

What humidity sensor is used in the micro-module



Overview

Arduino Learn how to use temperature and humidity sensor with Arduino, how to connect DHT11 or DHT22 temperature and humidity sensor DKRF4001 Micro-Modules.

Key Takeaways

The DHT22 (also known as AM2302) is the humidity sensor commonly used in micro-modules.

The DHT22 sensor is a digital-output sensor that measures relative humidity and temperature using a capacitive humidity sensor combined with a thermistor for temperature measurement . It outputs a digital signal, making it easy to interface with microcontrollers such as Arduino, ESP32, or ESP8266 . The sensor is available both as a standalone component with four pins (VCC, DATA, NC, GND) and as a compact module with three pins (VCC, DATA, GND) and a built-in pull-up resistor, simplifying wiring and integration .

Key Features

- Measurement Range: 0-100% relative humidity
- Accuracy: $\pm 2-5\%$ RH
- Temperature Range: -40°C to 80°C
- Digital Output: Single-wire serial interface

- Update Interval: Approximately every 2 seconds

Working Principle

The DHT22 uses a capacitive polymer film that changes its dielectric constant when exposed to water vapor, causing a measurable capacitance shift. This change is converted into a digital signal by the sensor's internal IC, which also handles calibration and timing. The thermistor measures temperature, which is used to compensate the humidity reading for more accurate results.

Applications

Micro-modules with DHT22 sensors are widely used in:

- IoT devices and smart home systems
 - Weather stations and environmental monitoring
 - HVAC systems
 - Consumer electronics requiring humidity control
- The DHT22 is preferred over the DHT11 for micro-modules due to its higher accuracy, wider measurement range, and better resolution, although it is slightly more expensive and requires a minimum 2-second reading interval.

Article Content

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Humidity Sensor Types

A humidity sensor is one of the most important devices used in a wide range of applications to measure and monitor

DHT11 Temperature-Humidity Sensor

This is a calibrated digital temperature and humidity module with an onboard sensor DHT11. It can be used for detecting ambient

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Review of Optical Humidity Sensors

Optical humidity sensors have evolved through decades of research and development, constantly adapting to new

What is a Humidity Sensor? How They Work, Types, and Applications

Yes, many humidity sensors are designed to withstand outdoor conditions and are used in applications such as weather

Best Temperature and Humidity Sensor Modules for Arduino

Here are my recommendations for the best temperature and humidity sensor modules for use with Arduino and other

9 Arduino Compatible Temperature Sensors

The DHT11 is a digital temperature sensor that measures temperature and relative humidity. These sensors contain a chip that does

What is Humidity Sensor? Types and Working Principles

Humidity sensors are electronic devices enabling you to measure the environment's humidity and convert the data

How to use the DHT11 sensor module with Micro:bit board

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How Do Humidity Sensors & Probes Work?

When using this sensor, avoid exposure to a gas that has a different thermal property than nitrogen, as it can affect the

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Humidity Sensor Theory and Behavior

When temperature compensating a humidity sensor, ensure the temperature measurement is as close as possible to the humidity

Humidity Probes | Humidity Sensors | Relative Humidity Probe

The capacitive humidity sensor consists of a hygroscopic dielectric material (polymer), which is placed between a pair of electrodes

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These benefits of humidity sensors ultimately help you cut costs, streamline your operations, and establish a

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