

USB485 USB to RS485 Converter Card



User Manual Version 1.02

RMS Technologies 2533 N. Carson St. #4698, Carson City, NV 89706-0147 1-877-301-3609 www.rmsmotion.com sales@rmsmotion.com Thank you for purchasing the USB485 converter card. This product is warranted to be free of manufacturing defects for one (1) year from the date of purchase.

DISCLAIMER

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1 Specifications

GENERAL

• UART I/F Supports 7 / 8 Bit Data, 1 / 2 Stop Bits and Odd/Even/Mark/Space/No Parity

- Data rate 300 => 250K Baud
- 384 Byte Receive Buffer / 128 Byte Transmit Buffer for high data throughput
- Adjustable RX buffer timeout
- Auto Transmit Buffer control
- Integrated Power-On-Reset circuit
- Integrated 6 MHz 48 MHz clock multiplier PLL
- USB 1.1 and USB 2.0 compatible

VIRTUAL COM PORT (VCP) DRIVERS for

- Windows 98 / 98SE / ME
- Windows 2000 / XP

USB Direct Drivers + DLL Software Interface for

- Windows 98 / 98SE / ME

- Windows 2000 / XP

2 Pin Assignments

Pin Function	
1	A Output (-ve)
2	Ground
3 B Output (+ve)	



RS485 Connection View

***Note:** The Yellow LED will flash when the unit is transmitting data from the computer to the controller. The Green LED will flash when the unit is receiving data from the computer to the controller. There is no power on LED indicator. Look in your Device Manager to see if the USB485 card shows up under one of the COM Ports. This is a clear indication that the unit is in good condition and is ready to communicate.

RMS Technologies USB485 Converter Card

3. Installation

Please make sure you have the following before proceeding:

- RMS Technologies USB485 converter.
- Standard USB Type A to B cable.
- RMS Technologies Manuals and Software CD.

Installing the Unit:

The USB485 Converter card will install two sets of drivers. One set is for the unit itself, and the second set is for the Virtual Communications Port (VCP).

- 1. Power up the PC and start up Windows.
- 2. Connect the USB485 converter card to the PC with a USB cable.
- 3. Windows will detect a new device "RMS Motion Serial Converter"
- A window may appear with the text "Cannot Install this Hardware." Simply click on the "Back" button.



- 5. A window will prompt you for drivers:
- Choose "Install from a list or specific location (Advanced)" and click "Next."



- 7. A window will appear asking you to specify driver location.
- 8. Choose "Don't search. I will choose the driver to install." Click "Next"



- 9. Choose "Universal Serial Bus Controller" under Device Type
- 10. Choose "Have Disk ... "

- Found New Hardware Wizard

 Select the device driver you want to install for this hardware.

 Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.

 (Unable to find any drivers for this device)
 Have Disk...

 Have Disk.
 Cancel
- Input the location of the driver files. Typically, this will be on the RMS Technologies Software and Manuals CD.

For example: "D:\USB485\DRIVERS" and click "OK."



RMS Technologies USB485 Converter Card 12. Select "RMS Motion Serial Converter" from the device list, click "Next".



13. Select "Continue Anyway" when warned about Windows Logo Testing.

Found New I	Hardware Installation
Please wa	The software you are installing for this hardware: RMS Motion Serial Converter
Ŷ	has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.) Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
	Continue Anyway STOP Installation
	< Back Next > Cancel

14. Click "Finish." to complete installation.



- 15. Once you have clicked "Finish," Windows should automatically detect another new device. This will begin the installation of the VCP drivers.
- 16. Repeat steps 5-14 replacing "RMS Motion Serial Converter" with "RMS Motion USB485."

If unit is echoing every character twice:

Simply turn off echo in the Properties section of your communication device.	Connect To Settings
For example, if you are working in HyperTerminal, go to: File → Properties → Settings tab → ASCII setup Uncheck "Echo typed characters locally".	ASCII Sending ASCII Sending Send line ends with line feeds Echo typed characters locally Line delay: Character delay: Cha
	OK Cancel

3. Determining Communications Port Number

Upon installation, the RMS MOTION USB485 will be assigned a COM PORT number. This number is dependent upon the number of existing COM PORTS already present in your Windows operating system.

