



# KAmod Si7021



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Źródło: [https://wiki.kamamilabs.com/index.php?title=KAmod\\_Si7021](https://wiki.kamamilabs.com/index.php?title=KAmod_Si7021)

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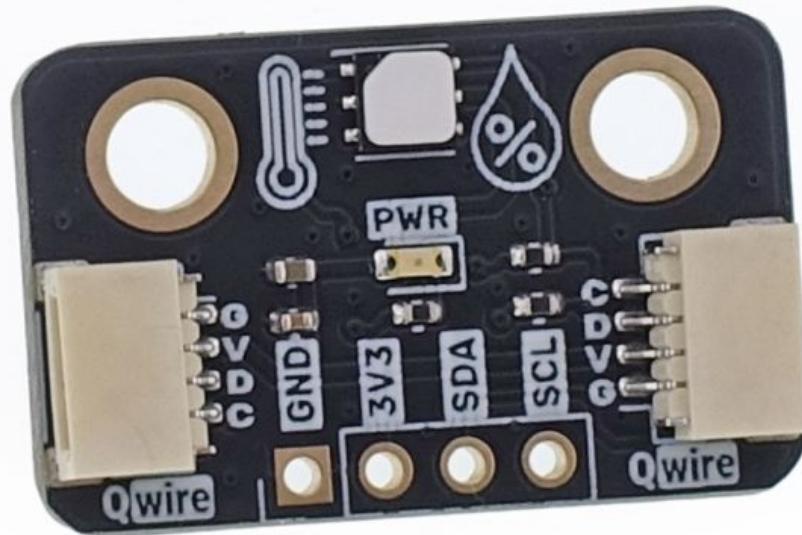
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# Description

## KAmoD Si7021 - Si7021 Temperature and Humidity Sensor Module

Module with an affordable and easy-to-use Si7021 temperature and humidity sensor from Silicon Labs. The sensor communicates via I2C and can measure temperature in the range of -40 to 125°C and relative humidity in the range of 0 to 100% RH. The board is equipped with I2C Qwire connectors (compatible with Qwiic/STEMMA QT) and a single-row connector with a 2.54 mm pitch. The board includes an LED indicating the presence of power and 4.7 kΩ pull-up resistors for the I2C interface lines, which can be easily disconnected if necessary.

