

Gravity: SHT31-F Digital Temperature and Humidity Sensor

SKU:SEN0334



INTRODUCTION

Gravity: SHT31-F digital temperature and humidity sensor is based upon the Sensirion SHT31-F sensor IC. Thanks to Sensirion's CMOSens® technology, highly integrated capacitive humidity sensing components and band-gap temperature sensing components, the SHT31-F offers high reliability and long-term stability with low power consumption, fast response and strong anti-interference ability. The sensor supports I2C communication, and is compatible with 3.3V/5V controllers like Arduino, micro:bit, ESP32. It is easy to achieve precise and high-reliability temperature and humidity sensing for urban environment monitoring, intelligent buildings, industrial automation, smart home and other Internet of Things applications.

SHT31-F is the standard version of the SHT3x series. It provides humidity accuracy $\pm 2\%$ RH @ 0%RH~100%RH (at 25°C), and temperature accuracy $\pm 0.2^\circ\text{C}$ @ 0°C-90°C (typical).

The SHT31-F chip features a PTFE membrane dedicated to protecting the sensor opening from liquids and dust according to IP67. It thus allows the sensor to work under harsh environmental conditions, where spray water and high exposure to

dust might be challenging for accurate sensor performance. Due to minimal package volume and the membrane's high water vapor permeability, the response time of the relative humidity and temperature signal is identical to the value achieved by the uncovered sensor. Although the membrane option provides perfect protection against water and dust ingress, it does not in general prevent contamination from volatile chemicals.

FEATURES

High precise, internal auto-calibrated, digital output

Low power consumption, fast response, and strong anti-interference

IP67 dust-proof protective film

Compatible with 3.3V/5V controllers

APPLICATIONS

Urban Environmental Monitoring

Intelligent Building, Smart Home

Grain Storage

Plant and animal breeding system

SPECIFICATION

Operating Voltage: 3.3~5.5V

Operating Current: <1.5mA

Humidity Detection Range: 0%RH~100%RH

Humidity Accuracy: $\pm 2\%RH@10\%RH\sim 90\%RH$ (at 25°C)

Temperature Detection Range: $-40^{\circ}C\sim 125^{\circ}C$

Temperature Accuracy: $\pm 0.2^{\circ}C@0^{\circ}C\sim 90^{\circ}C$ (Typical)

Communication: I2C

Outline Dimension: 32x22mm/1.26x0.87"

Mounting Hole Size: 3mm/0.12"

Mounting Hole Pitch: 15mm/0.59"

SHIPPING LIST

Gravity: SHT31-F Digital Temperature and Humidity Sensor x1

Gravity-4P I2C/UART Sensor Connector x1

Black 2.54-2P Single Row x1

