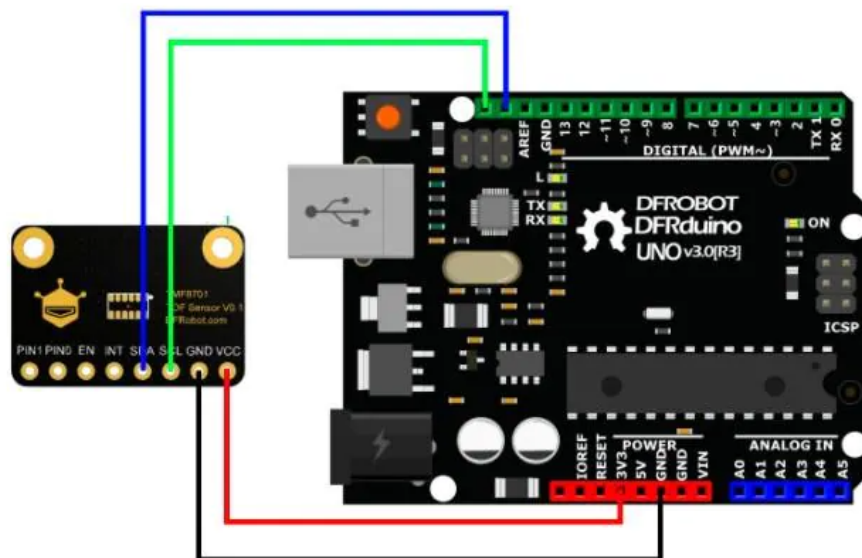
## Specifications

- 2.7V to 3.3V operating voltage range
- <1.5mA operating current range
- 20mm to 100mm proximity detection range
- 100mm to 2500mm distance sensing range
- -30°C to 60°C operating temperature range
- Communication interface:
- Breakout 2.54mm-8Pin I<sup>2</sup>C
- Dimension:
  - 21mm x 14.5mm
- Mounting hole size:
  - 2.0mm
- Mounting hole pitch:
  - 17mm

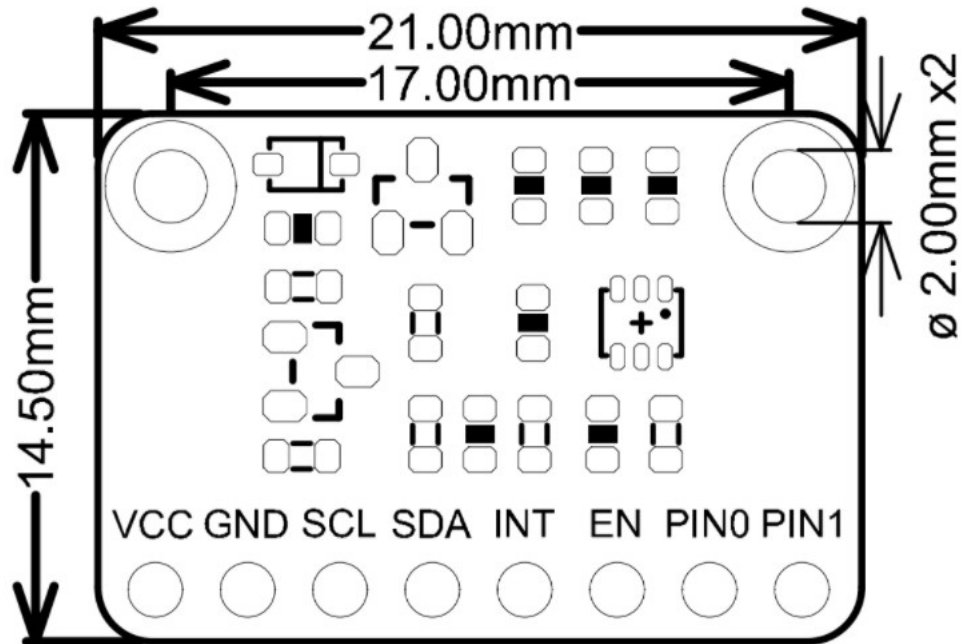
## Applications

- 3D face recognition
- Proximity detection
- Presence detection
- Object detection
- Distance measurement
- Collision avoidance

## Connection Diagram



## Dimensions



## Mouser Part Number

[View Part](#)

To learn more, visit <https://www.mouser.com/new/dfrobot/dfrobot-fermion-tmf8801-sensor/>