

# Gravity Multifunctional Environmental Sensor

SEN0501

## Product Overview

11/28/2022

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

## Description

DFRobot Gravity Multifunctional Environmental Sensor comprises SHTC3 temperature and humidity, BMP280 barometric pressure, VEML7700 ambient light, and ML8511 UV sensors into one. This multifunctional sensor offers five kinds of environmental parameters, and professional sensor chips are selected for each type of parameter measurement.



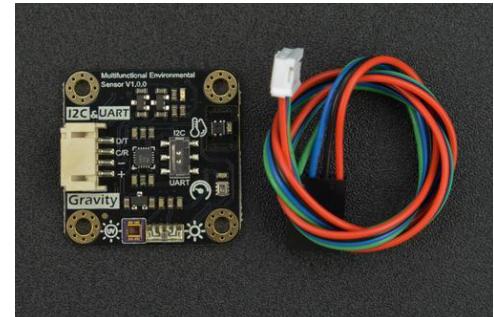
The environmental sensor features an onboard MCU processing chip that converts raw sensor data into values with the standard unit for direct use. This multifunctional sensor supports two communication methods (UART and I<sup>2</sup>C). The multifunctional Gravity sensor provides two versions: Gravity and Fermion (breakout), and complete Arduino and Python libraries. Typical applications include indoor and outdoor environment detection systems and environmental monitoring work.

## Features

- Gravity interface, no need to solder, plug and play
- Switchable I<sup>2</sup>C and UART, two output modes
- Highly integrated module:
  - Can test a variety of data at the same time (temperature, humidity, barometric pressure, altitude, ultraviolet intensity, and ambient light intensity)
- Reasonable layout and high accuracy

## Kit Contents

- 1x Gravity:
  - High accuracy temperature, humidity, pressure, ambient light, and UV sensor - I<sup>2</sup>C/UART
- 1x Gravity 4P connector



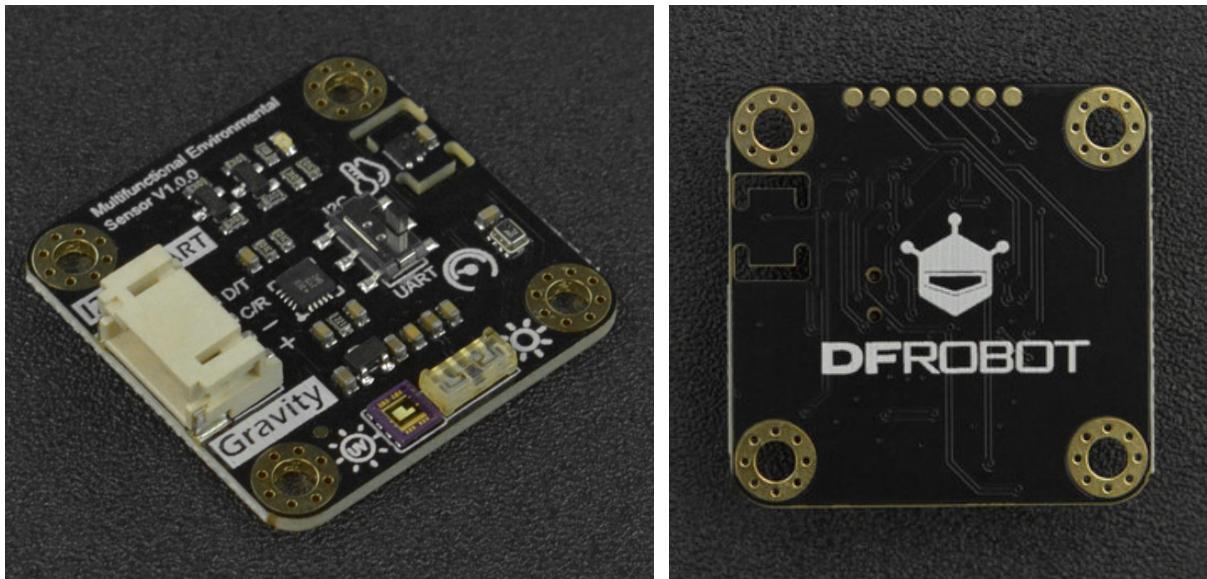
## Specifications

- 3.3V to 5V DC working voltage range
- 45mA working current
- -20°C to 70°C working temperature range
- 32mm × 32mm/1.26inch × 1.26inch product size
- M3 (diameter 3mm/0.12inch), the distance between the centers of the mounting holes is 25mm/0.98inch mounting hole size
- Barometric pressure sensor:
  - 1000pa = 10hpa = 1kpa barometric pressure unit relationship
  - BMP280 sensor chip model
  - 3000hPa to 1100hPa barometric pressure measurement range
  - ±0.12hPa relative accuracy of barometric pressure
  - ±1hPa absolute barometric pressure accuracy
- Temperature and humidity sensor:
  - SHT-C3 sensor chip model
  - ±2%RH relative humidity accuracy
  - 0.01%RH relative humidity resolution
  - 0% to 100%RH relative humidity measurement range
  - ±0.2°C temperature accuracy
  - 0.01°C temperature resolution
  - -40°C to 125°C temperature measurement range
- UV sensor:
  - ML8511 sensor chip model
  - Ultraviolet sensitive wavelength UV-A (320nm to 400nm), UV-B (280nm to 320nm)
  - mW/m<sup>2</sup> ultraviolet output unit
- Ambient light sensor:
  - VEML7700 sensor chip model
  - 0.0036lx/ct ambient light accuracy
  - 0 klx to 120klx ambient light range

