

# LamaPLC: CJMCU-6814 combined gas sensor module for CO, NO<sub>2</sub>, NH<sub>3</sub>

The CJMCU-6814 is a specialized gas sensor module designed for air quality monitoring, primarily built around the MiCS-6814 sensor. It is a “3-in-1” device capable of detecting carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), and ammonia (NH<sub>3</sub>) simultaneously through three independent analog channels.



## Key Technical Specifications

- **Target Gases & Range:**
- **Carbon Monoxide (CO):** 1 - 1000 ppm.
- **Nitrogen Dioxide (NO<sub>2</sub>):** 0.05 - 10 ppm.
- **Ammonia (NH<sub>3</sub>):** 1 - 500 ppm.
- **Secondary detection:** Detects Ethanol, Hydrogen, Methane, and Propane.
- **Operating Voltage:** 4.9V - 5.1V.
- **Output:** Three analog output pins (Red, Ox, NH3) corresponding to the internal sensing elements.

## Important Usage Notes

- **Warm-up Period:** The sensor requires a significant warm-up time to reach a stable operating temperature. The datasheet indicates that it can take more than *120 minutes* for the internal heater to stabilize.
- **Calibration:** It is designed for relative measurement, not absolute precision. You must calibrate it in your specific environment (e.g., “clean air” as a baseline) to convert analog voltage changes into meaningful ppm estimates.
- **No I<sup>2</sup>C:** Unlike some other MiCS-6814 breakout boards, the purple CJMCU version typically does not support I<sup>2</sup>C. You must use the Arduino analog pins (e.g., A0, A1, A2) to read data.
- **External Resistors:** For optimal results and to prevent sensor damage, it is often recommended to use external pull-up resistors (e.g., 47 kΩ) or a combination with a 10kΩ potentiometer to tune the output range.



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## Arduino code

To interface the CJMCU-6814 with an Arduino, you read the three analog output channels (CO, NH<sub>3</sub>, NO<sub>2</sub>) using `analogRead()`. This sensor typically does not use I<sup>2</sup>C, so you must connect the pins directly to the Arduino's analog inputs.

This sketch reads the raw voltage from each sensor channel every 5 seconds.

```
// CJMCU-6814 Basic Reading Example
const int pinCO = A0; // Carbon Monoxide (RED channel)
const int pinNH3 = A1; // Ammonia (NH3 channel)
const int pinNO2 = A2; // Nitrogen Dioxide (OX channel)

void setup() {
  Serial.begin(9600);
  Serial.println("CJMCU-6814 Gas Sensor Initializing...");
  // Sensor requires a long warm-up (up to 30-120 mins) for stability
}

void loop() {
  // Read raw values (0-1023)
  int rawCO = analogRead(pinCO);
  int rawNH3 = analogRead(pinNH3);
  int rawNO2 = analogRead(pinNO2);

  // Convert to voltage (assuming 5V Arduino)
  float voltCO = rawCO * (5.0 / 1023.0);
  float voltNH3 = rawNH3 * (5.0 / 1023.0);
  float voltNO2 = rawNO2 * (5.0 / 1023.0);

  // Print results
  Serial.print("CO: "); Serial.print(voltCO); Serial.print("V | ");
  Serial.print("NH3: "); Serial.print(voltNH3); Serial.print("V | ");
  Serial.print("NO2: "); Serial.print(volt8); Serial.println("V");

  delay(5000);
}
```

## CJMCU topics on lamaPLC

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<ul style="list-style-type: none"> <li>• LamaPLC: BMP/BME Bosch Temperature/Humidity/Pressure sensors with I<sup>2</sup>C communication</li> </ul>	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
<ul style="list-style-type: none"> <li>• lamaPLC: CJMCU-164; SN74HC164D 8-bit Shift Register Module</li> </ul>	2026/03/06 01:19	cjmcu-164, sn74hc164d, 8-bit shift register, communication, 7-segment, cjmcu, arduino
<ul style="list-style-type: none"> <li>• LamaPLC: CJMCU-219/INA-219 breakout board/IC with I<sup>2</sup>C communication</li> </ul>	2026/04/23 21:52	cjmcu-219, ina-219, ina219, breakout board, i2c, communication, sensor, voltage, current, arduino, code, cjmcu
<ul style="list-style-type: none"> <li>• LamaPLC: CJMCU-3216 / AP-3216 integrated digital ambient light and proximity sensor module/IC with I<sup>2</sup>C communication</li> </ul>	2026/04/23 21:52	cjmcu-3216, cjmcu, ap-3216, ap3216, ambient light, proximity, sensor, arduino, code, i2c, communication
<ul style="list-style-type: none"> <li>• LamaPLC: CJMCU-3901/PMW-3901 compact optical flow sensor module/IC by PixArt with SPI communication</li> </ul>	2026/04/23 21:52	cjmcu-3901, cjmcu, pmw3901, pmw-3901, optical flow, sensor, pixart, spi, communication, arduino, code, pmw3901mb-txqt
<ul style="list-style-type: none"> <li>• LamaPLC: CJMCU-6701: Biosensor for measuring Galvanic Skin Response (GSR) with SPI communication</li> </ul>	2026/04/23 21:52	cjmcu, cjmcu-6701, acs758, acs-758, galvanic skin response, gsr, electrodermal activity, eda, spi, communication, arduino, code, sensor, healthcare
<ul style="list-style-type: none"> <li>• LamaPLC: CJMCU-6814 combined gas sensor module for CO, NO<sub>2</sub>, NH<sub>3</sub></li> </ul>	2026/04/23 21:52	analog, cjmcu, cjmcu-6814, mics6814, mics-6814, sensor, arduino, code, carbon monoxide, co, ammonia, nh <sub>3</sub> , nitrogen dioxide, no <sub>2</sub>
<ul style="list-style-type: none"> <li>• LamaPLC: CJMCU-8221 Analog Devices Precision instrumentation amplifier module</li> </ul>	2026/04/23 21:52	cjmcu-8221, ad8221ar, analog devices, amplifier, sensor, cjmcu
<ul style="list-style-type: none"> <li>• LamaPLC: HDC Texas Instruments Temperature/humidity sensors with I<sup>2</sup>C communication</li> </ul>	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
<ul style="list-style-type: none"> <li>• lamaPLC: MCP23017 / MCP23S17 16-Bit I/O Expander with Serial Interface I<sup>2</sup>C / SPI</li> </ul>	2026/04/23 21:52	communication, i2c, mcp23017, mcp23s17, spi, i o expander, serial, cjmcu-2317, cjmcu
<ul style="list-style-type: none"> <li>• LamaPLC: SC16IS750 / SC16IS752: One or two serial (UART) ports from microcontroller via I<sup>2</sup>C or SPI communication</li> </ul>	2026/04/23 21:52	cjmcu-750, cjmcu-752, cjmcu, nxp, sc16is750, sc16is752, uart, serial, i2c, spi, modul, converter, arduino, code

analog, CJMCU, CJMCU-6814, mics6814, MICS-6814, sensor, arduino, code, Carbon monoxide, CO, Ammonia, NH<sub>3</sub>, Nitrogen dioxide, NO<sub>2</sub>

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