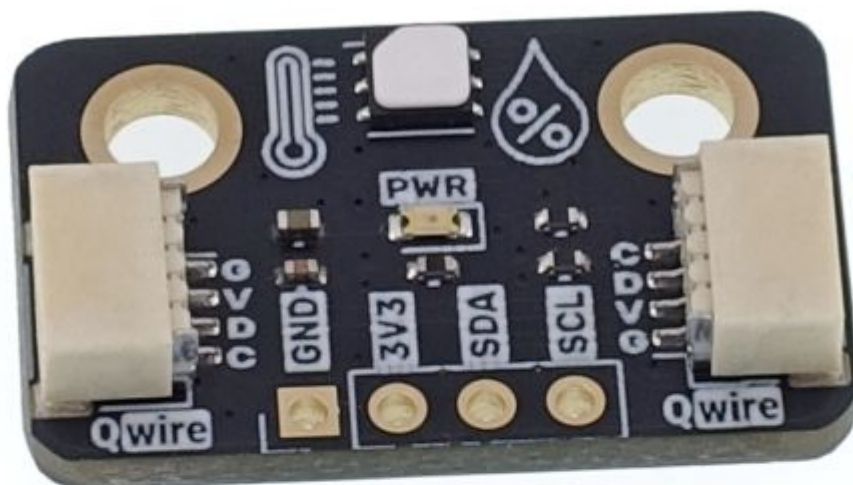


## Basic Parameters

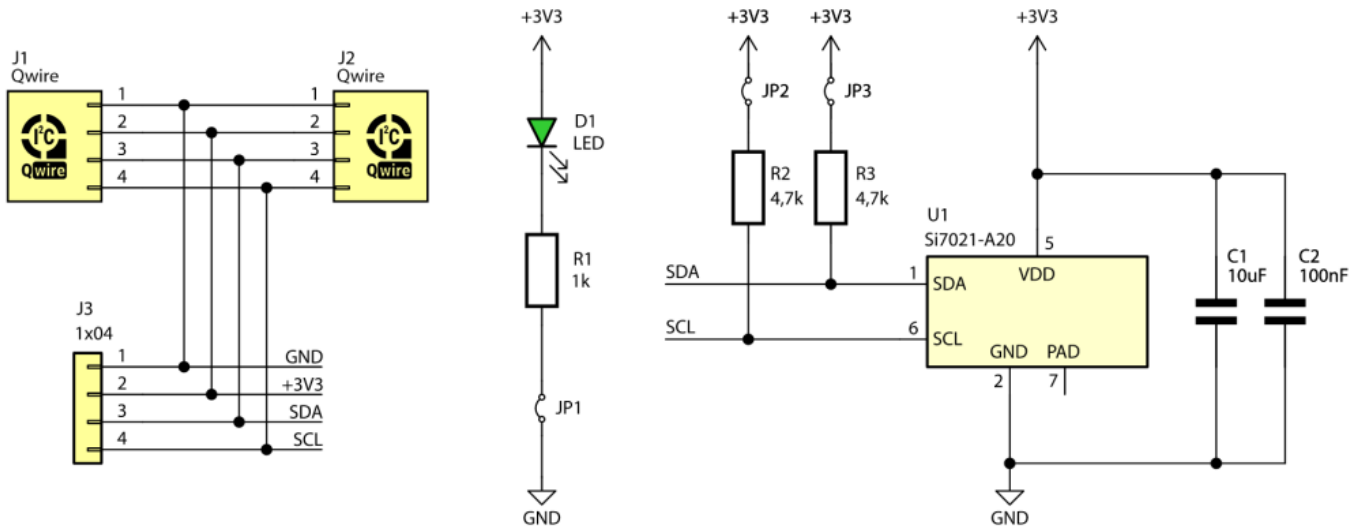
- Based on the Si7021 chip from Silicon Labs
- Humidity measurement range: 0-80% RH
- Humidity measurement accuracy:  $\pm 3\%$  (in the range of 0-80% RH)
- Humidity measurement resolution:  $\pm 0.025\%$  RH
- Temperature measurement range: -40...125°C
- Temperature measurement accuracy:  $\pm 0.4^\circ\text{C}$  (in the range of -10...+85°C)
- Temperature measurement resolution:  $\pm 0.01^\circ\text{C}$
- Communication via I2C interface (chip address: 0x40)
- I2C 'Qwire' connectors, JST SH 4-pin 1 mm (compatible with Qwiic / STEMMA QT)
- Power supply voltage: 3.3 V
- Dimensions: 25 x 15 x 4.7 mm

## Standard Equipment

| Code              | Description                                                                                                                                     |
|-------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>KAmoSi7021</b> | <ul style="list-style-type: none"> <li>• Assembled and powered-up module</li> <li>• 1 x straight 4-pin goldpin header, 2.54 mm pitch</li> </ul> |

