

RS-485 CONVERTER

101-0010

USB to 2-Wire RS-485 Converter

Installation Operation & Specifications Manual

General Description

The 101-0010 USB - RS-485 Converter provides a simple, low cost interface between a PC or laptop with a USB port, and 2-wire RS-485 devices. Universal Serial Bus (USB) drivers make this converter compatible with most software developed for RS-232 serial port interfaces because it appears as an RS-232 port to your software. Switching between receive and transmit is automatically controlled, RTS (request to send) is not used to control transmit. Power for the converter is taken from the USB port so no external power supply is required.

A rugged design makes 101-0010 an ideal choice for field engineers and technicians who service RS-485 2-wire equipment in an industrial environment. Because the 101-0010 RS-485 converter is used on devices without a ground terminal, voltage suppression is used to clamp the common mode voltage to +/- 7 volts to help prevent destruction of the converter.

For an RS-485 converter with a RS-232 interface Microflex offers the 101-0009.



Driver Installation - 7, Vista, XP, and 2000

If you are using Windows 7, Vista, XP, or 2000 - the USB drivers can be installed before the RS-485 converter is connected to the PC's USB port. After the drivers are installed, Windows will automatically detect the converter when it is connected to a USB port and complete the setup.

To pre-install the drivers, run setup.exe from the included CD and follow the on-screen prompts. The CD will auto-run this file if the Windows autorun feature is enabled for your CD drive. setup.exe will determine your operating system and run the correct installer. Installers can be manually run using DPInstx86.exe for 32 bit operating systems or DPInstx64 for 64 bit operating systems.

The USB drivers are Microsoft certified and are available on the Microsoft Driver Distribution Center web site. The files can be automatically installed without the CD if your computer is connected to the internet and you select to search the web for the latest driver version.

Driver Installation - Windows 98 and ME

Windows 98 and ME USB drivers must be installed after the RS-485 converter is connected to the USB port.



CONNECT THE MODEM TO THE USB PORT BEFORE INSTALLING DRIVERS

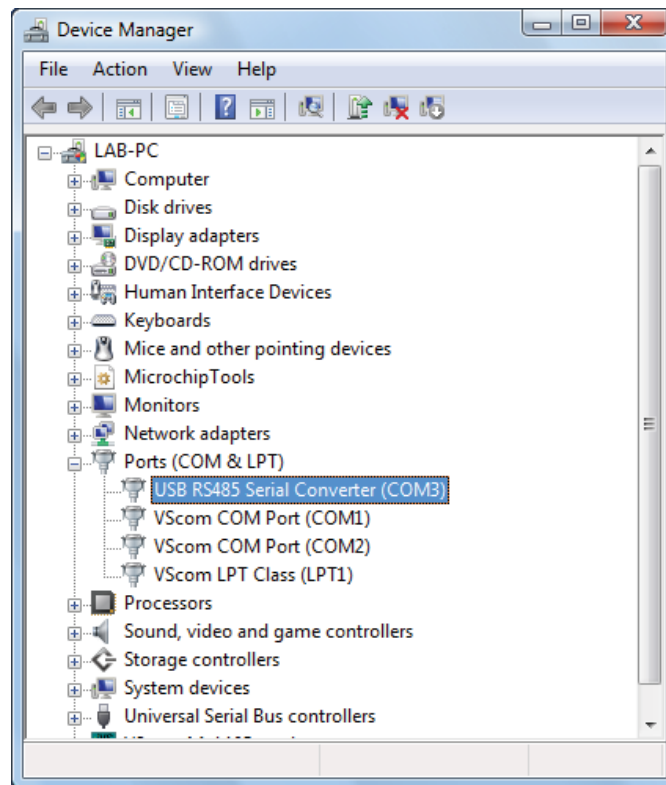
Windows will automatically detect the converter when it is connected and prompt you for the correct drivers to be installed. In Windows 98 and ME, the Found New Hardware Wizard should be used to install the drivers when the converter is connected to the USB port for the first time.

When prompted, the drivers are located in the *Windows98* folder on the CD.

