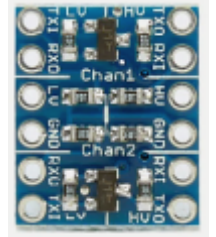


lamaPLC: Bi-Directional Logic Level Converter 3.3V ↔ 5V

The Two-Channel 5V to 3.3V Bi-Directional Logic Level Converter is a compact module designed to safely bridge communication between devices operating at different voltage levels, such as an Arduino Uno (5V) and a Raspberry Pi or 3.3V sensor.



Key Features

- **Bi-Directional Communication:** Automatically converts signals from 5V to 3.3V and vice versa on the same channel.
- **Protocol Support:** Optimised for [I²C](#) (IIC) as it manages the bidirectional data line (SDA) without needing manual direction control. It also supports [UART](#), [SPI](#), and [1-Wire](#) protocols.
- **Voltage Flexibility:** Although primarily used for 5V and 3.3V, many modules are compatible with 1.8V and 2.8V systems.
- **Compact Design:** Usually measures about 16mm x 13mm and is suitable for breadboard use.



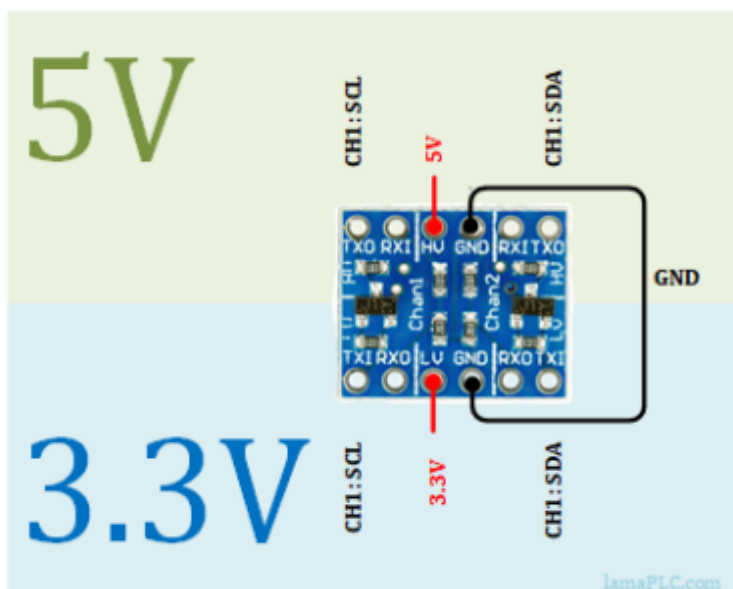
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2026/02/14 22:38

Typical Pinout and Wiring

The module is divided into a High Voltage (HV) side and a Low Voltage (LV) side. You must provide power references to both.



Pin Label	Connection
HV	5V Power Supply (High Voltage Reference)
LV	3.3V Power Supply (Low Voltage Reference)
GND	Common Ground (connect to both systems)
HV1 / HV2	5V side data lines (e.g., SDA/SCL from Arduino)
LV1 / LV2	3.3V side data lines (e.g., SDA/SCL to sensor)

Communication topics on lamaPLC

Page	Date	Tags
<ul style="list-style-type: none"> • ISM Band 	2025/11/10 18:53	ism, ism band, rfid, nfc, dash7, hc-12, arduino, zigbee, z-wave, bluetooth, wi-fi, thread, miwi, nrf24, starlink, wiegand, rf, communication, bus, radio, ku band, ka band, k band, x band
<ul style="list-style-type: none"> • lamaPLC Communication: 1-Wire 	2025/05/31 21:56	1-wire, communication, bus, microlan, i2c, uart, usart, ds18b20
<ul style="list-style-type: none"> • lamaPLC Communication: AS-i 	2025/05/31 22:51	bus, communication, as-i, basic, industrial ethernet, devicenet, interbus, manchester-ii, apm
<ul style="list-style-type: none"> • lamaPLC Communication: Bluetooth basic 	2025/11/19 21:52	communication, bus, bluetooth, ism, ieee, 802.15.1, ble, lmp, l2cap, rfcomm, iot, arduino, hc-05, hc-06
<ul style="list-style-type: none"> • lamaPLC Communication: CAN 	2025/11/20 20:43	communication, bus, can, canopen, most, automotive ethernet, sent sae-j2716, flexray, lin bus
<ul style="list-style-type: none"> • lamaPLC Communication: ControlNet 	2025/05/31 22:58	bus, communication, devicenet, cip, can, ethernet ip, ethernet, controlnet, mac, peer-to-peer, allen-bradley, rockwell automation, fieldbus, rg-6, coaxial cable