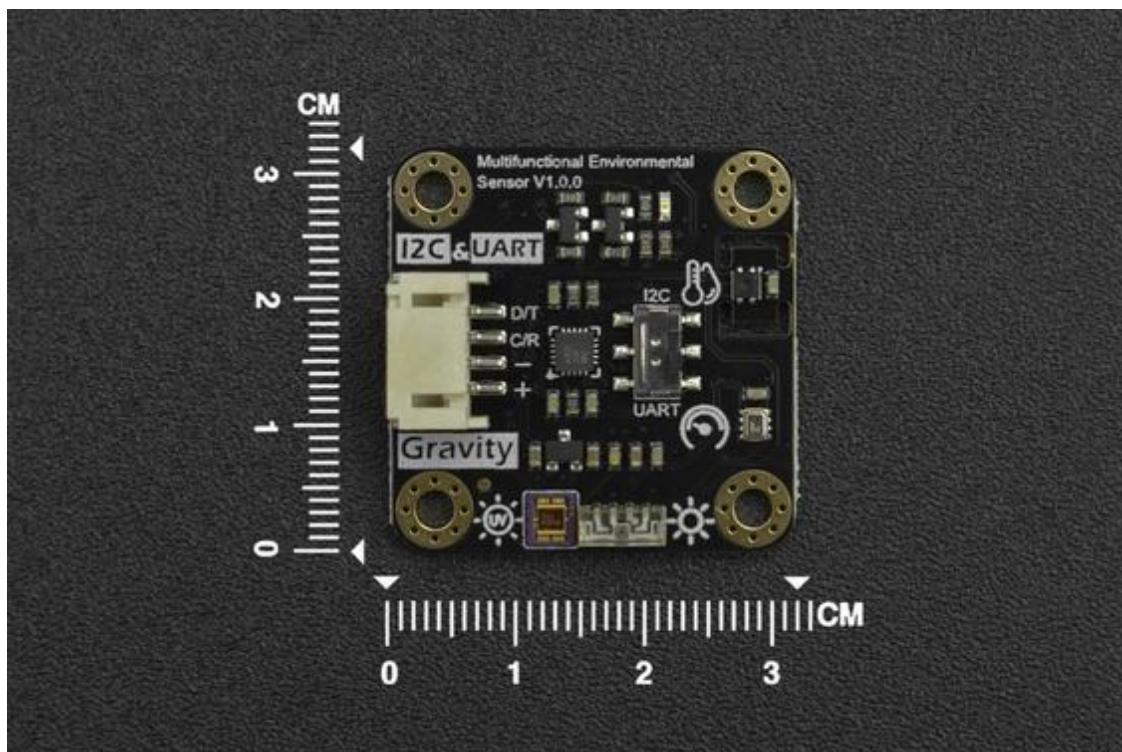
## Applications

- Home indoor and outdoor environment detection system
- Environmental monitoring work

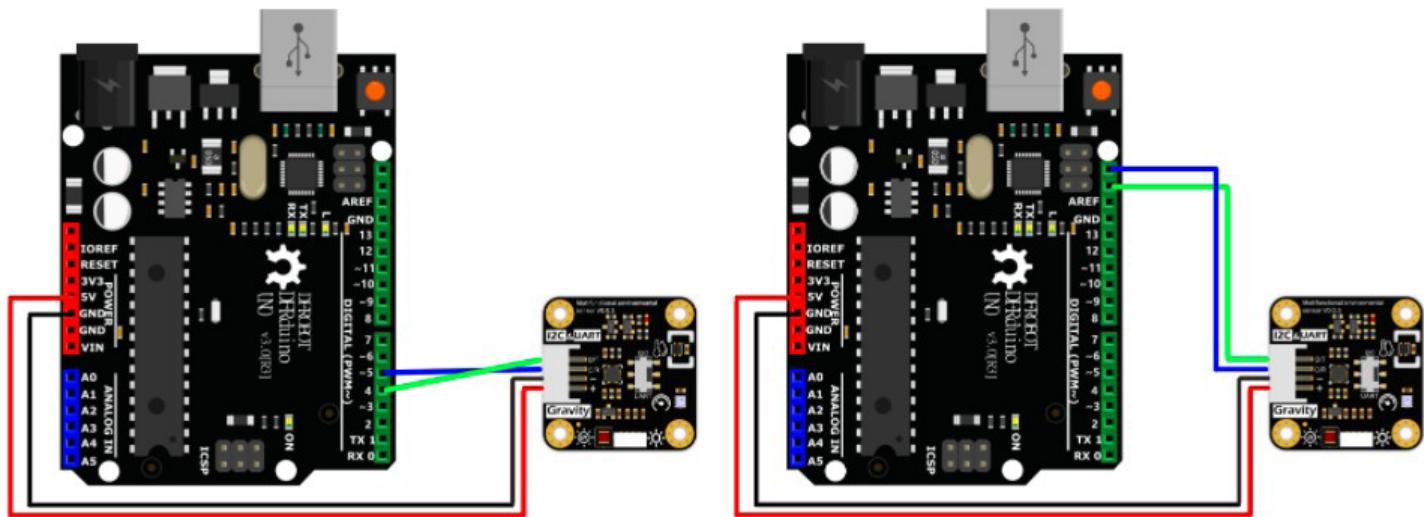
## Board Overview



## Board Dimensions



## Connection For UART And I<sup>2</sup>C



## Mouser Part Number

[View Part](#)

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