

Fermion TMF8701 ToF Distance Ranging Sensor

SEN0429

Product Overview

02/02/2023

For the most up-to-date information, visit www.mouser.com or the supplier's website.

Description

DFRobot Fermion TMF8701 Time of Flight (ToF) Distance Ranging Sensor uses the time difference between light pulses to measure distance. This sensor provides single-zone detection of an object irrespective of the color, reflectivity, and texture of the object.



The TMF8701 sensor offers a high dynamic range and operates in either a proximity mode (1cm to 10cm) or a ranging mode (10cm to 60cm) for detection sensing. This sensor can make highly accurate distance measurements within $\pm 5\%$ and can operate in the dark and in the presence of sunlight. The TMF8701 sensor outputs data through an I²C fast-mode communications interface and an integrated microcontroller.

The TMF8701 sensor features 940nm VCSEL Class 1 eye safety, low power consumption, 26mA power consumption at 60Hz, and 0.26 μ A power-down current consumption (EN=0). Typical applications include 3D face recognition, proximity detection, presence detection, object detection, collision avoidance, and distance measurement.

Features

- 21° Field Of Illumination (FOI), detect the object closet to the center
- 10mm to 600mm distance sensing
- Enables dark and sunlight environment distance measurement within $\pm 5\%$
- Built-in histogram for compensating for dirt and smudges on a cover glass
- 940nm VCSEL Class 1 eye safety
- 940 μ A power consumption at 10Hz (proximity mode)
- 26mA power consumption at 60Hz (distance and proximity mode)
- 0.26 μ A power-down current consumption (EN=0)

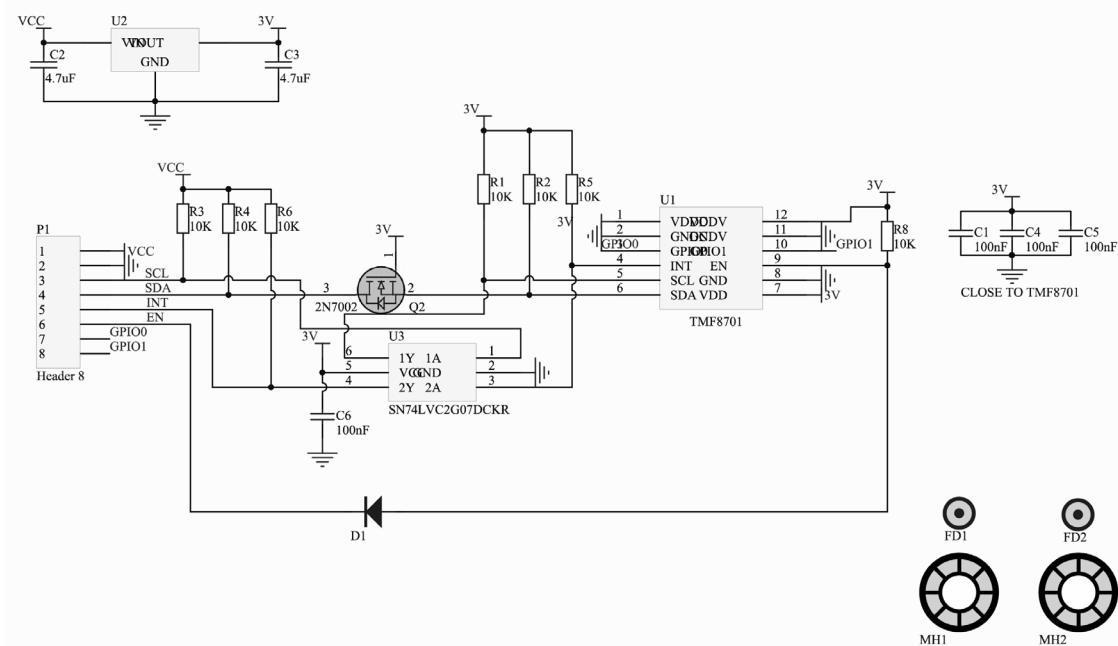
Specifications

- 2.7V to 3.3V operating voltage range
- <1.5mA operating current
- 1cm to 10cm proximity detection range
- 10cm to 60cm distance sensing range
- -30°C to 60°C operating temperature range
- Breakout 2.54mm-8Pin I2C communication interface
- 21mm x 14.5mm/0.83" x 0.57" dimensions
- 2mm mounting hole size
- 17mm mounting hole pitch

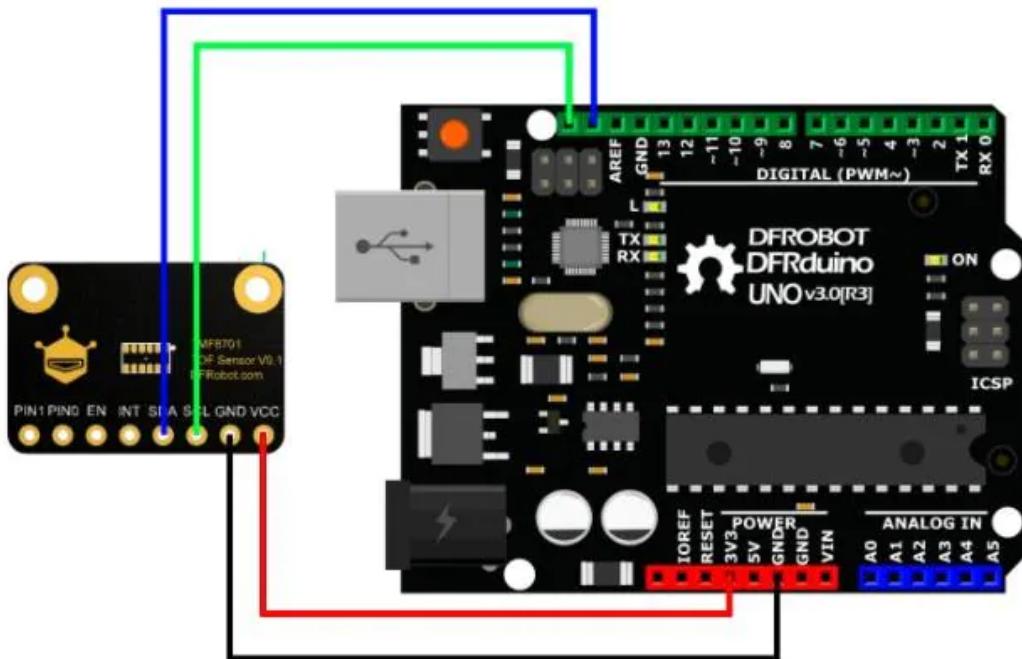
Applications

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

Schematic Diagram



Circuit Diagram



Mouser Part Number

[View Part](#)

To learn more, visit <https://www.mouser.com/new/dfrobot/dfrobot-fermion-tmf8701-sensor/>