

LamaPLC: VL6180X STMicroelectronics Time-of-Flight (ToF) sensor with I2C communication

The VL6180X is a compact optical sensor by STMicroelectronics that uses Time-of-Flight (ToF) technology to provide accurate distance (ranging) and ambient light level measurements. Unlike traditional IR sensors, it measures absolute distance independent of the object's color or surface reflectance

Technology: Time-of-Flight (ToF) based on STMicroelectronics FlightSense patented technology. Measurement Range: Measures distances from 30 mm up to 2,000 mm (2 m), with resolution in millimeters. The achievable range can vary based on ambient light and target surface properties. Emitter: Uses a 940 nm invisible Class 1 VCSEL (Vertical Cavity Surface-Emitting Laser) which is eye-safe and offers high immunity to ambient light. Interface: Communicates via an I²C interface (default address 0x29) and includes XSHUT (shutdown/reset) and GPIO1 (interrupt) pins for control and data transfer. Accuracy: Provides a typical accuracy of $\pm 3\%$ at distances up to 1 meter. Power Consumption: Very low, with approximately 10 mA typical average during active ranging and 5 μ A in standby mode. Dimensions: A miniature module, typically 4.4 x 2.4 x 1.0 mm for the sensor chip itself, with carrier boards available for easy integration into breadboards. Operating voltage 2.6 .. 3V DC Infrared light at 850 nm Responsive time: 50ms

Arduino wiring

- SCL: A5
- GND: GND
- SDA: A4
- Vdd: 5V

Arduino code

sample

Example codes

none

I²C topics on lamaPLC

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• lamaPLC Communication: 1-Wire	2025/05/31 21:56	1-wire , communication , bus , microlan , i2c , uart , usart , ds18b20

• lamaPLC Communication: I²C	2025/09/23 19:25	i2c , i c , smbus , philips , bus , communication , arduino
• LamaPLC: AHT20 / BMP280 Modul	2025/10/10 08:37	bmp280 , aht20 , adafruit , temperature , humidity , pressure , sensor , arduino , code , i2c
• LamaPLC: APDS - Avago ALS and proximity detection sensors with I²C communication	2026/02/10 16:02	avago , apds-9900 , apds-9930 , apds-9960 , als , proximity , detection , gesture recognition , gesture , i2c , communication , sensor , arduino , code
• LamaPLC: BMP/BME Bosch Temperature/Humidity/Pressure sensors with I²C communication	2026/02/08 21:45	bme280 , bme680 , bmp180 , bmp280 , bosch , temperature , humidity , pressure , sensor , arduino , i2c , communication
• LamaPLC: DHT Temperature /Humidity sensors with 1-wire / I²C communication	2026/02/08 21:45	dht11 , dht20 , dht22 , temperature , humidity , pressure , sensor , 1-wire , i2c , arduino , code
• LamaPLC: DPS Infineon Temperature/Pressure sensors with I2C communication	2026/02/08 21:45	dps310 , infineon , temperature , pressure , sensor , arduino , i2c , communication , code
• lamaPLC: Energy, power, current, and voltage	2025/05/31 21:32	i2c , i c , communication , arduino , energy , power , current , sensor , ina226
• LamaPLC: ENS ScioSense Multi-gas sensors with I²C communication	2026/02/08 21:45	ens160 , sciosense , gas-quality , i2c , communication , sensor , arduino , code
• lamaPLC: ESP32 / ESP8266	2025/11/21 23:07	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 15:29	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-9250 MPU-9250/6500 9-axis Attitude Sensor Board	2026/02/03 20:22	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	2026/02/08 21:45	hdc1080 , texas instruments , temperature , humidity , sensor , i2c , communication , arduino , code
• lamaPLC: HT16K33 display controller	2025/11/22 21:26	i2c , 7-segment display , display , ht16k33 , arduino
• LamaPLC: HTU TE Connectivity temperature/humidity sensors with I²C communication	2026/02/08 21:45	htu21 , te connectivity , temperature , humidity , i2c , communication , sensor , arduino , code

• LamaPLC: Humidity/temperature / air-pressure / gas / air-quality sensors and modules for Arduino	2025/09/23 19:08	sht20, sht21, sht25, sht30, sht31, sht35, sht40, dht11, dht20, dht22, am2302, dps310, bme280, bme680, bmp180, bmp280, si7021, tc1047a, ds18b20, htu21, htu21d, gy21, gy68, gy bme280, scd30, modul, humidity, temperature, air-press, sensor, i2c, spi, modbus, onewire, communication
• lamaPLC: LCD 1602/2004	2025/10/09 21:58	communication, i2c, display, lcd, 1602, 2004, hd44780
• lamaPLC: MCP23017 / MCP23S17 16-Bit I/O Expander with Serial Interface	2025/12/04 00:34	communication, i2c, mcp23017, mcp23s17, spi, i o expander, serial, cjmcu-2317
• LamaPLC: Pixart gesture recognition sensors/module with I²C communication	2026/02/10 13:47	paj7620u2, gy-paj7620, pixart, gesture recognition, i2c, communication, sensor, arduino, code
• LamaPLC: SGP Sensirion Gas-sensors with I²C communication	2026/02/08 21:45	sgp30, sgp40, sgp41, sensirion, gas-sensor, i2c, communication, sensor, arduino, code
• LamaPLC: SHT Sensirion Temperature/humidity sensor with I²C communication	2026/02/08 21:45	sht20, sht21, sht25, sht30, sht31, sht35, sht40, gy21, temperature, humidity, i2c, communication, sensor, arduino, code
• lamaPLC: Signal level converters	2025/11/22 19:12	pca9306, i2c, voltage, level, converter
• lamaPLC: TCA9548A (HW617); Low-Voltage 8-Channel I²C Switch Module	2025/11/22 18:48	tca9548a, hw617, i2c, switch, communication, expansion board, arduino
• lamaPLC: TM1637 7-segment display	2025/10/09 16:03	i2c, 7-segment display, display, tm1637, arduino
• LamaPLC: TOFnnnC STMicroelectronics Time-of-Flight (ToF) sensors with I²C communication	2026/02/09 16:05	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 I²C communication	2026/02/09 15:35	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 I2C communication	2026/02/09 15:48	vl6180x, stmicroelectronics, time-of-flight, tof, i2c, communication, sensor, arduino, code
• SSH1106/SSD1306 OLED Display with I²C communication	2026/02/06 16:40	i2c, oled, display, ssd1306, sh1106, ssh1106, arduino, cmos

[VL6180X, STMicroelectronics, Time-of-Flight, ToF, i2c, communication, sensor, arduino, code](#)

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