If a device of the same type has been previously installed on your machine, and the drivers that are about to be installed are different from those installed already, the previous drivers need to be uninstalled. Refer to the "Uninstalling USB Drivers" section of this manual for details of this procedure.

Changing the COM Port Number

The assigned serial COM port number can be changed to any available COM port by using the Device Manager. Open the Device Manager and select “View > Devices by Type”. Expand “Ports (COM & LPT)”. In the example shown below, the converter is assigned to COM3.



Right click on *USB RS485 Serial Converter* and select Properties from the pop-up menu.

On the Port Settings tab, click “Advanced”. Drop down the “COM Port Number” list and select the desired port number. Click “OK” to use the new port number and close the window.

Click “OK” again to close the Properties window.

Uninstalling USB Drivers

For Windows 7, Vista, XP, and 2000 - use the Device Manager to uninstall the driver from your system. With the RS-485 Converter connected to your USB port, locate the RS-485 converter in the hardware tree. For details on how to do this refer to the section on “Changing the COM Port Number” in this manual. Right click on *USB RS485 Serial Converter* and select “Uninstall” from the pop-up menu. When the process has finished, unplug the converter from the USB port.

For Windows 98 and ME, always use the Add/Remove Programs utility to remove the converter drivers as this uses the uninstaller program to remove the files and registry entries to leave a clean system. Other methods may leave fragments of the driver that may interfere with future installations.

- Step 1: Disconnect any converters that are attached to the PC.
- Step 2: Open the Add/Remove Programs utility located in “Control Panel\Add/Remove Programs”.
- Step 3: Select “Microflex USB Converter Drivers” from the list of installed programs.
- Step 4: Click “Change/Remove” button. This will run the uninstaller program. Click “Continue” to run the uninstaller or “Cancel” to exit.
- Step 5: When the uninstaller has finished removing the device from the system, the caption on the “Cancel” button will change to “Finish”. Click “Finish” to complete the process.

Software Setup

Make sure your software is set to use the same serial COM port that the RS-485 is configured to. Refer to *Changing the COM Port Number* in this manual for details. There are no hardware settings required by the RS-485 Converter. Power is provided by the USB port. All other settings, such as BAUD rate, are taken care of by your software. The converter automatically switches between transmit and receive so RTS is not required.

Connecting to the RS-485 Device

Connect the two mini-clips to the RS-485 bus. Following the RS-485 standards, the black clip is the A connection and the red clip is the B connection.


- BLACK = A RS-485 Connection
- RED = B RS-485 Connection

Converter Grounding


The 101-0010 converter does not provide an RS-485 ground terminal. Unless the other device's interface is isolated, there is a risk of a ground loop current that could result in equipment damage. The converter should only be used where the common mode voltage (ground potential difference between the two interfaces) is within the standard RS-485 common mode voltage of +/- 7 volts.


Safety Considerations


FC Conformity in accordance with Part 2, and Part 15, Subparts A and B of the Federal Communications Rules and Regulations, and ICES-003 of the Industry Canada standards.


 This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved by Microflex, LLC could void the user's authority to operate this equipment.

CE Emissions EN55022: 1998
Electrostatic Discharge EN61000-4-2: 1995, A1: 1998, A2: 2001
Radiated Immunity EN 61000-4-3: 2002
Safety Compliance EN 60950-1: 2002

 This device does not have protection from over-voltages which may exist on USB ports of computers and relies on the protection existing in a host computer.

 This device is not intended for connection to the phone line through the appropriate converters and shall not be connected to telecommunication lines because it has no protection against over-voltages which may exist in these lines.

 The user shall ensure the protection of the operator from access to areas with hazardous voltages or hazardous energy in their equipment.

 The user shall ensure that the connection port of the field device and the converter is separated at least by basic insulation from any primary circuit existing in the field device.

Limited Warranty

Microflex, LLC warrants this unit against defects in materials and workmanship for a period of one year from the date of shipment. Microflex, LLC will, at its option, repair or replace equipment that proves to be defective during the warranty period. This warranty includes parts and labor.

A Return Materials Authorization (RMA) number must be obtained from the factory and clearly marked on the outside of the package before equipment will be accepted for warranty work.

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