

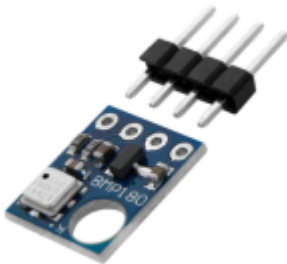
LamaPLC: BMP/BME Bosch Temperature/Humidity/Pressure sensors with I²C communication

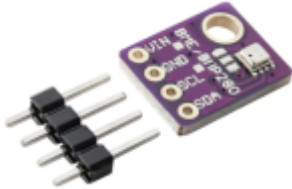
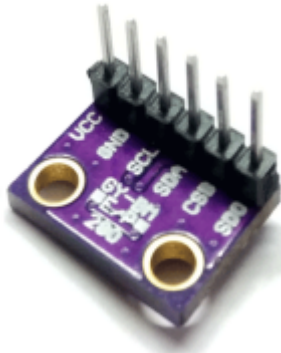
Bosch BMP sensors primarily measure barometric pressure and temperature, while Bosch BME sensors are more comprehensive, adding humidity and, in newer models, gas/air quality sensing.

Type of measurement	Model	Power voltage	Measurement, range, accuracy	Communication	Note
 Temperature Humidity Air pressure	Bosch BME280 	3.3 V (1.71 .. 3.6V)	Temperature measurement range: -40 .. +80 °C Temperature measurement accuracy: ±0.5°C (-40..85) Humidity measurement range: 0..100% RH Humidity measurement accuracy: ±3% Air pressure Range: 300 .. 1100 hPa Air pressure accuracy: ±0.25%	I ² C default addr.: 0x76/77 SPI	-
 Temperature Humidity Air pressure	Bosch BME680 	3.3 V (1.71 .. 3.6V)	Temperature measurement range: -40 .. +80 °C Temperature measurement accuracy: ±1.5°C Humidity measurement range: 0..100% RH Humidity measurement accuracy: ±3% Air pressure Range: 300 .. 1100 hPa Air pressure accuracy: ±0.25%	I ² C default addr.: 0x76/77 SPI	Direct output of IAQ: Index for Air Quality

Type of measurement	Model	Power voltage	Measurement, range, accuracy	Communication	Note
 Temperature Air-pressure	Bosch BMP180 	3.3 V (1.62 .. 3.6V)	Temperature measurement range: -40 .. +85 °C Temperature measurement accuracy: $\pm 1.5^{\circ}\text{C}$ Air pressure Range: 4.35PSI .. 15.95PSI (30kPa .. 110kPa) Air pressure accuracy: $\pm 2\%$	I²C default addr.: 0x77 (fix)	Maximum Pressure: 145.04PSI (1000kPa) Temperature resolution: 0.1 °C Pressure resolution: 1 Pa
 Temperature Air-pressure	Bosch BMP280 	3.3 V (1.71 .. 3.6V)	Temperature measurement range: -40 .. +85 °C Temperature measurement accuracy: $\pm 1.5^{\circ}\text{C}$ Air pressure Range: 4.35PSI .. 15.95PSI (30kPa .. 110kPa) Air pressure accuracy: $\pm 2\%$	I²C default addr.: 0x76 SPI	Maximum Pressure: 290.08PSI (2000kPa) Temperature resolution: 0.01 °C Pressure resolution: 0.16 Pa

Moduls

Type of measurement	Name	Pictures	Sensors	Description
 - Temp - Air-press	GY-68, BMP180		BMP180	- I²C interface (only 1 modul) - The I ² C address on the BMP180 is 0x77. And it is fixed, making it impossible to add multiple sensors to the same I ² C bus. - Compatible with Arduino, Atmega328p, ESP and Raspberry

Type of measurement	Name	Pictures	Sensors	Description
T H P - Temp - Humidity - Air press	GY-BME280		BME280	- I²C interface (max. 2 moduls) - The module's default I2C address is 0x76, which can be easily changed to 0x77 using the provided solder jumper.* - Compatible with Arduino, Atmega328p, ESP, and Raspberry <i>*: To change the i2c address to 0x77, cut the trace between the middle and left copper pads with a sharp knife. Then, add a solder blob between the middle and right copper pads to short them.</i>
T P - Temp - Air press	GY-BMP280-3.3,BMP280		BMP280	- Or I²C interface (max. 2 moduls; up to 3.4 MHz) - Or SPI interface (up to 10 MHz) - Current consumption of sensor BMP280: 2.7µA @ 1 Hz sampling rate - The Chip Select (CSB) and Serial Data Output (SDO) pins of the BMP280 are necessary only when SPI-based (four-wire) communication is applied. I²C is a two-wire interface, comprising SDA and SCK. - Default I²C is: 0x76 (SDO pin low) - To I²C 0x77 address connect pin 6 of the module (SDO) to Vcc, which would typically be the 3.3V supply - Pin 5 of the module (CSB) must be connected to Vcc to select the I²C interface

Arduino

Arduino wiring

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

Arduino code

sample

I²C topics on lamaPLC

Page	Date	Tags
• 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

[BME280](#), [BME680](#), [BMP180](#), [BMP280](#), [Bosch](#), [temperature](#), [humidity](#), [pressure](#), [sensor](#), [arduino](#), [i2c](#), [communication](#)

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