USB to ISO RS485 Converter UC-ISO-RS485

The UC-ISO-RS485 is a high-reliability industrial USB to isolated RS485 converter. Engineered to bridge PC USB ports with industrial RS485 field buses, it provides 2.5 kVrms galvanic signal isolation and 1 kVrms power isolation. It safeguards connected computers and laptops from high-voltage ground loops, field transients, and severe electromagnetic interference commonly encountered during commissioning and monitoring.

Key Features

- 2.5 kV RMS signal isolation and 1.0 kV RMS power isolation barrier
- Modern reversible USB Type-C host interface
- Bus-powered with internal isolated DC-DC converter (no external supply required)
- Hardware automatic direction control with zero latency
- Up to 256 transceiver nodes on a single RS-485 segment
- Wide supported baud rates from 300 bps to 250 kbps
- Plug-and-play driver support for Windows, Linux, and macOS
- LED status indicators for Power, TX, and RX activity
- ±15 kV ESD and TVS surge suppression on RS-485 lines
- Compact pocket-sized enclosure with screw terminal block
- Dimensions: 60 mm × 40 mm × 20 mm

Ordering Information

Product Code	Description
UC-ISO-RS485	**USB to ISO RS485 Converter (2.5kVrms Isolation, Type-C)**
SPD-RS485	Surge Protection Device RS485
UC-RS485	Non-Isolated Industrial USB to RS485 Converter
UC-ETH-RS485	Ethernet to RS485 Converter
UC-ISO-USB-24V	Industrial Isolated USB Repeater (5kVrms)

Applications

- **Factory Floor Field Commissioning**: Safe laptop connection to operational PLCs, HMIs, and motor drives without risk of ground loop damage.
- **Energy & Power Monitoring**: Interfacing Modbus energy meters, solar inverters, and power quality analyzers.
- **SCADA & Process Control**: Continuous data acquisition from remote RTUs, temperature controllers, and sensor transmitters.
- **Lab & R&D Development**: Rapid prototyping and testing of RS485 hardware with host PC isolation.

Specifications

Parameter	Value
Mounting Type	Inline / Field Portable
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	5V DC (Bus Powered via USB Type-C)
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
RS485 Bus Receivers	Up to 256 nodes
RS485 Receiver Input	± 12 V between A and B max
RS485 Transmit Output	Line A pulled up (+5V), Line B pulled down (0V)
RS485 Termination	120 Ω built-in between A and B
USB Interface	USB 2.0 Full Speed (12 Mbps), USB Type-C Receptacle

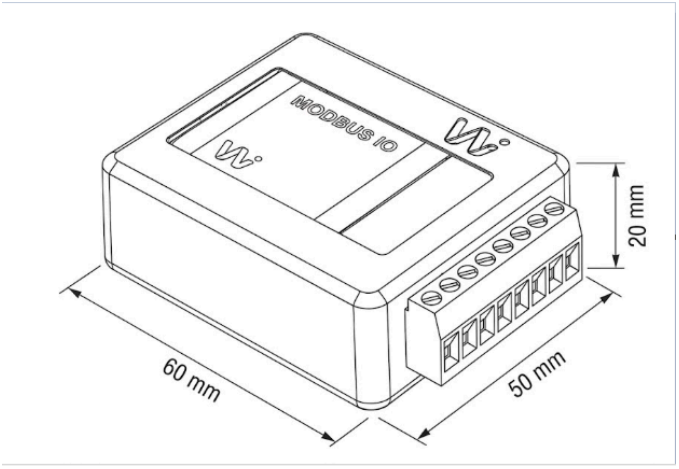
Isolation & Protection Specifications

Parameter	Value	Standard / Notes
Galvanic Signal Isolation	2,500 V RMS	Optical/digital isolation between USB host and RS485
Power Isolation	1,000 V RMS	Internal isolated DC-DC converter
ESD Protection	± 15 kV Air / ± 8 kV Contact	IEC 61000-4-2 Human-Body Model and Air/ Contact
Surge Clamping	600W TVS	Fast clamping diodes across differential lines

LED Indications and Diagnostics

LED	Color	Status	Description
PWR	Red	**ON**	USB bus power active and device enumerated
TX	Red	**Blinking**	Transmitting data to RS485 field network
RX	Green	**Blinking**	Receiving data from RS485 field network

Mechanical Dimensions

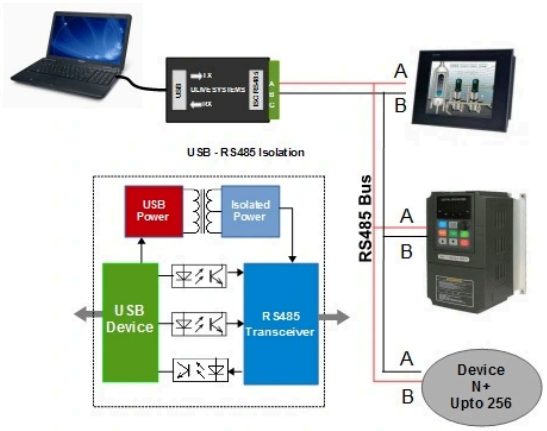


Terminal Details & Port Pinouts

6-Pin Pluggable Screw Terminal Block

Pin #	Label	Signal	Description
1	**GND**	Iso GND	Isolated Signal Ground reference
2	**GND**	Iso GND	Isolated Signal Ground reference
3	**A+**	RS485 A	Non-inverting differential data signal (+)
4	**B-**	RS485 B	Inverting differential data signal (-)
5	**GND**	Iso GND	Isolated Signal Ground reference
6	**GND**	Iso GND	Isolated Signal Ground reference

Isolation Architecture



Revision History

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

Get the latest version of this datasheet : **click here..**

Support

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