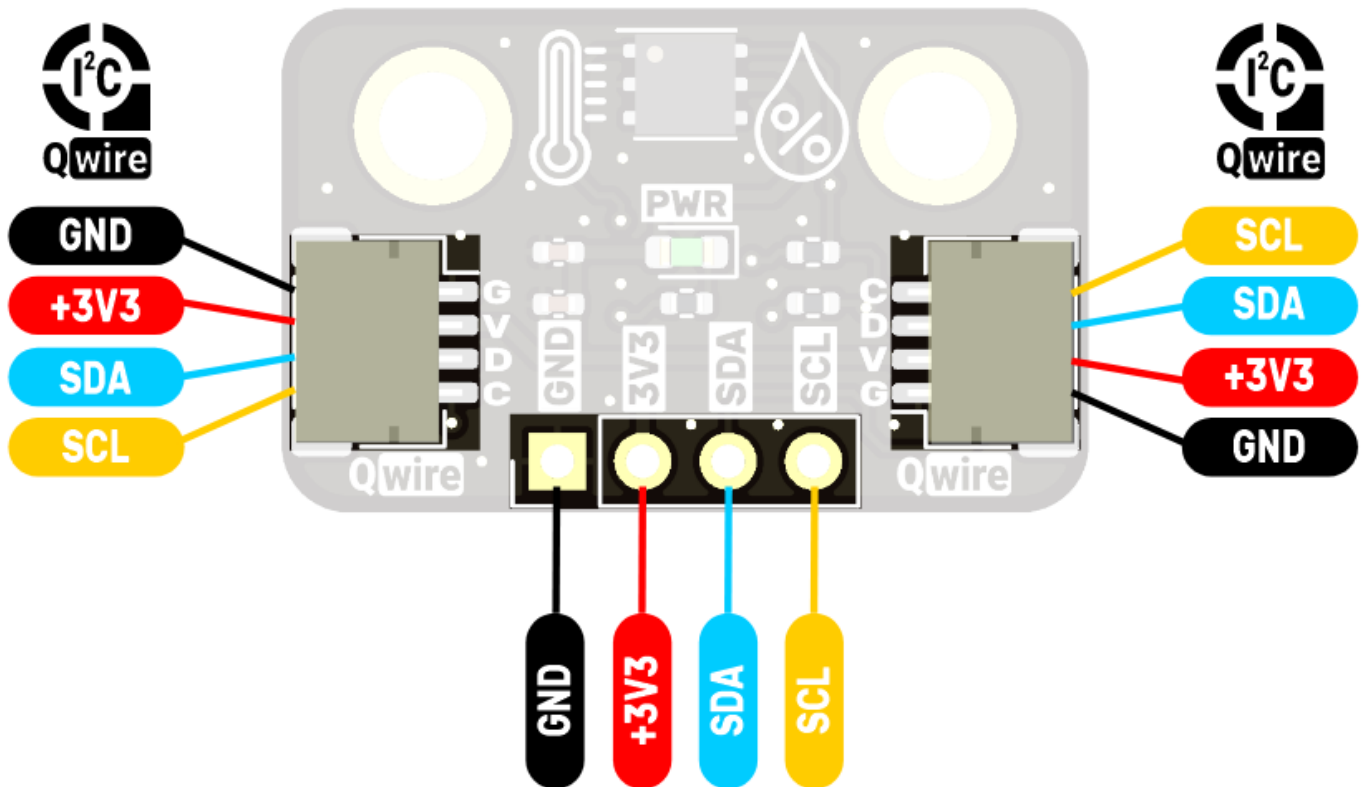


## Schematic



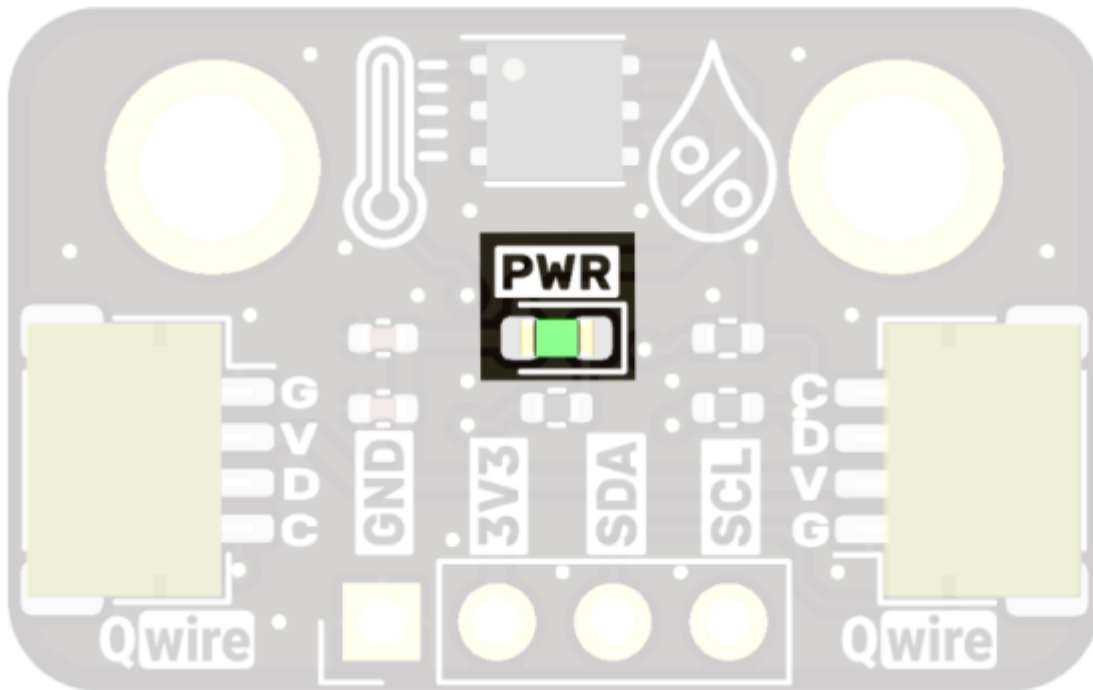
## Signal Layout on the Board

The KAMod Si7021 module features two 4-pin I2C Qwire connectors (JST SH 1 mm) compliant with the Qwiic / STEMMA QT standard, allowing for quick connection and expansion of I2C modules without the need for soldering. Additionally, the power and I2C lines are connected to a single-row J1 connector