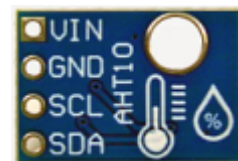


LamaPLC: AHT10 Modul

The AHT10 is an affordable, high-precision digital sensor module that measures both temperature and humidity. It uses a standard I²C interface for communication and is commonly used with microcontrollers such as Arduino and ESP32.



Key Specifications

- **Operating Voltage:** 1.8V to **6.0V**.
- **Temperature Range:** -40°C to +85°C with $\pm 0.3^\circ\text{C}$ typical accuracy.
- **Humidity Range:** 0% to 100% RH with $\pm 2\%$ typical accuracy.
- **Resolution:** 0.01°C for temperature and 0.024% for humidity.
- **Communication:** I²C (Default Address: 0x38).

Notable Features

- **Fully Calibrated:** It provides a calibrated digital signal directly, eliminating the need for complex external calibration.
- **Internal Components:** Equipped with a dedicated ASIC-specific chip and an improved MEMS semiconductor capacitive humidity sensor.
- **Energy Efficiency:** Extremely low power consumption (under 100 nA in sleep mode), making it ideal for battery-powered IoT devices.

Pinout Configuration

| Pin | Name | Function | Typical Connection |
|-----|-----------|-------------------------------|------------------------|
| 1 | VIN / VCC | Power Supply (1.8V to 6.0V) | 3.3V or 5V pin |
| 2 | GND | Ground | GND pin |
| 3 | SCL | I ² C Serial Clock | SCL / A5 (Arduino Uno) |
| 4 | SDA | I ² C Serial Data | SDA / A4 (Arduino Uno) |

Wiring & Integration Details

- **Voltage Levels:** While the raw AHT10 chip operates at 1.8V–3.6V, most modules include an onboard voltage regulator (like the XC6206) and level shifters, making them safe for use with 5V systems like the Arduino Uno.
- **Pull-up Resistors:** Stable I²C communication requires pull-up resistors (typically 4.7k Ω or 10k Ω) on the SDA and SCL lines. Most pre-assembled modules already have these built-in.
- **I²C Address:** The default hardware address is 0x38.

Arduino example code

To use the AHT10 sensor with an Arduino, the most common and reliable method is using the **Adafruit AHTX0** library.

This script initializes the sensor and prints temperature and humidity data to the Serial Monitor every 2 seconds.

```
#include <Wire.h>
#include <Adafruit_AHTX0.h>

Adafruit_AHTX0 aht;

void setup() {
  Serial.begin(115200);
  Serial.println("AHT10 Sensor Test");

  // Initialize I2C and the sensor
  if (!aht.begin()) {
    Serial.println("Could not find AHT10. Check wiring!");
    while (1) delay(10);
  }
  Serial.println("AHT10 found and initialized.");
}

void loop() {
  sensors_event_t humidity, temp;

  // Get new sensor events with the latest data
  aht.getEvent(&humidity, &temp);

  // Print results to Serial Monitor
  Serial.print("Temperature: ");
  Serial.print(temp.temperature);
  Serial.println(" °C");

  Serial.print("Humidity: ");
  Serial.print(humidity.relative_humidity);
  Serial.println(" % rH");

  delay(2000); // Wait 2 seconds between readings
}
```

Implementation Notes

- **Baud Rate:** Ensure your Serial Monitor is set to 115200 to match the `Serial.begin(115200)` command.
- **Polling Frequency:** While this code polls every 2 seconds, the manufacturer recommends a polling frequency of 8 to 30 seconds for long-term stability and to avoid sensor self-heating.
- **Wiring:** Connect SDA to A4 and SCL to A5 on an Arduino Uno (or the dedicated SDA/SCL pins on other boards).

