

lamaPLC: TM1637 7-segment display



The TM1637 module is a driver for 4-digit 7-segment displays. These chips are standard in inexpensive display units. They communicate with the processor using an **I²C-like protocol**. The implementation relies entirely on software emulation and uses no specialized hardware, aside from GPIO pins. It is assumed that pull-up resistors are present, typically integrated into the display module.

- Operating voltage: 3.3 – 5 V DC
- Maximum current draw: 80mA
- Reverse polarity protection: Yes

Wiring Diagram

| TM1637 Pin | Arduino | Pin Description |
|------------|------------------|----------------------------------|
| GND | GND | Ground |
| VCC | 5V or 3.3V Power | (3.3V–5.25V DC) |
| DIO | Digital Pin 3 | Data Input/Output (configurable) |
| CLK | Digital Pin 2 | Clock Input (configurable) |



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Required Library

Install the **TM1637Display** library by Avishay Orpaz through the Arduino IDE Library Manager (Sketch > Include Library > Manage Libraries...)

Arduino code

This code initializes the display, sets the brightness, and loops through a simple counter.

```
#include <TM1637Display.h>
```

```
// Define the connections
#define CLK 2
#define DIO 3

// Create a display object
TM1637Display display(CLK, DIO);

void setup() {
  display.setBrightness(0x0f); // Set brightness (0x00 to 0x0f)
  display.clear();           // Clear the display
}

void loop() {
  // Show a static number
  display.showNumberDec(1234);
  delay(2000);

  // Counter loop
  for (int i = 0; i <= 100; i++) {
    display.showNumberDec(i);
    delay(100);
  }

  display.clear();
  delay(1000);
}
```

Sources

[Arduino Doc TM1637 library](#)

Sensor topics on lamaPLC

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| <ul style="list-style-type: none">• lamaPLC project: Arduino - OLED SH1106 with AHT20/BMP280 Sensor | 2026/04/23 21:51 | bmp280 , aht20 , temperature , humidity , pressure , sensor , arduino , oled , sh1106 , arduino code |
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| • lamaPLC: A0221AU / A02YYUW Waterproof Ultrasonic Distance Sensor with UART communication | 2026/04/23 21:52 | a0221au, a02yyuw, waterproof, ultrasonic, distance, sensor, uart, ip67, serial, sen0311, dfrobot |
| • 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: 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: 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 | 2026/05/13 00:06 | communication, i2c, as5600, as-5600, magnetic, induction, angle, sensor |
| • 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: BQ25570 / CJMCU-2557 - Texas Instruments nano-power management IC and module | 2026/04/23 21:52 | bq25570, sensor, texas instruments, nano-power management, dc-dc boost charger, mppt, solar, thermoelectric, piezoelectric, energy harvesting, eh |
| • 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-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, nh ₃ , nitrogen dioxide, no ₂ |

- [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](#)
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- [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](#)
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| • LamaPLC: HTU TE Connectivity temperature/humidity sensors with I ² C 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: HX711 24-bit analog-to-digital converter (ADC) | 2026/04/11 18:28 | hx711, hx-711, analog-to-digital, adc, converter, load cell, wheatstone bridge, weight, sensor, communication, arduino, code |
| • 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 |
| • lamaPLC: LTC3588 - Nanopower energy harvesting power supply IC | 2026/04/23 21:52 | communication, arduino, sensor, energy harvesting, eh, energy, ambient power |
| • LamaPLC: M01 - V0.4 Laser ranging sensor with UART communication | 2026/04/23 21:52 | distance measurement, laser, distance, sensor, m01 |
| • LamaPLC: MAX30100/MAX30102 Heart Rate Click Sensor Module | 2026/04/23 21:52 | max30102, max30100, heart rate click, sensor, communication, i2c, arduino, code |
| • lamaPLC: Max31865 RTD to Digital Converter - PT100/PT1000 Platine | 2026/04/23 21:52 | max31865, rtd, pt 100, pt 1000, temperature, spi, platinum, arduino, code, sensor, adafruit |
| • LamaPLC: MAX4466/MAX9814: Low-noise Microphone Preamplifiers | 2026/04/23 21:52 | audio, microphone, analogue audio, max4466, max9814, max 4466, max 9814, agc, preamplifiers, sensor, arduino, code |
| • LamaPLC: MH-Z19 series of NDIR CO ₂ sensors | 2026/04/23 21:52 | mh-z19, mh-z19d, mh-z19c, mh-z19b, mh-z19e, ndir, co ₂ , sensor, winsen, uart, pwm, communication, non-dispersive infrared, infrared, ir, temperature, arduino, code, tasmota |
| • lamaPLC: MPU-6050 (HW-123, GY-521) 6-axis MotionTracking device | 2026/04/23 21:52 | mpu-6050, hw-123, gy-521, 6-axis motiontracking, dmp, temperature, sensor, mems, arduino code, arduino, accelerometer, gyroscope, tilt |
| • LamaPLC: MQ Winsen Gas-sensors | 2026/04/23 21:52 | mq, mq-2, mq-3, mq-4, mq-5, mq-6, mq-7, mq-8, mq-9, mq-131, mq-135, mq-137, winsen, gas-sensor, sensor, arduino, code, alcohol, c ₂ h ₅ oh, benzine gas, smoke, lpg, propane, c ₃ h ₈ , hydrogen, h ₂ , methane, ch ₄ , iso-butane, town gas, ammonia, nh ₃ |
| • LamaPLC: PIR sensors | 2026/04/23 21:52 | hc-sr501, hc-sr505, am-312, ekmb ekmc, pir, motion, sensor, arduino, code |