with a 2.54 mm pitch. The signal layout is described on the PCB.



## Power Supply

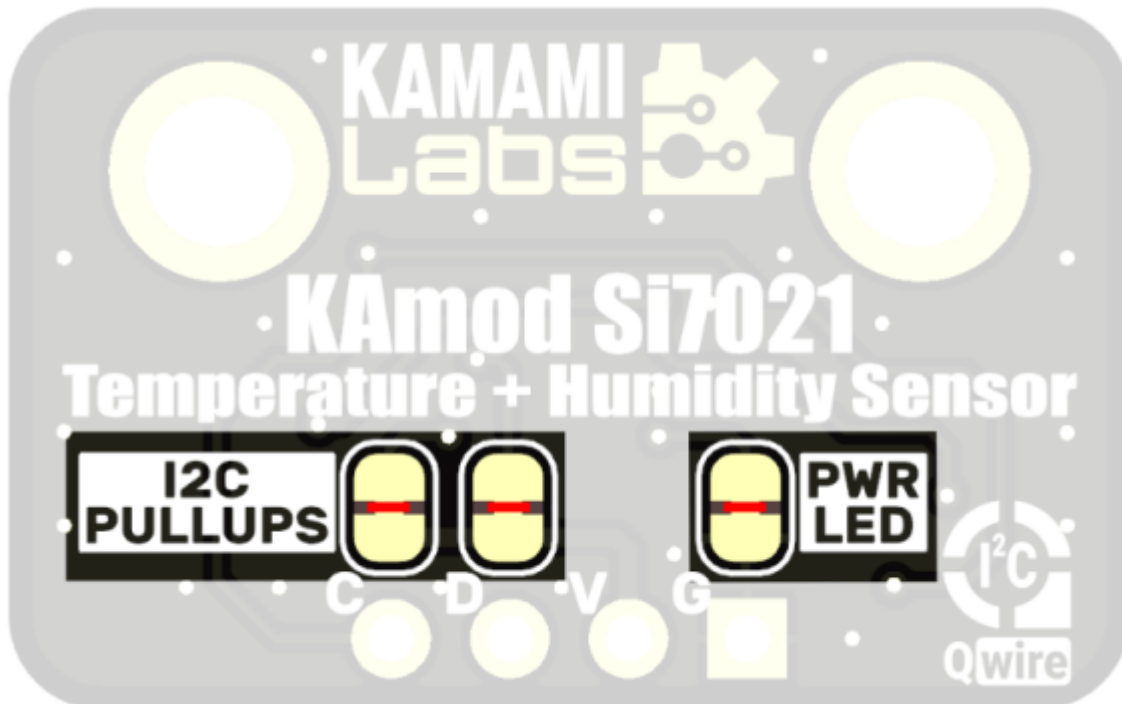
The KAMod Si7021 module should be powered by a DC voltage of 3.3 V (1.9...3.6 V). The board is powered via the **Qwire** connector (compatible with Qwiic / STEMMA QT) or a pin header on the **+3V3** and **GND** pins. The presence of power is indicated by the LED marked **PWR** illuminated.