I²C topics on lamaPLC

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| • lamaPLC Communication: I ² C | 2025/09/23 21:25 | i2c, i c, smbus, philips, bus, communication, arduino |
| • lamaPLC project: Senson SCD CO ² measurement module | 2026/04/15 19:34 | scd30, scd40, scd41, iaq, ndir, sensor, i2c, arduino code |
| • LamaPLC: AHT10 Modul | 2026/03/22 03:14 | communication, i2c, temperature, humidity, sensor, aht, aht 10, modul |
| • LamaPLC: AHT20 / BMP280 Modul | 2026/04/23 21:52 | bmp280, aht20, adafruit, temperature, humidity, pressure, sensor, arduino, code, i2c |
| • LamaPLC: APDS - Avago ALS and proximity detection sensors with I ² C communication | 2026/04/23 21:52 | avago, apds-9900, apds-9930, apds-9960, als, proximity, detection, gesture recognition, gesture, i2c, communication, sensor, arduino, code |
| • lamaPLC: Arduino Modul: BME680 | 2026/05/12 18:40 | code, c, 2026, arduino, bme680, sensor, i2c, comunication |
| • lamaPLC: AS5600 Magnetic Induction Angle Measurement Sensor Module | 2026/04/23 21:52 | communication, i2c, as5600, as-5600, magnetic, induction, angle, sensor |
| • lamaPLC: Bi-Directional Logic Level Converter 3.3V ↔ 5V | 2026/04/12 00:34 | bi-directional, logic level converter, i2c, uart, spi |
| • LamaPLC: BMP/BME Bosch Temperature/Humidity/Pressure sensors with I ² C communication | 2026/04/23 21:52 | bme280, bme680, bme688, bmp180, bmp280, hw-611, hw611, bosch, temperature, humidity, pressure, sensor, arduino, i2c, communication, ai, cjmcu, volatile organic compounds, vocs, volatile sulfur compounds, vscs, iaq |
| • LamaPLC: CJMCU-219/INA-219 breakout board/IC with I ² C communication | 2026/04/23 21:52 | cjmcu-219, ina-219, ina219, breakout board, i2c, communication, sensor, voltage, current, arduino, code, cjmcu |
| • LamaPLC: CJMCU-3216 / AP-3216 integrated digital ambient light and proximity sensor module/IC with I ² C communication | 2026/04/23 21:52 | cjmcu-3216, cjmcu, ap-3216, ap3216, ambient light, proximity, sensor, arduino, code, i2c, communication |
| • lamaPLC: CJMCU-811 CCS811 Gas Sensor (VOCs TVOC CO ₂) | 2026/04/23 21:52 | cjmcu-811, ccs811, gas, sensor, vocs, tvoc, eco2, co2, arduino, air quality metal oxide, mox, i2c, micropython, rp2040-eth |
| • LamaPLC: D6T Omron Non-Contact Thermal Sensors with I ² C communication | 2026/04/23 21:52 | d6t, d6t-32l, d6t-44l, d6t-8l, d6t-1a, omron, non-contact, thermal, sensor, i2c, arduino, code |
| • LamaPLC: DPS Infineon Temperature/Pressure sensors with I ² C communication | 2026/04/23 21:52 | dps310, infineon, temperature, pressure, sensor, arduino, i2c, communication, code |
| • lamaPLC: Energy, power, current, and voltage | 2025/05/31 23:32 | i2c, i c, communication, arduino, energy, power, current, sensor, ina226 |
| • LamaPLC: ENS ScioSense Multi-gas sensors with I ² C communication | 2026/04/23 21:52 | ens160, sciosense, gas-quality, i2c, communication, sensor, arduino, code, eco2, tvoc, aqi, indoor air quality, iaq, co2, voc |

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| • lamaPLC: ESP32 / ESP8266 | 2025/11/22 00:07 | esp8266, esp32, esp32-c2, esp32-c3, esp32-c5, esp32-c6, esp32-c61, esp32-h2, esp32-s2, esp32-s3, esp32-p4, espressif systems, communication, ethernet, ip, wi-fi, thread, zigbee, matter, homekit, bluetooth, mqtt, adc, spi, uart, i2c, i2s, rmt, pwm, usb, usb otg, twai |
| • LamaPLC: Gas sensors | 2023/07/01 17:29 | gas, sensor, i2c, onewire, communication, mq-3, mq-4, mq-5, mq-6, mq-7, mq-8, mq-9, mq-135, gm-102b, gm-302b, gm-502b, gm-702b, alcohol, ch4, natural gas, smoke, lng, co, co2, lpg, h2, iso-butane, nox, nh3, benzene, town gas, formaldehyde, propane, humidity, temperature, voc, grv gas sens v2 |
| • lamaPLC: GY-511 6DOF sensor module | 2026/03/22 01:44 | stmicroelectronics, lsm303dlhc, i2c, lsm303, sensor, gy-511, 6dof, pololu, module, arduino |
| • LamaPLC: GY-9250 MPU-9250/6500 9-axis Attitude Sensor Board | 2026/04/23 21:52 | ak8963, gy-9250, mpu-9250, 9-axis, motion detection, magnetometer, communication, i c, i2c, spi |
| • LamaPLC: HDC Texas Instruments Temperature/humidity sensors with I²C communication | 2026/04/23 21:52 | sht21, htu21, si7021, gy-21, gy-213v, hdc1080, gy-213v-hdc1080, cjmcu, cjmcu-1080, texas instruments, temperature, humidity, sensor, i2c, communication, arduino, code |
| • lamaPLC: HT16K33 display controller | 2026/04/23 21:51 | i2c, 7-segment display, display, ht16k33, arduino |
| • LamaPLC: HTU TE Connectivity temperature/humidity sensors with I²C communication | 2026/04/23 21:52 | htu, htu31d, htu21d, htu20d, sht20, htu20, sht21, htu21, si7021, gy-21, gy-213v, hdc1080, si702, gy-20, sht31, htu31, si7031, gy-31, te connectivity, temperature, humidity, i2c, communication, sensor, arduino, code |
| • lamaPLC: INA modules with Arduino libraries | 2026/04/11 19:54 | i2c, i c, communication, arduino, energy, power, current, monitor, sensor, ina219, gy-219, ina226, gy-216, ina228, gy-228, ina237, ina238, ina260, ina3221, ina |
| • lamaPLC: INA226 - current/voltage/power monitor with I²C communication | 2026/04/23 21:52 | i2c, i c, communication, arduino, energy, power, current, monitor, sensor, ina226, ina219, ina |
| • lamaPLC: LCD 1602/2004 with I²C communication | 2026/02/14 18:27 | communication, i2c, display, lcd, 1602, 2004, hd44780, pcf8574, pcf8574t, pcf8574at, arduino |
| • LamaPLC: MAX30100/MAX30102 Heart Rate Click Sensor Module | 2026/04/23 21:52 | max30102, max30100, heart rate click, sensor, communication, i2c, arduino, code |
| • lamaPLC: MCP23017 / MCP23S17 16-Bit I/O Expander with Serial Interface I²C / SPI | 2026/04/23 21:52 | communication, i2c, mcp23017, mcp23s17, spi, i o expander, serial, cjmcu-2317, cjmcu |

