

lamaPLC: MLX90614 (GY-906) infrared non-contact thermometer

The Hailege **MLX90614** is an *infrared thermometer for non-contact temperature measurements*. Both the IR-sensitive thermopile detector chip and the signal conditioning ASIC are integrated in the same TO-39 can. Integrated into the MLX90614 are a low-noise amplifier, a 17-bit ADC, and a powerful DSP unit, thus achieving high accuracy and resolution for the thermometer.



The thermometer comes factory-calibrated with a digital SMBus output, providing full access to the measured temperature across the complete temperature range(s) with a resolution of 0.02°C.

The user can configure the digital output to use *pulse-width modulation (PWM)*. By default, the 10-bit PWM continuously transmits the measured temperature in the range of -20 to 120°C, with an output resolution of 0.14°C.

MLX90614 Features

- Factory calibrated in a wide temperature range: -40 to 125°C for sensor temperature and -70 to 380°C for object temperature
- High accuracy of 0.5°C over a wide temperature range (0..+50 C for both Ta and To)
- Medical accuracy of 0.1°C in a limited temperature range available on request
- Measurement resolution of 0.02°C
- Single and dual zone versions
- SMBus-compatible digital interface for rapid temperature readings and building sensor networks
- Customizable PWM output for continuous reading
- Available in 3.3V and 5V versions
- Simple adaptation for 8 to 16V applications
- Power saving mode
- Different package options for applications and measurement versatility
- Automotive grade

MLX90614 (GY-906) Module Pinout

If you are using the blue breakout board, the pins are typically labelled on the back:

- **VIN / VCC:** Power supply. Most modules support 3.3V to 5V because they include a voltage regulator.
- **GND:** Ground reference.
- **SCL:** Serial Clock for I²C communication.
- **SDA:** Serial Data for I²C communication.

Important Wiring Notes

- **Logic Levels:** The RP2040-ETH uses 3.3V logic. Ensure your sensor's VIN is connected to the RP2040's 3V3 pin to avoid damaging the GPIOs.
- **Pull-up Resistors:** I²C communication requires pull-up resistors (typically 4.7 kΩ or 10 kΩ) on

the SDA and SCL lines. Most GY-906 modules have these built-in.

- **I²C Address:** The default factory address for the MLX90614 is **0x5A**

I²C topics on lamaPLC

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• LamaPLC: APDS - Avago ALS and proximity detection sensors with I²C communication	2026/04/23 21:52	avago , apds-9900 , apds-9930 , apds-9960 , als , proximity , detection , gesture recognition , gesture , i2c , communication , sensor , arduino , code
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• 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-811 CCS811 Gas Sensor (VOCs TVOC CO₂)	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 I²C 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 I2C 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
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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
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• LamaPLC: HDC Texas Instruments Temperature/humidity sensors with I ² C 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
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• lamaPLC: INA modules with Arduino libraries	2026/04/23 21:52	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 I ² C communication	2026/04/23 21:52	i2c, i c, communication, arduino, energy, power, current, monitor, sensor, ina226, ina219, ina

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• LamaPLC: Pixart PAJ7620U2 Gesture recognition sensors/module with I²C communication	2026/04/23 21:52	paj7620u2 , gy-paj7620 , pixart , gesture recognition , i2c , communication , sensor , arduino , code
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• 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 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
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• LamaPLC: SHT Sensirion Temperature/humidity sensor with I²C communication	2026/04/23 21:52	sht20 , sht21 , sht25 , sht30 , sht31 , sht35 , sht40 , gy21 , temperature , humidity , i2c , communication , sensor , arduino , code
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- [LamaPLC: VL53Lnn STMicroelectronics time-of-flight \(ToF\) laser-ranging sensors with I²C communication](#) 2026/04/23 21:52 [vl53l0x, vl53l1x, vl53l0 1xv2, gy-530, time-of-flight, tof, laser-ranging, i2c, communication, sensor, arduino, code](#)
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- [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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