

UOTEK UT-850N

UOTEK UT-850N 1-Port USB to RS-485/422 Serial Converter

USER MANUAL

1. Introduction

The UOTEK UT-850N is a universal USB to RS-485/422 serial converter designed to bridge the communication gap between modern PCs and industrial equipment utilizing RS-485/422 interfaces. This device converts USB signals to balanced differential RS-485/422 signals, providing essential connectivity without requiring an external power supply. It features surge and ESD protection, ensuring reliable data transmission in various environments.

This manual provides detailed instructions for the setup, operation, and maintenance of your UT-850N converter.



Image 1.1: UOTEK UT-850N USB to RS-485/422 Serial Converter with included terminal block.

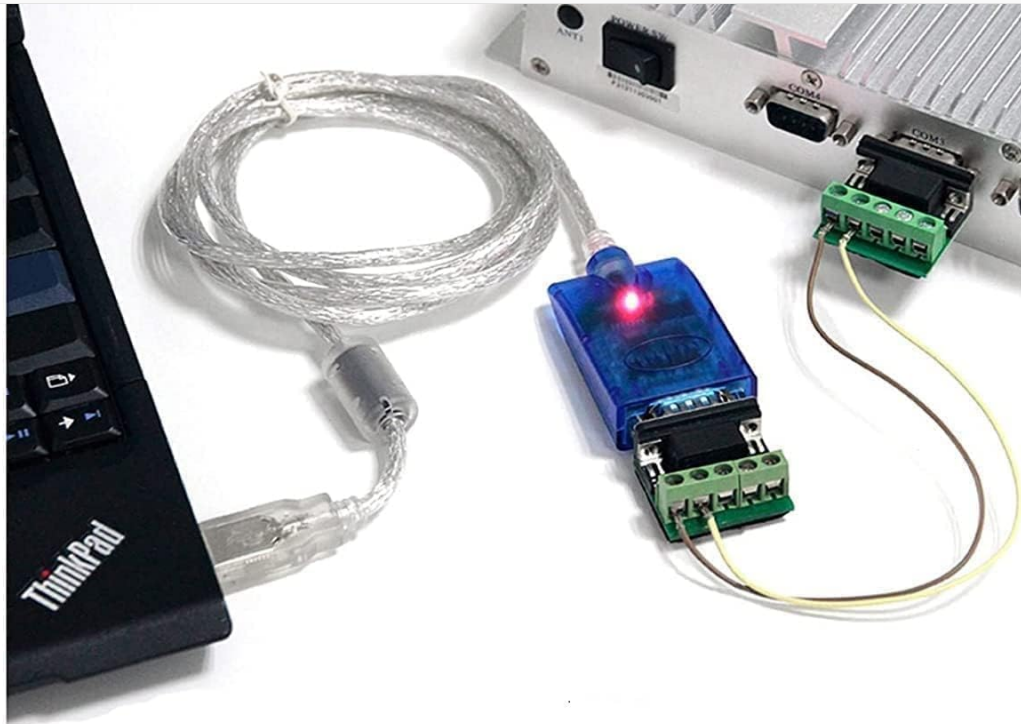
2. Features

- **Standards:** USBV1.1, RS-485/422 EIA.
- **USB Signal:** VCC, DATA+, DATA-, GND, FG.
- **RS-485 Signal:** T+, T-, GND.
- **RS-422 Signal:** T+, T-, R+, R-, GND.
- **Working Mode:** Asynchronous, point-to-point or point-to-multipoint, 2-wire half-duplex or 4-wire full-duplex.
- **Direction Control:** Automatic data flow direction control technology.
- **Baud Rate:** 300-921.6Kbps, auto-detect serial signal.
- **Loading Capacity:** Supports point-to-multipoint communication, connecting up to 32 sets of RS-422 or RS-485 devices.
- **Transmission Distance:** Up to 5,000m (9,600bps) for RS-485/422; up to 5m for USB.
- **Port Protection:** Surge protection, $\pm 15\text{KV}$ ESD protection.
- **Connectors:** USB-A male, DB9 male.
- **Transmission Media:** Twisted-pair or shielded cable.
- **Cable Length:** 1.5m.
- **Operating Temperature:** -20°C to 75°C .
- **Relative Humidity:** 5% to 95%.
- **Operating System Support:** Windows (Android/2000/2003/2008/2012/XP/Vista/7/8/8.1/10/CE), Mac, Linux.

3. Setup

3.1 Driver Installation

For Windows 8, Windows 10, and newer operating systems, the UT-850N converter typically operates driver-free (plug & play). For older operating systems such as Windows 2000/2003/XP/Vista/7, or for specific Linux/Mac OS versions, driver installation may be required. Please refer to the manufacturer's website for the latest driver downloads if automatic installation does not occur.



