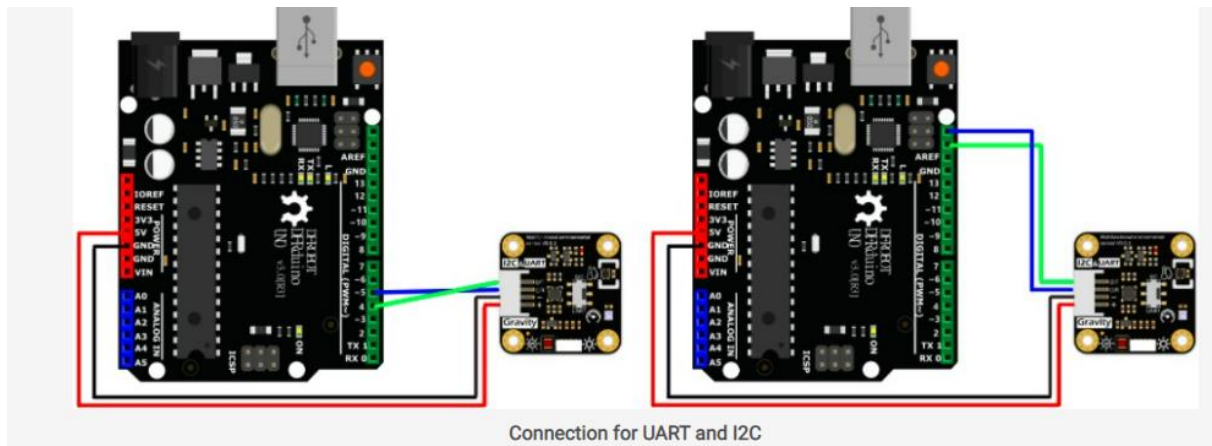# SEN0501

Connection for UART and I2C

INTRODUCTION

This multifunctional environmental sensor comprises SHTC3 temperature & humidity sensor, BMP280 barometric pressure sensor, VEML7700 ambient light sensor, and LTR390 UV sensor (V1.0 : ML8511, V2.0 : LTR390-UV-01) into one and offers 5 kinds of environmental parameters. Professional sensor chips are selected for each kind of parameter measurement. The reasonable layout and heat conduction of main chips are carefully considered in the circuit design, which effectively guarantees the accuracy of the data.

The product has an MCU processing chip onboard that converts the sensor raw data into values in standard units so you can directly use them. For instance, ℃ and °F for temperature, % for humidity, Kpa for barometric pressure, lx for light illuminance, and mw/cm² for UV light.

The environmental sensor supports two communication methods (UART and I2C) and provides two versions: Gravity and fermion (breakout). Complete Arduino and Python libraries are also provided.

Exquisite and small, you can use it to make indoor and outdoor environmental monitoring systems, or for your environmental monitoring topics. This DFRobot environmental sensor can greatly simplify the wiring and codes of your project.

Description: V2.0 changes the UV sensor model compared to V1.0, the UV sensor in V1.0 is ML8511, and the UV sensor in V2.0 is LTR390-UV-01.

FEATURES

☑ Gravity interface, no need to solder, plug and play
☑ Switchable I2C 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, ambient light intensity)
☑ Reasonable layout and high precision

APPLICATIONS

☑ Gravity: Multifunctional Environmental Sensor x1
☑ Gravity 4P Connector x1

SPECIFICATION

▢ Working Voltage: 3.3~5V DC
▢ Working Current: about 4mA
▢ Output Signal: I2C, UART
▢ Working Temperature: -20~70℃
▢ Product Size: 32mm×32mm / 1.26×1.26 inch
▢ Mounting Hole Size: M3 (diameter 3mm / 0.12 inch), the distance between the centers of the mounting holes is 25mm / 0.98 inch

Barometric Pressure Sensor

▢ Sensor Chip Model: BMP280
▢ Barometric Pressure Measurement Range: 3000~1100 hPa
▢ Relative Accuracy Of barometric Pressure: ±0.12 hPa
▢ Absolute barometric Pressure Accuracy: ±1 hPa

Temperature & Humidity Sensor

▢ Sensor Chip Model: SHT-C3
▢ Relative Humidity Accuracy: ±2%RH
▢ Relative Humidity Resolution: 0.01%RH
▢ Relative Humidity Measurement Range: 0~100
▢ Temperature Accuracy: ±0.2℃
▢ Temperature Resolution: 0.01℃
▢ Temperature Measurement Range: -40~125℃

UV Sensor

▢ Sensor Chip Model: LTR390-UV-01
▢ Ultraviolet Sensitive Wavelength: 280-430nm
▢ Range of Measured Data: 13 Bit、16 Bit 、17 Bit、18 Bit、19 Bit、20 Bit
▢ Measurement Rate: 25ms、50ms、100ms、200ms、500ms、1000ms
▢ Adjustable Gain Multiple: 1、3、6、9、18

Ambient Light Sensor

▢ Sensor Chip Model: VEML7700
▢ Ambient Light Accuracy: 0.0036 lx/ct
▢ Ambient Light Range: 0~120 klx