• lamaPLC Communication: DALI	2024/11/16 20:08	communication, rs-232, dali, light technic, diia, selv, manchester, asynchronous, half-duplex, serial, iec 62386, d4i, dali-2, dt6, dt8
• lamaPLC Communication: DASH7	2024/11/16 20:21	bus, communication, dash7, ism, srd, aes 128, d7a, blast, iot, rfid
• lamaPLC Communication: DeviceNet	2024/11/16 19:43	bus, communication, devicenet, 62026-3, cip, can, ethernet ip, ethernet, controlnet, mac, peer-to-peer, canopen, allen-bradley, rockwell automation, bosch
• lamaPLC Communication: DMX512	2024/11/16 00:16	bus, communication, dmx512, dmx512-a, rs-485, xlr3, xlr5
• lamaPLC Communication: EtherNet/IP	2024/11/17 00:26	communication, ethernet, bus, ip, cip, ethernet ip, udp, industrial ethernet, ie, tcp, unicast, devicenet, controlnet, ieee 802.3
• lamaPLC Communication: GPS	2024/11/15 20:15	communication, satellite, navigation, gps, ocx, cdma, glonass, beidou, galileo, qzss, uart, arduino
• lamaPLC Communication: IEC 61850 basic	2025/09/23 21:03	1-wire, communication, bus, xml, iec 61850, iec, ethernet, scl, goose, ied
• lamaPLC Communication: InterBus	2024/11/16 00:46	bus, communication, interbus, phoenix contact, en 50254, iec 61158
• lamaPLC Communication: IoT	2025/05/31 22:50	communication, iot, internet, iomt, 6lowpan, ipv4, ipv6, bluetooth, ble, li-fi, nfc, rfid, wi-fi, zigbee, z-wave, lte- advanced, 5g, lora, dash7, lpwan, lorawan, sigfox, nb-iot, weightless, rpma, mioty, vsat, ethernet, thread, matter
• lamaPLC Communication: I ² C	2025/09/23 19:25	i2c, i c, smbus, philips, bus, communication, arduino
• lamaPLC Communication: KNX / EIB	2024/11/15 20:18	communication, bus, knx, knx tp, knx pl, knx rf, knx ip, eib, ehs, batibus, ethernet, ets
• lamaPLC Communication: LoRa, LoRaWAN and LoRa Mesh	2026/03/05 15:43	communication, bus, lora, lorawan, loramesh, mesh, ism, the things network, ttn, aloha, beaconing, csma, csma-ca, mac, adaptive data rate, adr, spreading factor, sf, transmission power, eu863, eu863-870, eu433, us902-928, au915-928, as923, in865-867, cn433, cn470, cn779, cn920, semtech, sx1261, sx1262, sx1276, sx1272, sx1278, encoding rate, er, time on air, toa, iot, netid, listen before talk, lbt
• lamaPLC communication: Matter	2024/11/15 20:21	communication, iot, matter, ethernet, tcp, udp, ipv6, thread, ble, cellular, wifi, pki, ip
• lamaPLC Communication: Modbus	2025/11/19 21:42	modbus, communication, bus, modicon, standard, rtu, tcp, multimaster, coil, register