Win8/Win10/Win2000/2003/2008/2012/XP/
Vista/7/8/8.1/10/CE/Mac/Linux/Android



Compatible with multiple systems
WIN 8/10 driver free

Image 3.1: The UT-850N converter supports various operating systems, including Windows, Mac, Linux, and Android.

3.2 Hardware Connection

1. Connect the USB-A male connector of the UT-850N to an available USB port on your computer.
2. Identify the RS-485/422 interface on your industrial device.
3. Connect the DB9 male connector of the UT-850N to your RS-485/422 device. Use the included terminal block for screw-terminal connections if your device requires it.



Image 3.2: The UT-850N converter connected to a terminal block for RS-485/422 wiring.

3.3 Wiring Diagrams and Pin Assignments

The UT-850N uses a DB9 male connector for RS-485/422. The pin assignments are crucial for correct communication. Refer to the following diagrams for standard wiring configurations.

Hardware Definition and Initial Setting

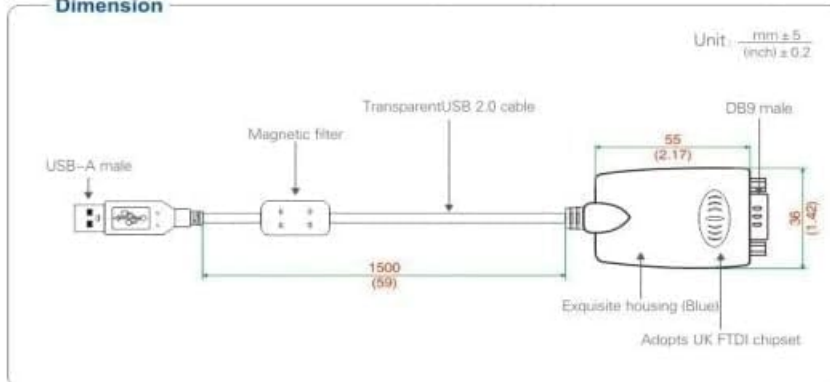
● RS-485/RS-422 output signal and terminal pin assignment

DB9 male(PIN)	Output signal	RS-422 full-duplex wiring	RS-485 half-duplex wiring
1	T/R+	Transmitting(A+)	RS-485 (A+)
2	T/R-	Transmitting(B-)	RS-485 (B-)
3	RXD+	Receiving(A+)	/
4	RXD-	Receiving(B-)	/
5	GND	GND	GND
6	N/A		
7	N/A		
8	N/A		
9	N/A		



1. VCC
2. DATA-(DM)
3. DATA+(DP)
4. GND

Dimension



Ordering Information

Model	Signal/ Interface			Protection level		Baud rate	Operating Environment			Power	
	USB	RS-232	RS-485/422				Temperature		Humidity		
	USB A male	DB9 male	DB9 female	RS232	RS-485/422		-25~70°C	-40~85°C	5~95%	plug and play	External power
UT-850N	√		√		600W surge	300bps-921.6kbps	√		√	√	



Image 3.3: Pin assignments for DB9 male connector and physical dimensions of the UT-850N.



Image 3.4: Wiring diagrams for USB to RS-485 (point-to-point, multipoint, half-duplex) and USB to RS-422 (point-to-point, multipoint, full-duplex) connections.

4. Operating

4.1 Working Modes

The UT-850N supports both RS-485 (2-wire half-duplex) and RS-422 (4-wire full-duplex) communication modes. It can be configured for point-to-point or point-to-multipoint communication. The device features internal zero-delay auto receiving and transmitting functions, automatically controlling data flow direction without requiring handshake signals (RTS, DTR).

4.2 Baud Rate

The converter automatically detects the serial signal baud rate, supporting a range from 300bps to 921.6Kbps.

4.3 LED Indicators

The UT-850N is equipped with LED indicators to show its status:

- **Power Light:** Indicates that the device is powered on and connected to the USB port.
- **RXD (Receive Data) Light:** Flashes when data is being received by the converter from the RS-485/422 side.
- **TXD (Transmit Data) Light:** Flashes when data is being transmitted by the converter to the RS-485/422 side.



Image 4.1: Close-up view of the UT-850N showing the Power, RXD, and TXD LED indicators.

