

# lamaPLC: TTL to RS485 Module

The module is often listed as **HW-097**.



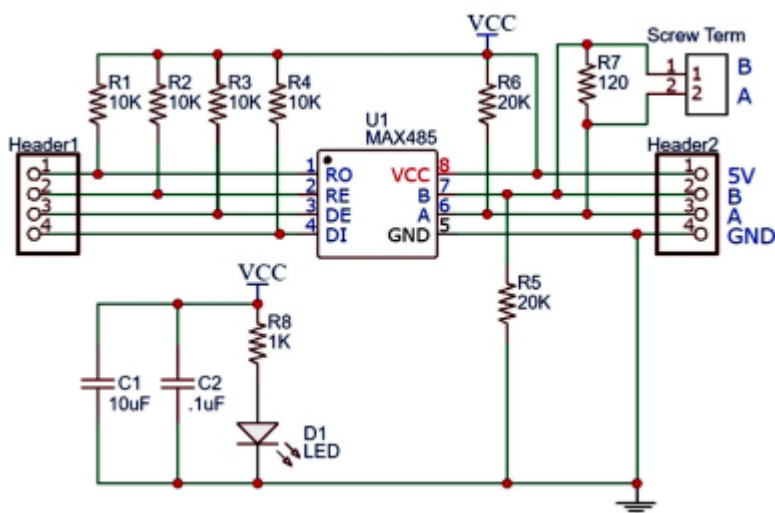
The onboard MAX485 chip is a low-power, slew-rate-limited transceiver for **RS-485** communication. It is connected to 5.08 mm pitch 2P binding posts, which makes **RS-485** wiring convenient. All the chip's pins are exposed and can be controlled and operated by the microcontroller. It operates on a single 5V power supply with a rated current of 300 $\mu$ A.

RS-485 is a type of asynchronous serial communication protocol because no synchronizing clock signal is transmitted with the data. RS-485 uses differential signaling to transfer binary data between devices. This differential signaling creates a differential voltage using positive and negative 5V supplies. The advantage of this method is its ability to reject common-mode noise.

RS-485 supports a **maximum data transfer rate of 30 Mbps** and can connect many slaves to a single master. The protocol allows up to 32 devices to be connected.

The module is suitable for Arduino and **Modbus RTU** applications. In this setup, the Arduino should use Tx/Rx TTL communication, while the standard Modbus A+, B-, and GND connections should be made on the other side of the module.

## MAX485 switching logic

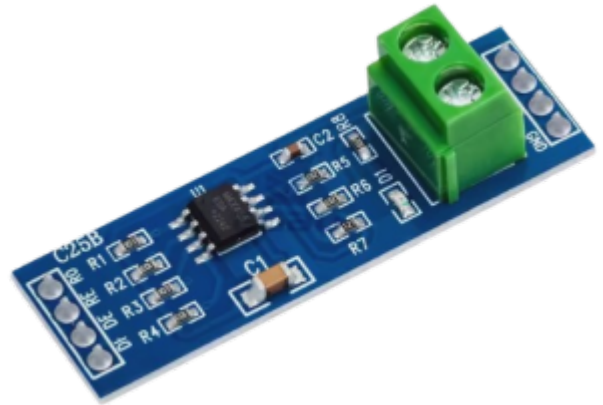


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2026/02/14 23:38

# MAX485 modul pinout



<b>RO</b>	TTL side	Receiver output
<b>RE</b>	TTL side	Receiver output enable
<b>DE</b>	TTL side	Driver output enable
<b>DI</b>	TTL side	Drive input
<b>Vcc</b>		<b>5V DC</b> power supply
<b>A+</b>	RS-485 side	The non-inverting input of the receiver and the non-inverting output of the driver
<b>B-</b>	RS-485 side	Receiver inverting input and driver inverting output
<b>GND</b>		Ground

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