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| • lamaPLC: MLX90614 (GY-906) infrared non-contact thermometer | 2026/05/08 00:03 | communication, i2c, temperature, mlx90614, gy-906, modul, infrared, non-contact thermometer, dsp, pwm, smbus, hailege |
| • lamaPLC: PCF857x I/O Expander chip/modul with I ² C communication | 2026/05/14 15:21 | communication, i2c, pcf857x, pcf8574, pcf8574a, pcf8575, i o expander, i o extension, nxp, texas instruments |
| • LamaPLC: Pixart PAJ7620U2 Gesture recognition sensors/module with I ² C communication | 2026/04/23 21:52 | paj7620u2, gy-paj7620, pixart, gesture recognition, i2c, communication, sensor, arduino, code |
| • lamaPLC: RP2040_ETH_Modul: I ² C scanner | 2026/05/12 16:20 | code, micropython, 2026, rp2040 eth, i2c, comunication |
| • lamaPLC: RP2040_ETH_Modul: MLX90614 simple | 2026/05/12 17:06 | code, micropython, 2026, rp2040 eth, i2c, communication, mlx90614 |
| • lamaPLC: RP2040_ETH_Modul: Read BME 680/688 sensor data | 2026/05/12 21:06 | code, micropython, 2026, rp2040 eth, bme680, i2c, sensor, communication |
| • lamaPLC: RP2040_ETH_Modul: Read BME 680/688 sensor data and store in Modbus input registers | 2026/05/12 18:58 | code, micropython, 2026, rp2040 eth, bme680, i2c, sensor, communication |
| • LamaPLC: SC16IS750 / SC16IS752: One or two serial (UART) ports from microcontroller via I ² C or SPI communication | 2026/04/23 21:52 | cjmcu-750, cjmcu-752, cjmcu, nxp, sc16is750, sc16is752, uart, serial, i2c, spi, modul, converter, arduino, code |
| • LamaPLC: SGP Sensirion TVOC/VOC sensors with I ² C communication | 2026/04/15 19:41 | sgp30, sgp40, sgp41, sensirion, gas-sensor, i2c, communication, sensor, arduino, code, eco2, voc, tvoc, indoor air quality, iaq, nox, hydrogen |
| • LamaPLC: SHT Sensirion Temperature/humidity sensor with I ² C communication | 2026/04/23 21:52 | sht20, sht21, sht25, sht30, sht31, sht35, sht40, gy21, temperature, humidity, i2c, communication, sensor, arduino, code |
| • lamaPLC: Signal level converters | 2026/02/14 23:47 | pca9306, i2c, voltage, level, converter |
| • lamaPLC: TCA9548A (HW617); Low-Voltage 8-Channel I ² C Switch Module | 2026/02/14 23:51 | tca9548a, hw617, i2c, switch, communication, expansion board, arduino |
| • lamaPLC: TM1637 7-segment display | 2026/02/14 18:26 | i2c, 7-segment display, display, tm1637, arduino |
| • LamaPLC: TOFnnnC STMicroelectronics Time-of-Flight (ToF) sensors with I ² C communication | 2026/04/23 21:52 | tof050c, vl6180, tof200c, vl53l0x, tof400c, vl53l1x, stmicroelectronics, time-of-flight, tof, i2c, communication, sensor, arduino, code |
| • LamaPLC: VL53Lnn STMicroelectronics time-of-flight (ToF) laser-ranging sensors with I ² C communication | 2026/04/23 21:52 | vl53l0x, vl53l1x, vl53l0 1xv2, gy-530, time-of-flight, tof, laser-ranging, i2c, communication, sensor, arduino, code |
| • LamaPLC: VL6180X STMicroelectronics Time-of-Flight (ToF) sensor with I ² C communication | 2026/04/23 21:52 | vl6180x, stmicroelectronics, time-of-flight, tof, i2c, communication, sensor, arduino, code |
| • lamaPLC: XGZP68xx: Silicon Pressure Sensors/Module | 2026/05/15 15:17 | communication, i2c, sensor, modul, pressure, cfsensor, xgzp68xx, xgzp6810d, xgzp6857d, xgzp6859d, xgzp6887d, xgzp6897d, xgzp6899a, piezoresistive, capacitive |

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