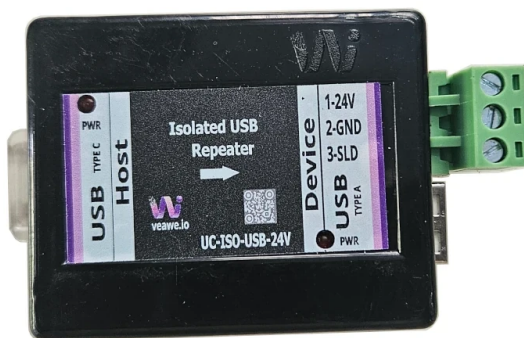


Industrial Isolated USB Repeater

Industrial-grade isolated USB repeater
providing 5kV RMS galvanic isolation, 24V DC field power, and
comprehensive surge protection.

Industrial Isolated USB Repeater

Compact, industrial-grade USB isolator providing 5kV RMS galvanic isolation between a host PC and downstream industrial peripherals.



Key Features

- 5,000 V RMS galvanic isolation barrier between host PC and downstream field devices
- 1,500 Vrms working voltage isolation
- USB Type-C upstream host port (bus-powered directly from PC host)
- USB Type-A downstream device port providing regulated 5V DC @ 500mA
- External 12–28V DC industrial field power supply input (nominal 24V DC)
- Automatic switching between USB 2.0 Full Speed (12 Mbps) and Low Speed (1.5 Mbps)
- Integrated supply reverse polarity protection on field power terminals
- Up to 600W TVS transient voltage clamping on all USB data and power lines
- Comprehensive ESD protection: ± 15 kV Air / HBM (IEC 61000-4-2)
- Lightning surge immunity: 12A (8/20 μ s impulse) (IEC 61000-4-5)
- Independent Host PWR and Device PWR LED diagnostics
- True hardware transparency: 100% driver-free across Windows, Linux, and macOS
- Compact 35 mm DIN rail mounting enclosure (60 mm x 50 mm x 20 mm)

Ordering Information

Product Code	Description
UC-ISO-USB-24V	Industrial Isolated USB Repeater (5kVrms Isolation, 24V DC Field Power)
UC-ISO-RS485	Isolated USB to RS-485 Converter (2.5kVrms Signal & 1kVrms Power Isolation)
UC-RS485	Industrial USB to RS-485 Converter (FTDI, 2.5kV ESD Protection)
SPD-24V-DC	24V DC Power Line Surge Protection Device (DIN Rail)
UC-ETH-RS485	Industrial Ethernet to RS-485 Modbus Gateway

Applications

- **Industrial Machine Automation:** Protects PCs, IPCs, and PLCs from damaging high-voltage ground loops and motor switching noise.
- **Factory Floor Data Acquisition:** Isolates USB DAQ devices, barcode scanners, weighing scales, and sensors operating in high-EMI environments.
- **Drives & Inverters:** Safeguards programming laptops during direct commissioning of VFDs, servo drives, and heavy power electronics.
- **Field Diagnostics:** Provides an electrical safety barrier for technicians diagnosing live industrial machinery.

Specifications

Parameter	Value
Mounting Type	35 mm DIN Rail Mounting
Dimensions	60 mm x 50 mm x 20 mm (L x W x H)
Enclosure Material	Industrial ABS plastic
Operating Temperature	0 °C to +70 °C
Storage Temperature	−40 °C to +85 °C
Relative Humidity	5% to 95% RH (non-condensing)

Electrical Specifications

Parameter	Upstream (Host Side)	Downstream (Device Side)
Connector Type	USB Type-C Receptacle	USB Type-A Receptacle
Power Source	USB Bus-Powered (4.75V – 5.25V DC)	External 12 ~ 28V DC (Nominal 24V DC)
Output Power Available	N/A (Input Port)	Regulated 5V DC @ 500 mA
Current Consumption	< 50 mA (Idle, from Host USB)	< 30 mA @ 24V DC (Idle)
Power Terminal Connector	Via Type-C Cable	3-Pin 5.08mm Pluggable Screw Terminal

USB Communication Ports

Port	Connector	Role	Speed Compatibility
Host	USB Type-C	Upstream Host Connection (PC / IPC / PLC)	Full Speed (12 Mbps), Low Speed (1.5 Mbps)
Device	USB Type-A	Downstream Peripheral Connection	Full Speed (12 Mbps), Low Speed (1.5 Mbps)

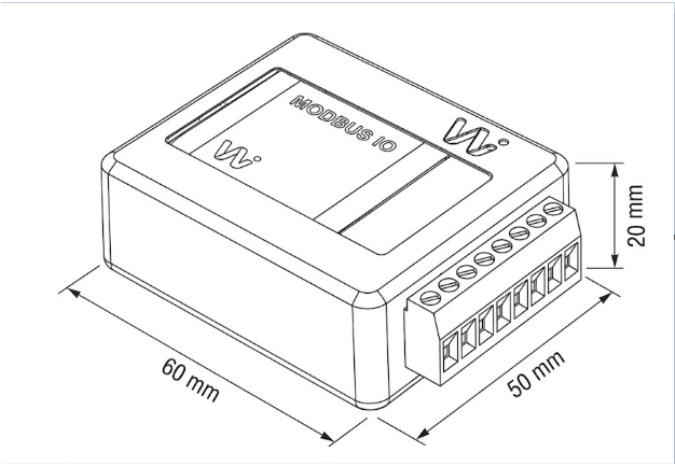
Isolation & Protection Specifications

Parameter	Rating	Standard / Notes
Galvanic Isolation	5,000 V RMS	1 Minute duration between Host and Device domains
Voltage Barrier	1,500 Vrms	Industrial rated working voltage
Reverse Polarity Protection	Integrated	Series protection diode on 24V field input
Transient Voltage Clamping	Up to 600W	TVS suppression across data and power lines
ESD Immunity	±15 kV	IEC 61000-4-2 (Air / Human-Body Model)
Surge Immunity	12 A (8/20 μs)	IEC 61000-4-5 Class-Compliant Surge Protection

LED Indications and Diagnostics

LED	Location	Color	Status	Description
PWR (Host)	Left side	Red	ON	Host USB Type-C port connected
PWR (Device)	Right side	Red	ON	External 24V DC power applied

Mechanical Dimensions



Terminal Details & Port Pinouts

24V Field Power Input (3-Pin Pluggable Terminal)

Pin	Label	Type	Description
1	24V	Power In (+)	Field Power Input (12V to 28V DC, Nominal 24V DC)
2	GND	Power In (-)	Supply Ground (Galvanically isolated from Host ground)
3	SLD	Shield	Cable shield connection for optimal noise suppression

Revision History

Revision	Date	Description of Change
Rev 1.0	2026-09-07	Initial datasheet release for UC-ISO-USB-24V

Get the latest version of this datasheet : [click here..](#)

Support

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