• lamaPLC Communication: MQTT	2024/11/15 20:28	communication, mqtt, iot, tcp, udp, bluetooth, tcp ip, quic, mqtt-sn, oasis, message broker, mosquitto, qos, arduino, iso iec 20922
• lamaPLC Communication: NFC	2025/05/31 22:16	communication, nfc, rfid, bluetooth, ble, manchester, ask, iso iec 18092
• lamaPLC Communication: NRF24	2024/11/16 01:26	bus, communication, nrf24, ism, ism band, gfsk, rpd, arduino
• lamaPLC Communication: OPC	2024/11/15 20:33	communication, opc, scada, ole, net, xml, tcp, hmi, server, opc ua, opc ua client, mqtt, json, dcom, simatic, erp
• lamaPLC Communication: PowerLink	2024/11/15 21:15	communication, bus, ethernet, tcp, udp, http, powerlink, fast ethernet, opensafety
• lamaPLC Communication: Profibus	2024/11/16 19:09	profibus, profibus pa, profibus dp, communication, fieldbus, bus, iec 61158, iec 61784-1, profinet, rs-485
• lamaPLC Communication: RFID	2025/05/31 21:52	communication, rfid, radio, rf, aidc, prat, arpt, arat, bap, uhf, nfc, em4100, t5557, tag, manchester, fsk, psk, biphasse, nrz
• lamaPLC Communication: RS-232	2024/11/15 21:51	bus, communication, rs-232, rs, basic
• lamaPLC Communication: RS-422	2024/11/15 21:50	bus, communication, rs-422, rs, basic
• lamaPLC Communication: RS-485	2024/11/15 21:52	bus, communication, rs-485, rs, basic, profibus
• lamaPLC Communication: SCADA	2024/11/17 00:33	communication, scada, industry, industrial, hmi
• lamaPLC Communication: Sinec H1	2024/11/16 20:44	communication, bus, fieldbus, sinec-h1, s5, s7, simatic, siemens, industrial ethernet, ie, iec 8073
• lamaPLC Communication: SPI	2024/11/15 21:58	bus, communication, spi, basic, arduino, ssi, sdi, miso, sdo
• lamaPLC Communication: TCP / UDP Basic	2025/11/20 21:49	communication, bus, tcp, udp, tcp ip, darpa, ietf, smtp, http, https, ftp, ftps, ssh, pop3, imap, mysql, cpanel, whm, ssl, webmail, mqtt, ethernet, ip
• lamaPLC communication: Thread	2024/11/15 22:07	bus, communication, matter, thread, matter over thread, zigbee, aes, ipv6, iot, 6lowpan, ethernet, wifi
• lamaPLC Communication: UART / USART basic	2025/02/11 20:21	bus, communication, uart, rs-232, rs-422, rs-485
• lamaPLC Communication: USB	2025/11/20 23:07	usb, usb otg, otg, msc, ums, mtp, dfu, uac, adc, communication, bus, basic
• lamaPLC Communication: Wi-Fi	2024/11/16 18:46	communication, iot, internet, wi-fi, wifi, ieee 802.11
• lamaPLC Communication: Wiegand	2024/11/16 23:39	wiegand, communication, interface, cr80, iec 7810, h10301, hid, wiegand 26, wiegand 32, wiegand 34, wiegand 35, wiegand 37, wiegand 38, wiegand 42