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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 |
| • lamaPLC: PT100 / PT1000 | 2025/09/23 18:59 | pt100 , pt1000 , temperature , sensor , platine , rtd |
| • lamaPLC: PTA8C04 4-channel PT100 Modbus Modul | 2026/02/14 18:42 | pta8c04 , sensor , modbus , rtu , rs-485 , communication , platine , um72 |
| • LamaPLC: RCWL - Microwave radar sensor | 2026/04/23 21:52 | rcwl-0516 , rcwl , microwave , radar , sensor , arduino , code |
| • lamaPLC: RD-xx - Ai-Thinker Radar Module with UART communication | 2026/04/23 21:52 | radar , s3km1110 , fmcw , rd-01 , rd-03 , rd-03d , ai-thinker , k-band , 24 ghz , sensor , distance , micro-movements |
| • 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: Sensors | 2026/04/15 19:42 | sensor |
| • LamaPLC: SGP Sensirion TVOC/VOC sensors with I²C 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 I²C communication | 2026/04/23 21:52 | sht20 , sht21 , sht25 , sht30 , sht31 , sht35 , sht40 , gy21 , temperature , humidity , i2c , communication , sensor , arduino , code |
| • LamaPLC: Texas Instruments ADCs: Delta-sigma multi-channel Analog Converters with SPI communication | 2026/04/23 21:52 | ads111x , ads12xx , delta-sigma , converter , texas instruments , adc , spi , communication , sensor , arduino , code , ads1110 , ads1112 , ads1113 , ads1114 , ads1115 , ads1118 , ads1119 , ads1220 , ads1232 , ads1234 , ads1256 , ads1261 , ads1263 , multi channel |
| • LamaPLC: TOFnnnC STMicroelectronics Time-of-Flight (ToF) sensors with I²C communication | 2026/04/23 21:52 | tof050c , vl6180 , tof200c , vl53l0x , tof400c , vl53l1x , stmicroelectronics , time-of-flight , tof , i2c , communication , sensor , arduino , code |
| • LamaPLC: UICPAL Temp.humi.sensor | 2023/06/25 00:43 | simatic , s7 , modbus , communication , temperature , humidity , sensor |
| • 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 |
| • LamaPLC: VL6180X STMicroelectronics Time-of-Flight (ToF) sensor with I²C communication | 2026/04/23 21:52 | vl6180x , stmicroelectronics , time-of-flight , tof , i2c , communication , sensor , arduino , code |
| • LamaPLC: Waveshare TOF Laser Range Sensor with UART / I²C communication | 2026/04/23 21:52 | distance measurement , laser , range , sensor , tof , waveshare |

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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 |
| • lamaPLC: YR-3180 - Weight sensor module with UART or Modbus communication | 2026/02/15 00:00 | communication, modbus, rtu, sensor, weight, yr-3180, hx710b, arduino, ttl, rs-485 |
| • LM393: Dual differential comparator (flame, light, sound sensors) | 2026/05/12 22:18 | communication, analog, lm393, lm-393, flame, ir, sound, hall, sensor, ky-026, hw-484, ky-037, ky-038, fc-03, hc-89, ky-024, modul |
| • Magnetic angle sensors | 2026/04/23 21:52 | magnetic angle sensor, magnetic flux, sensor, spi, i2c, pwm, communication, modul, as5047p, as5600, mt6701, mt6816, mt6835, tle5012b, amr, gmr, tmr, anisotropic magnetoresistive |
| • NT18B07: 7 Kanal RS485 Temperatur Sensor with Modbus RTU | 2026/02/14 18:49 | nt18b07, sensor, modbus, rtu, rs-485, communication, platine |
| • PT100 / PT1000 sensors | 2026/04/23 21:52 | rtd, pt100, pt1000, sensor, temperature |
| • Radar Module RD-xx | 2026/04/23 21:52 | radar, s3km1110, fmcw, rd-03, k-band, 24 ghz, sensor, distance, micro-movements |

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