## Configuration Jumpers

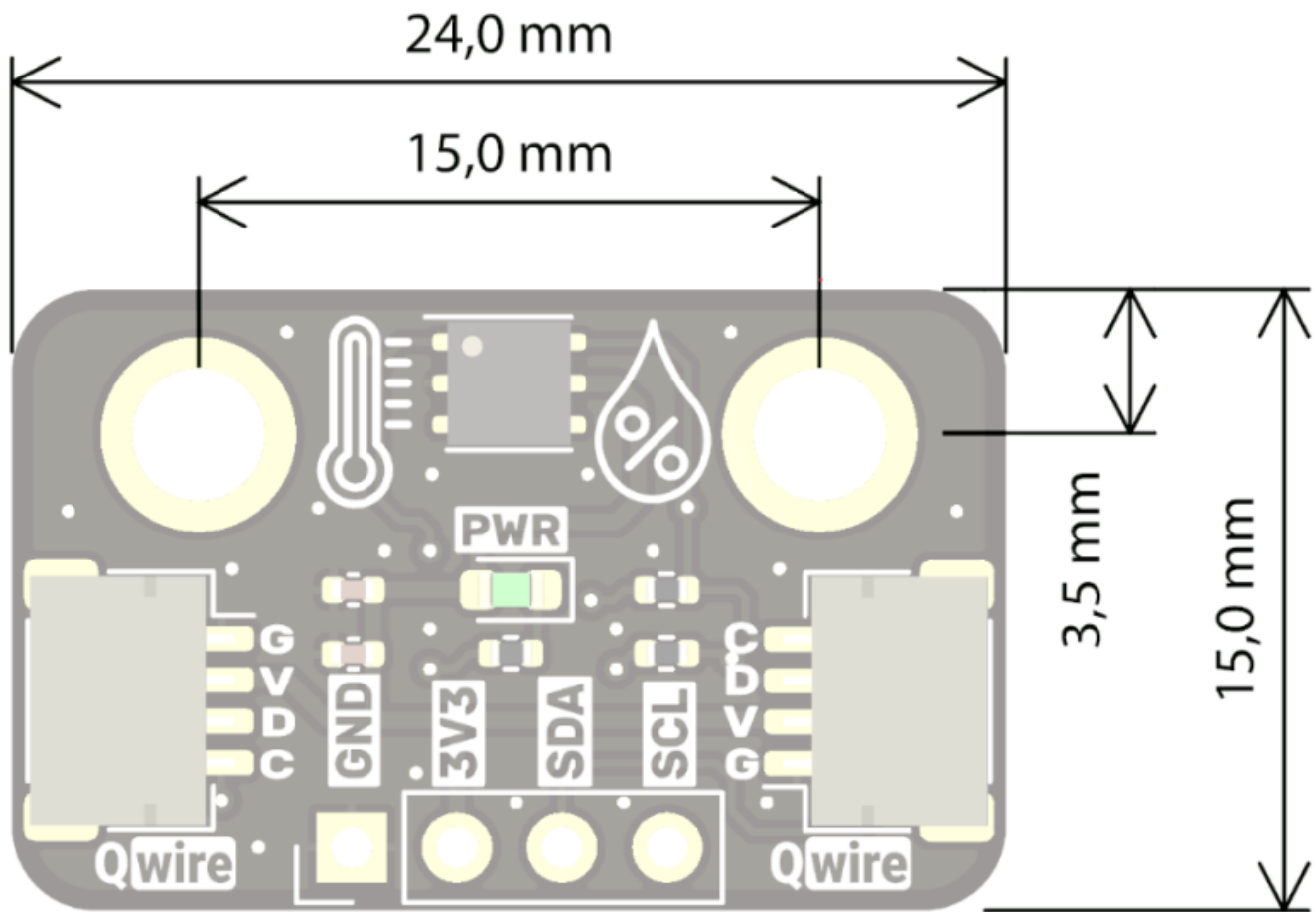
The KAmoD Si7021 module is equipped with an SMD jumper to disconnect the "PWR LED" (JP1) and "I2C PULLUPS" jumpers (JP2, JP3) to independently disconnect the pull-up resistors (to the positive power supply terminal) from the I2C bus lines.

