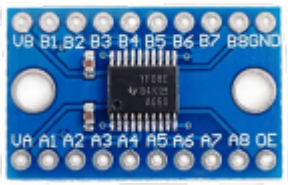
TXS0108E (HW-0108) 8-channel, bidirectional 5V-3.3V logic level converter



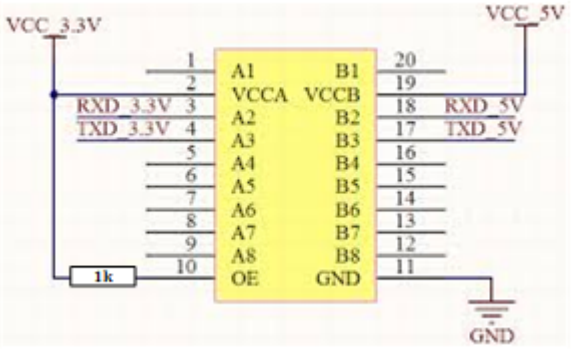
The **TXS0108E (HW-0108)** is an 8-channel bidirectional logic-level converter module designed to bridge communication between devices operating at different voltage levels, such as 3.3V and 5V systems. It features automatic direction sensing, meaning it does not require a dedicated direction-control signal to switch between transmitting and receiving data.

Technical Specifications

According to manufacturers like Texas Instruments and technical guides from ProtoSupplies, the module operates within the following parameters:

- **Voltage Range (VCCA):** 1.2V to 3.6V (Lower voltage side).
- **Voltage Range (VCCB):** 1.65V to 5.5V (Higher voltage side).
- **Data Rates:** Supports up to 110 Mbps for push-pull applications and 1.2 Mbps for open-drain applications like I2C.
- **Requirement:** VCCA must always be less than or equal to VCCB.
- **Dimensions:** Approximately 26 x 16 x 3mm.

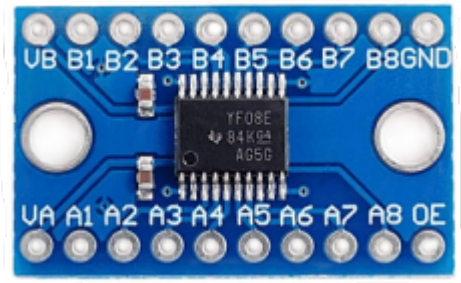
Key Features



- **Bidirectional Translation:** Allows seamless two-way communication without manual configuration of data direction.
- **Output Enable (OE) Pin:** An active-HIGH pin that enables the device when connected to VCCA. If pulled LOW, it places all I/O pins in a high-impedance state, effectively disabling the module.
- **Protocol Support:** Compatible with various serial interfaces, including I²C, SPI, and UART.
- **Auto-Direction Sensing:** Uses internal edge-rate accelerators to detect and automatically switch the signal direction.

Pinout and Connection Guide

The module typically features two rows of pins corresponding to the low-voltage (A) and high-voltage (B) sides:

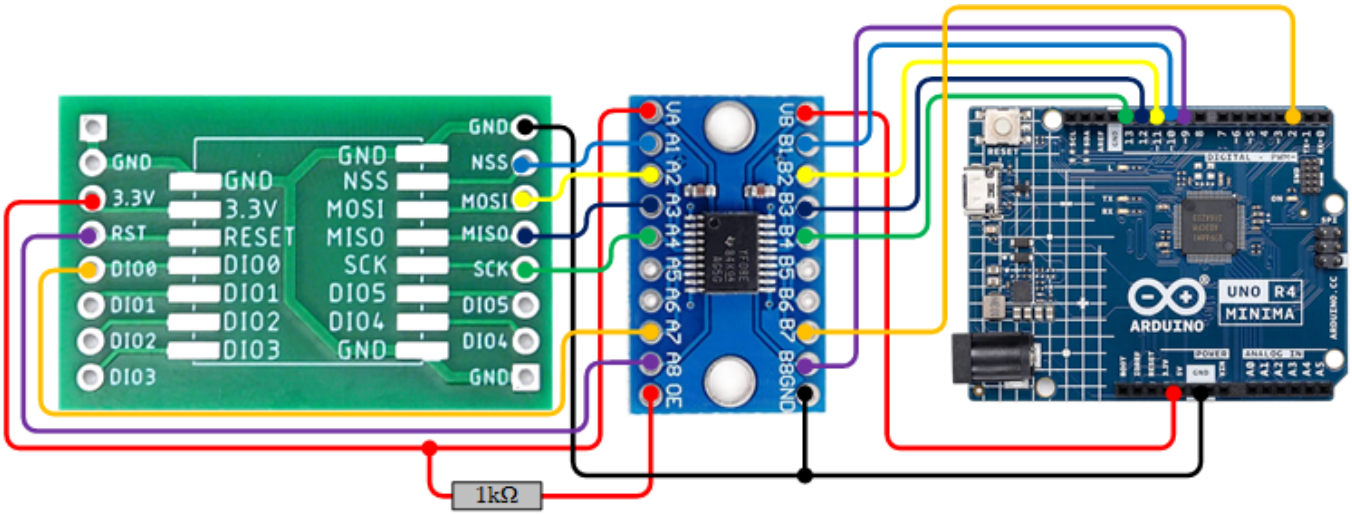


- **VCCA:** Connect to the power supply of the lower voltage device (e.g., 3.3V).
- **VCCB:** Connect to the power supply of the higher voltage device (e.g., 5V).
- **GND:** Common ground for both voltage domains.
- **OE:** Output Enable; must be tied HIGH (to VCCA) to operate. Tie to GND via a pull-down resistor to keep it disabled during power-up.
- **A1–A8:** Data lines for the low-voltage side.
- **B1–B8:** Data lines for the high-voltage side.

An example of a level converter

Because the Arduino Uno/Nano uses 5V logic and the Ra-01 uses 3.3V, you must use a Logic Level Converter or voltage dividers on the data lines to avoid damaging the module. See more » AI-Thinker LoRA products

Ra-01 Pin	Logic level converter	Arduino Pin (Uno/Nano)	Wire Color	Notes
VCC	Va - Vb	5V	♦ red	Power
GND	GND	GND	♦ black	Common ground
SCK	A4 - B4	D13	♦ green	SPI Clock
MISO	A3 - B3	D12	♦ darkblue	SPI Master In Slave Out
MOSI	A2 - B2	D11	♦ yellow	SPI Master Out Slave In
NSS	A1 - B1	D10 (or D7)	♦ lightblue	Chip Select (CS)
RESET	A8 - B8	D9 (or D6)	♦ purple	Reset Pin
DIO0	A7 - B7	D2	♦ orange	Interrupt Pin (Required for RX)



AI-Thinker Ra01 / Ra02 modul | **TXS0108E (HW-0108)** 8-channel, bidirectional 5V-3.3V logic level converter | **Arduino UNO Contoller**

lamaPLC.com

Converters topics on lamaPLC

Page	Date	Tags
• 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: LTC3108-1 Ultra Low Voltage Boost Converter Power Manager Breakout Development Board	2026/04/23 21:52	ltc3108-1, voltage, boost, converter, power manager, step-up, dc dc converter, thermoelectric generator, solar cell, energy harvesting, eh
• 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
• lamaPLC: Signal level converters	2026/02/14 23:47	pca9306, i2c, voltage, level, converter
• 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: XY_MOS: MOS FET Drive Module 400W Support PWM Controller	2026/04/23 21:52	xy mos, mosfet, pwm, converter, modul, arduino
• TXS0108E (HW-0108) 8-channel, bidirectional 5V-3.3V logic level converter	2026/04/23 21:52	converter, txs0108e, hw-0108, logic level converter, logic level, 5v 3.3v, arduino
• Waveshare	2026/04/23 21:52	waveshare, converter, modbus, modbus rtu, modbus tcp, communication

converter, txs0108e, hw-0108, logic level converter, logic level, 5v 3.3v, arduino

This page has been accessed for: Today: 1, Until now: 135

From:
http://lamaplc.com/ - **lamaPLC**

Permanent link:
http://lamaplc.com/doku.php?id=sensor:txs0108e

Last update: **2026/04/21 20:47**