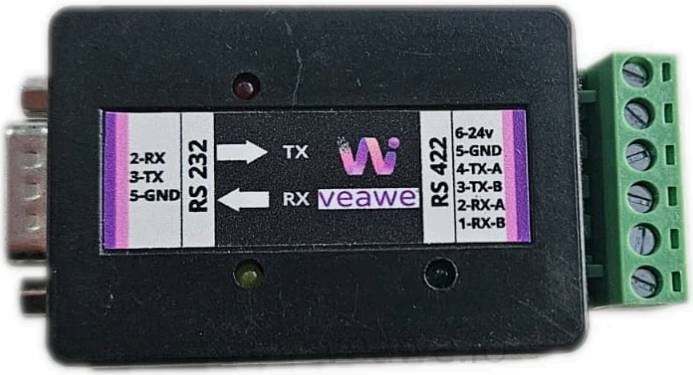
RS232 to RS422 Converter UC-RS232-RS422

The UC-RS232-RS422 is a compact, industrial-grade RS232 to RS422 converter designed for 4-wire full-duplex serial data communication. It extends standard point-to-point RS232 communication distances up to 1,200 meters (4,000 feet) while providing high-noise immunity differential signaling, built-in line termination, and $\pm 15\ \mathrm{kV}$ ESD protection.



Key Features

- Converts short-range RS-232 to 4-wire full-duplex RS-422
- Extends communication distance up to 1,200 m (4,000 ft)
- Simultaneous bidirectional full-duplex differential data streaming
- Supports standard baud rates from 300 bps to 250 kbps
- Drives up to 256 receiver nodes along an RS-422 bus segment
- ±15 kV ESD protection across all signal lines
- Independent LED status indicators for TX and RX activity
- 9V to 30V DC industrial power supply input (nominal 24V DC)
- 35 mm DIN rail and wall mountable housing
- Dimensions: 110 mm × 50 mm × 55 mm

Ordering Information

Product Code	Description
UC-RS232-RS422	**RS232 to RS422 Converter (4-Wire Full-Duplex, 6~24V DC)**
SPD-RS485	Surge Protection Device RS485
UC-RS232-RS485	RS232 to RS485 Converter
UC-RS422	USB to RS422 Converter
UC-ISO-232-485	Isolated RS232 to RS485 Converter

Applications

- **Long-Distance Machine Interfacing**: Extending PC COM ports to distant CNC tools, manufacturing robotics, and PLCs.
- **Full-Duplex Instrumentation**: High-speed continuous data streaming from industrial barcode scanners and sensor clusters.
- **Factory Floor Communication**: Replacing interference-prone single-ended RS232 cables with balanced differential lines.
- **Control Panel Building**: Compact inline interface easily mounted inside electrical cabinets and equipment raceways.

Specifications

Parameter	Value
Mounting Type	Inline / Panel Mountable
Dimensions	60 mm x 40 mm x 20 mm (L x W x H)
Enclosure Material	Industrial ABS Plastic
Operating Temperature	0 °C to +85 °C
Storage Temperature	−40 °C to +85 °C
Relative Humidity	5% to 95% RH (non-condensing)

Electrical Specifications

Parameter	Specification
Power Supply	6V ~ 24V DC (nominal 12V/24V DC)
Working Current	200 mA Max
Baud Rate Range	300 bps to 250 kbps
Data Format	7/8 Data bits, 1/2 Stop bits, None/Even/Odd Parity
RS422 Bus Capacity	Up to 256 receiver nodes
RS422 Receiver Input Range	± 12 V between A and B max
RS422 Transmit Output	Line A pulled up (+5V), Line B pulled down (0V)
RS422 TX Termination	120 Ω built-in between TX-A and TX-B
RS232 Connector	Standard DB9 Male as per RS232C standard

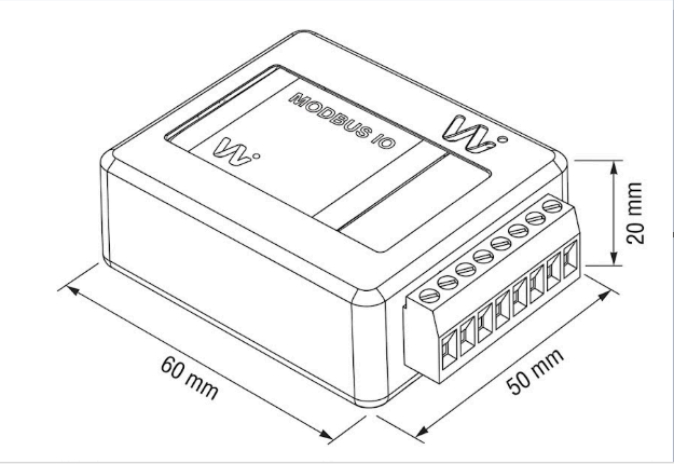
Isolation & Protection Specifications

Parameter	Value	Standard / Notes
Isolation Barrier	Non-Isolated	Common ground shared between RS232 and power
ESD Protection	± 15 kV Air / ± 8 kV Contact	IEC 61000-4-2 Human-Body Model & Contact
Surge Clamping	600W TVS	Fast bidirectional clamping diodes on all differential pins
Reverse Polarity	Integrated	Series protection diode on DC power input

LED Indications and Diagnostics

LED	Color	Status	Description
TX	Red	**Blinking**	RS232 host transmitting data onto RS422 bus
RX	Green	**Blinking**	RS422 field device data received into RS232 host

Mechanical Dimensions



Terminal Details & Port Pinouts

6-Pin Screw Terminal Block (RS422 & Power)

Pin #	Terminal Label	Signal	Connection to Machine / Peripheral
1	**1-RX-B**	RS422 Receive B	Connects to Field Device **TX-B (TX-)**
2	**2-RX-A**	RS422 Receive A	Connects to Field Device **TX-A (TX+)**
3	**3-TX-B**	RS422 Transmit B	Connects to Field Device **RX-B (RX-)**
4	**4-TX-A**	RS422 Transmit A	Connects to Field Device **RX-A (RX+)**
5	**5-GND**	Supply GND	Power Supply Ground (-Vin return)
6	**6-24V**	Supply +Vin	DC Power Supply Positive (+6V to +24V DC)

RS232 DB9 Male Connector Pinout

DB9 Pin	Signal	Direction	Connection to Host PC
2	**2-RX**	Input	Connects to PC **TX (Transmit Data)**
3	**3-TX**	Output	Connects to PC **RX (Receive Data)**
5	**5-GND**	Ground	Connects to PC **GND (Signal Ground)**
1, 4, 6, 7, 8, 9	**NC**	–	No internal connection

Connection Details Diagram

Revision History

Revision	Date	Description of Change
Rev 1.0	2026-09-19	Initial datasheet release

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Support

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