• lamaPLC Communication: WS2812	2024/11/15 23:36	bus, communication, ws2812, ws2812b, ws 2812, ws 2812 b, 5050smd, 4020, 2020, 3535, 5050, nzt, rgb chip, led, arduino, rgb
• lamaPLC Communication: Z-Wave	2024/11/17 21:25	communication, ethernet, bus, ip, z-wave, ism
• lamaPLC Communication: Zigbee	2024/11/17 21:43	communication, ethernet, bus, ip, zigbee, wpan, bluetooth, wi-fi, ism, ieee 802.15.4, zdo, zigbee pro, zc, zr, zed, smart energy, homegrid, homeplug, powerline, ipso, sunspec, 6lowpan, ipv6, rf4ce
• LamaPLC: AHT10 Modul	2026/03/21 19:20	communication, i2c, temperature, humidity, sensor, aht, aht 10, modul
• lamaPLC: AI-Thinker LoRA products	2026/03/05 15:40	ai-thinker, lora manufacturer, communication, lora, modul, ra-01, ra-02, spi, arduino
• LamaPLC: APDS - Avago ALS and proximity detection sensors with I ² C communication	2026/02/14 22:24	avago, apds-9900, apds-9930, apds-9960, als, proximity, detection, gesture recognition, gesture, i2c, communication, sensor, arduino, code
• lamaPLC: AS5600 Magnetic Induction Angle Measurement Sensor Module	2026/03/28 22:50	communication, i2c, as5600, as-5600, magnetic, induction, angle, sensor
• LamaPLC: BMP/BME Bosch Temperature/Humidity/Pressure sensors with I ² C communication	2026/02/15 20:40	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	2026/02/14 22:48	cjmcu-164, sn74hc164d, 8-bit shift register, communication, 7-segment, cjmcu, arduino
• LamaPLC: CJMCU-219/INA-219 breakout board/IC with I ² C communication	2026/02/14 23:37	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	2026/02/14 22:40	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	2026/02/14 22:39	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	2026/02/14 23:39	cjmcu, cjmcu-6701, acs758, acs-758, galvanic skin response, gsr, electrodermal activity, eda, spi, communication, arduino, code, sensor, healthcare
• LamaPLC: DPS Infineon Temperature/Pressure sensors with I ² C communication	2026/02/14 18:11	dps310, infineon, temperature, pressure, sensor, arduino, i2c, communication, code
• lamaPLC: DS18B20 1-Wire Digital Thermometer	2026/02/15 20:44	ds18b20, sensor, 1-wire, communication, arduino, thermometer, parasitic mode

• lamaPLC: Ebyte LoRA products	2026/03/05 15:20	ebyte , lora manufacturer , communication , lora , modul
• 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	2026/02/14 19:29	ens160 , sciosense , gas-quality , i2c , communication , sensor , arduino , code , eco2 , tvoc , aqi , indoor air quality , iaq , co2 , voc
• 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	2026/02/14 22:45	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	2026/02/14 22:09	sht21 , htu21 , si7021 , gy-21 , gy-213v , hdc1080 , gy-213v-hdc1080 , cjmcu , cjmcu-1080 , texas instruments , temperature , humidity , sensor , i2c , communication , arduino , code
• LamaPLC: HTU TE Connectivity temperature/humidity sensors with I²C communication	2026/02/14 21:54	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)	2026/02/15 23:59	hx711 , hx-711 , analog-to-digital , adc , converter , load cell , wheatstone bridge , weight , sensor , communication , arduino , code
• lamaPLC: INA modules with Arduino libraries	2026/03/28 18:02	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 I²C communication	2026/02/14 23:58	i2c , i c , communication , arduino , energy , power , current , monitor , sensor , ina226 , ina219 , ina
• lamaPlc: Industrial Ethernet (IE) Basic	2024/11/15 20:17	communication , bus , ethernet , industrial ethernet , ie , ethernet ip , profinet , powerlink , sercos , iii , cc-link , modbus tcp , ieee , rstp , stp

