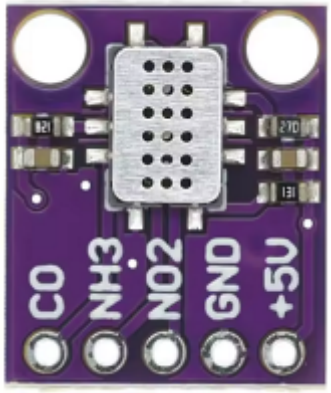
LamaPLC: CJMCU-6814 combined gas sensor module for CO, NO_2, NH_3

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_2), and ammonia (NH_3) simultaneously through three independent analog channels.



Key Technical Specifications

- **Target Gases & Range:**
- **Carbon Monoxide (CO):** 1 – 1000 ppm.
- **Nitrogen Dioxide (NO_2):** 0.05 – 10 ppm.
- **Ammonia (NH_3):** 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^2C:** Unlike some other MiCS-6814 breakout boards, the purple CJMCU version typically does not support I^2C. 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_3, NO_2) using analogRead(). This sensor typically does not use I^2C, 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

Page	Date	Tags
• LamaPLC: Allegro ACS758 Hall-effect linear current sensors	2026/04/23 21:52	cjmcu, cjmcu-758, acs758, acs758lcb-050b, acs758lcb-100b, acs758kcb-150b, acs758ecb-200b, hall-effect, current, sensor, analog, arduino, code

• LamaPLC: BMP/BME Bosch Temperature/Humidity/Pressure sensors with I²C communication	2026/04/23 21:52	bme280, bme680, bmp180, bmp280, hw-611, hw611, bosch, temperature, humidity, pressure, sensor, arduino, i2c, communication, cjmcu
• lamaPLC: CJMCU-164; SN74HC164D 8-bit Shift Register Module	2026/03/06 01:19	cjmcu-164, sn74hc164d, 8-bit shift register, communication, 7-segment, cjmcu, arduino
• LamaPLC: CJMCU-219/INA-219 breakout board/IC with I²C 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 I²C communication	2026/04/23 21:52	cjmcu-3216, cjmcu, ap-3216, ap3216, ambient light, proximity, sensor, arduino, code, i2c, communication
• LamaPLC: CJMCU-3901/PMW-3901 compact optical flow sensor module/IC by PixArt with SPI communication	2026/04/23 21:52	cjmcu-3901, cjmcu, pmw3901, pmw-3901, optical flow, sensor, pixart, spi, communication, arduino, code, pmw3901mb-txqt
• LamaPLC: CJMCU-6701: Biosensor for measuring Galvanic Skin Response (GSR) with SPI communication	2026/04/23 21:52	cjmcu, cjmcu-6701, acs758, acs-758, galvanic skin response, gsr, electrodermal activity, eda, spi, communication, arduino, code, sensor, healthcare
• LamaPLC: CJMCU-6814 combined gas sensor module for CO, NO_2, NH_3	2026/04/23 21:52	analog, cjmcu, cjmcu-6814, mics6814, mics-6814, sensor, arduino, code, carbon monoxide, co, ammonia, nh3, nitrogen dioxide, no2
• LamaPLC: CJMCU-8221 Analog Devices Precision instrumentation amplifier module	2026/04/23 21:52	cjmcu-8221, ad8221ar, analog devices, amplifier, sensor, cjmcu
• 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: 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
• LamaPLC: SC16IS750 / SC16IS752: One or two serial (UART) ports from microcontroller via I²C or SPI communication	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_3, Nitrogen dioxide, NO_2