The jumpers are located on the bottom of the board and are factory-shortened (copper trace between the pads). To disconnect the jumpers, cut the board surface with a sharp tool – as indicated by the red lines in the drawing below. Reconnecting the jumpers is possible by applying a drop of solder, which will connect both cut pads of the jumper.



## Dimensions

The KAmo Si7021 board dimensions are 25x15 mm. There are two mounting holes on the board, each with a diameter of 3.2 mm.



## Test Program

The test program was written in the Arduino environment for the [KAmoESP32 POW RS485](#) board.

```
//ino board: ESP32-WR00M-DA Module
//Hardware Connections:
//    KAmo Si7021 ----- KAmoESP32 POW RS485
//    GND ----- GND
//    3V3 ----- 3.3V
//    SDA ----- SDA/I0-33
//    SCL ----- SCL/I0-32

#include <Wire.h>
#include <SPI.h>
#include "Adafruit_Si7021.h"

bool enableHeater = false;
uint8_t loopCnt = 0;

Adafruit_Si7021 sensor = Adafruit_Si7021();
```

```

void setup() {
  Serial.begin(115200);

  // wait for serial port to open
  while (!Serial) {
    delay(10);
  }

  Serial.println("Si7021 test!");
  if (!sensor.begin()) {
    Serial.println("Did not find Si7021 sensor!");
    while (true)
      ;
  }

  Serial.print("Found model ");
  switch(sensor.getModel()) {
    case SI_Engineering_Samples:
      Serial.print("SI engineering samples"); break;
    case SI_7013:
      Serial.print("Si7013"); break;
    case SI_7020:
      Serial.print("Si7020"); break;
    case SI_7021:
      Serial.print("Si7021"); break;
    case SI_UNKNOWN:
    default:
      Serial.print("Unknown");
  }
  Serial.print(" Rev(");
  Serial.print(sensor.getRevision());
  Serial.print(")");
  Serial.print(" Serial #"); Serial.print(sensor.sernum_a, HEX);
  Serial.println(sensor.sernum_b, HEX);
}

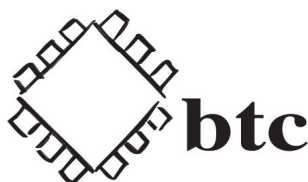
void loop() {
  Serial.print("Humidity: ");
  Serial.print(sensor.readHumidity(), 2);
  Serial.print("\tTemperature: ");
  Serial.println(sensor.readTemperature(), 2);
  delay(1000);

  // Toggle heater enabled state every 30 seconds
  // An ~1.8 degC temperature increase can be noted when heater is enabled
  if (++loopCnt == 30) {
    enableHeater = !enableHeater;
    sensor.heater(enableHeater);
    Serial.print("Heater Enabled State: ");
    if (sensor.isHeaterEnabled())
      Serial.println("ENABLED");
    else
      Serial.println("DISABLED");
    loopCnt = 0;
  }
}

```

## Links

- [Datasheet Si7021-A20](#)
- [CAD model \(STEP\)](#)



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