• lamaPLC: LCD 1602/2004 with I ² C communication	2026/02/14 17:27	communication, i2c, display, lcd, 1602, 2004, hd44780, pcf8574, pcf8574t, pcf8574at, arduino
• lamaPLC: LTC3588 - Nanopower energy harvesting power supply IC	2026/02/14 23:35	communication, arduino, sensor, energy harvesting, energy, ambient power
• LamaPLC: MAX30100/MAX30102 Heart Rate Click Sensor Module	2026/02/14 23:38	max30102, max30100, heart rate click, sensor, communication, i2c, arduino, code
• lamaPLC: MCP23017 / MCP23S17 16-Bit I/O Expander with Serial Interface I ² C / SPI	2026/02/14 22:52	communication, i2c, mcp23017, mcp23s17, spi, i o expander, serial, cjmcu-2317, cjmcu
• LamaPLC: MH-Z19 series of NDIR CO ₂ sensors	2026/02/15 20:20	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: Pixart PAJ7620U2 Gesture recognition sensors/module with I ² C communication	2026/02/14 22:23	paj7620u2, gy-paj7620, pixart, gesture recognition, i2c, communication, sensor, arduino, code
• lamaPlc: Profinet	2024/11/15 20:39	communication, bus, profinet, mrp, rstp, gsdml, xml, profibus, ethernet, tcp
• lamaPLC: PTA8C04 4-channel PT100 Modbus Modul	2026/02/14 17:42	pta8c04, sensor, modbus, rtu, rs-485, communication, platine, um72
• LamaPLC: S7-1500 and Metrawatt EM2389 Modbus TCP communication	2024/11/18 17:55	simatic, s7, modbus, communication, metrawatt, em2389, source code, scl, mid
• LamaPLC: S7-1500 and Sicam Q200 Modbus TCP communication	2023/06/24 22:42	simatic, s7, modbus, tia portal, communication, sicam, q200, sicam q200, source code, scl, class a
• lamaPLC: S7-1500 and UICPAL Temp.humi.sensor Modbus TCP communication	2023/06/19 21:24	bus, communication, s7, simatic, s7 1500, s7 1200, scl, uicpal, temperature, humidity, modbus, example, download, tia portal
• LamaPLC: SGP Sensirion Gas-sensors with I ² C communication	2026/02/15 20:27	sgp30, sgp40, sgp41, sensirion, gas-sensor, i2c, communication, sensor, arduino, code, eco ₂ , voc, tvoc, indoor air quality, iaq, nox, hydrogen
• LamaPLC: SHT Sensirion Temperature/humidity sensor with I ² C communication	2026/02/15 20:29	sht20, sht21, sht25, sht30, sht31, sht35, sht40, gy21, temperature, humidity, i2c, communication, sensor, arduino, code
• lamaPLC: TCA9548A (HW617); Low-Voltage 8-Channel I ² C Switch Module	2026/02/14 22:51	tca9548a, hw617, i2c, switch, communication, expansion board, arduino
• LamaPLC: Texas Instruments ADCs: Delta-sigma multi-channel Analog Converters with SPI communication	2026/02/15 22:34	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](#) 2026/02/14 22:22 [tof050c, vl6180, tof200c, vl53l0x, tof400c, vl53l1x, stmicroelectronics, time-of-flight, tof, i2c, communication, sensor, arduino, code](#)
- [lamaPLC: TWAI basics](#) 2025/11/20 21:41 [bus, communication, as-i, basic, can, twai, espressif, esp32](#)
- [LamaPLC: UICPAL Temp.humi.sensor](#) 2023/06/24 22:43 [simatic, s7, modbus, communication, temperature, humidity, sensor](#)
- [LamaPLC: VL53Lnn STMicroelectronics time-of-flight \(ToF\) laser-ranging sensors with I²C communication](#) 2026/02/14 22:21 [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](#) 2026/02/14 22:22 [vl6180x, stmicroelectronics, time-of-flight, tof, i2c, communication, sensor, arduino, code](#)
- [lamaPLC: Waveshare LoRA products](#) 2026/03/05 15:20 [waveshare, lora manufacturer, communication, lora, modul, usb-to-lora-xf02, core 1262, 1262, spi, arduino, rp2040-lora, rp2040](#)
- [LamaPLC: XTM35SC Modbus communication](#) 2024/08/18 14:52 [xtm35sc, modbus, modbus rtu, measuring, power, communication, current meter, voltmeter](#)
- [lamaPLC: YR-3180 - Weight sensor module with UART or Modbus communication](#) 2026/02/14 23:00 [communication, modbus, rtu, sensor, weight, yr-3180, hx710b, arduino, ttl, rs-485](#)
- [Magnetic angle sensors](#) 2026/03/05 20:19 [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 17:49 [nt18b07, sensor, modbus, rtu, rs-485, communication, platine](#)
- [Simatic Modbus S7 error- and statuscodes](#) 2025/11/13 22:59 [communication, bus, modbus, error, modbus error code, 7000, 7001, 7002, 7003, 7004, 7005, 7006, 80a1, simatic, s7, siemens, tia](#)
- [Waveshare](#) 2023/06/17 19:43 [waveshare, converter, modbus, modbus rtu, modbus tcp, communication](#)
- [XTM35SC current / voltage meter](#) 2023/06/01 11:45 [xtm35sc, modbus, modbus rtu, measuring, power, communication, current meter, voltmeter](#)

[Bi-Directional](#), [Logic Level Converter](#), [I2C](#), [UART](#), [SPI](#)

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