5. Maintenance

To ensure the longevity and optimal performance of your UOTEK UT-850N converter, follow these maintenance guidelines:

- **Keep Dry:** Avoid exposing the device to moisture or liquids.
- **Clean Gently:** Use a soft, dry cloth to clean the exterior. Do not use harsh chemicals or solvents.
- **Temperature Control:** Operate and store the device within the specified temperature range (-20°C to 75°C).
- **Cable Care:** Avoid bending or kinking the cable excessively to prevent internal damage.
- **ESD Protection:** While the device has built-in ESD protection, always handle it with care, especially in dry environments, to minimize static discharge risks.

6. Troubleshooting

If you encounter issues with your UT-850N converter, consider the following:

- **No Power Light:** Ensure the USB cable is securely connected to both the converter and the computer. Try a different USB port or computer.
- **No Data Transmission (RXD/TXD not flashing):**
 - Verify all RS-485/422 wiring connections are correct according to the diagrams in Section 3.3.
 - Check the baud rate settings on both your computer's serial port software and the connected industrial device. Ensure they match.
 - Confirm that the industrial device is powered on and functioning correctly.
 - For older operating systems, ensure the correct drivers are installed.
- **Intermittent Connection/Data Errors:**
 - Check for electromagnetic interference (EMI) sources near the cable. Use shielded cables if necessary.
 - Ensure the transmission distance does not exceed the specified limits (5,000m for RS-485/422, 5m for USB).
 - Verify that the terminal resistors are correctly applied in RS-485/422 networks, especially for long distances or multi-point setups.
- **Device Not Recognized by PC:** Try connecting to a different USB port. Reinstall or update the USB serial port drivers if applicable.

7. Specifications

Feature	Specification
Model	UT-850N
Standards	USBV1.1, RS-485/422 EIA
USB Signal	VCC, DATA+, DATA-, GND, FG
RS-485 Signal	T+, T-, GND
RS-422 Signal	T+, T-, R+, R-, GND
Working Mode	Asynchronous, point-to-point/multipoint, 2-wire half-duplex or 4-wire full-duplex
Direction Control	Automatic data flow direction control
Baud Rate	300-921.6Kbps (auto-detect)
Loading Capacity	Up to 32 RS-422 or RS-485 devices
Transmission Distance	RS-485/422: 5,000m (at 9,600bps); USB: ≤ 5m
Port Protection	Surge, ±15KV ESD protection
Connectors	USB-A male, DB9 male
Transmission Media	Twisted-pair or shielded cable
Cable Length	1.5m
Operating Temperature	-20°C to 75°C

Feature	Specification
Relative Humidity	5% to 95% (non-condensing)
Supported OS	Win Android/2000/2003/2008/2012/XP/Vista/7/8/8.1/10/CE, Mac, Linux
Item Weight	5.5 ounces
Package Dimensions	8.15 x 5.98 x 1.46 inches


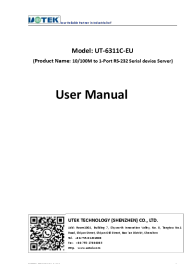

8. Warranty and Support

For warranty information and technical support, please refer to the official UOTEK website or contact your authorized dealer. Keep your purchase receipt for warranty claims.



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Related Documents - UT-850N

	<p>UOTEK M10K43 5G CPE: 5G Wireless Data Terminal with WiFi 6</p> <p>Explore the UOTEK M10K43, a 5G CPE and WiFi 6 smart router system offering high-speed wireless data connectivity. Features Qualcomm SDX62 modem, 2.5G port, MESH support, and dual-mode NSA/SA operation for seamless global broadband.</p>
	<p>UTEK UT-6311C-EU Serial Device Server User Manual</p> <p>User manual for the UTEK UT-6311C-EU 10/100M to 1-Port RS-232 Serial Device Server, covering installation, configuration, operation, and troubleshooting.</p>
	<p>UNI-T UT-PR2060 Low-Noise Power Rail Probe User Manual</p> <p>User manual for the UNI-T UT-PR2060 Low-Noise Power Rail Probe. Details features, specifications, application scenarios, operating procedures, and maintenance for high-speed electronic system power integrity analysis.</p>



[UNI-T UT320D Mini Single Input Thermometer User Manual](#)

User manual for the UNI-T UT320D Mini Single Input Thermometer, detailing features, safety instructions, structure, operation, and specifications for accurate temperature measurement.



[GoodWe UT Series Grid-Tied PV Inverter User Manual](#)

This user manual provides comprehensive information on the GoodWe UT Series Grid-Tied PV Inverter, covering product overview, safety precautions, installation, electrical connection, commissioning, maintenance, and technical parameters. It is intended for trained technical professionals.



[Icom UT-133 Bluetooth Unit User Manual](#)

User manual for the Icom UT-133 Bluetooth unit, detailing its features, usage precautions, and technical specifications for connecting Bluetooth-enabled devices to Icom wireless equipment.