To determine what COM PORT number the USB485 has been assigned:

- 1. Right click your "My Computer" icon and choose "Properties."
- 2. Select the "Hardware" tab.
- 3. Click on "Device Manager"

	perties			?
Syster	m Restore	Automa	tic Updates	Remote
General	Co	omputer Name	Hardware	Advanced
Add Har	dware Wizar The Add H	rd Hardware Wizard he	elps you install hardv	vare.
×			Add Hardwar	e Wizard
Device	Manager —			
y	The Devic on your co properties	e Manager lists all l imputer. Use the De of any device.	the hardware device evice Manager to ch	es installed hange the
		ver Signing	Device Ma	inager
Hardwa	re Profiles	ver Signing	Device Ma	inager
Hardwa	re Profiles Hardware different ha	ver Signing profiles provide a w ardware configurati	vay for you to set up ons.	and store
Hardwa	re Profiles Hardware different ha	ver Signing profiles provide a w ardware configurati	vay for you to set up ons. Hardware f	and store
Hardwa	Te Profiles	profiles provide a w ardware configurati	vay for you to set up ons. Hardware f	and store Profiles

- 4. In the Device Manager, the following should be listed:
 - a. Under Ports (COM & LPT), there should be listed "RMS Motion USB485 (COMX)" where X is the Communications Port # assigned to the device, it is assigned to COM8 in this example. This setting may be changed and will be discussed in the next section.
 - b. Under Universal Serial Bus controllers, there should be listed "RMS Motion Serial Converter."

🚚 Device Manager	
File Action View Help	
Batteries Computer Disk drives Disklay adapters Disk drives Disk driv	

4. Changing the Assigned Communications Port Number

Upon installation, the USB485 device will assign itself the lowest free Communications Port number. This setting can be changed to any free communications port that is not in use by Windows.

Note: Previously installed devices no longer on the system may cause some COM Ports to be listed as in use. The USB485 may be set to use these numbers, but please be sure that the device previously using the port is disconnected.

To Change the Assigned Com Port Number:

- 1. Right click your "My Computer" icon and choose "Properties."
- 2. Select the "Hardware" tab.
- 3. Click on "Device Manager"

System Prope	rties		? 🔀		
System Re	estore Automa	atic Updates	Remote		
General	General Computer Name Hardware				
Add Hardwa	rre Wizard he Add Hardware Wizard h	elps you install hardv	vare.		
		Add Hardwar	e Wizard		
Device Man	ager	the bardware device			
pr	on your computer. Use the Device Manager to change the properties of any device.				
	Driver Signing	Device Ma	anager		
Hardware P	rofiles				
Real Andread Andre	ardware profiles provide a v fferent hardware configurat	vay for you to set up ions.	and store		
		Hardware I	Profiles		
	ОК	Cancel	Apply		

4. In the Device Manager, find "RMS Motion USB485" under "Ports (COM & LPT)".



5. Double click on "RMS Motion USB485" to go to Properties.

RMS Motion USB485 (COM8) Properties 🔹 🔹 😰						
General	Port Settings Dr	iver				
Į	BMS Motion USB485 (COM8)					
	Device type:	Ports (COM & LPT)				
	Manufacturer:	RMS Technologies				
	Location:	on RMS Motion Serial Converter				
Device status This device is working properly. If you are having problems with this device, click Troubleshoot to start the troubleshooter.						
Device usage:						
Use th	is device (enable)		~			
		ОК	Cancel			

6.	Select the "Port Settings" Tab and click
	on "Advanced."

RMS Motion USB485 (COM8) Properties 🔹 👔 🔀			
General Port Settings Driver			
Bits per second: 9600			
Data bits: 8			
Parity: None			
Stop bits: 1			
Flow control: None			
Advanced Restore Defaults			
OK Cancel			

7. In the Advanced Settings window you may change the assigned COM port number. Click "OK", and the RMS Motion USB485 is changed to the new COM Port Number.

dvanced Settings for COM8				? 👂
COM Port Number: COM8	•]	OK
USB Transfer Sizes			1	Cancel
Select lower settings to correct po Select higher settings for faster po	erformance problems at le erformance.	ow baud rates.		Defaults
Receive (Bytes):	4096 💌			
Transmit (Bytes):	4096 💌			
BM Options Select lower settings to correct re	sponse problems.			
Latency Timer (msec):	16 💌			
Miscellaneous Options				
Minimum Read Timeout (msec):	0 💌	Serial Enumerator Serial Printer		
Minimum Write Timeout (msec):	0 💌	Event On Surprise Removal Set RTS On Close	Г	

5. RS485 Communication

The Interface

The EIA specification RS485 defines an integrated circuit that is to be used to connect up to 32 nodes to a two-wire party line bus that does not exceed 4,000 ft. in length, and for use with data rates up to 10M Baud.

The two-wire bus must be terminated at one-end for short wire runs and at both ends if the runs exceed 20 ft. One of the two wires must be biased positive with respect to the other by approximately 700 millivolts.

For wire runs over 20 ft, twisted pair cable with a characteristic impedance of approximately 100 to 200 ohms, and the far end of the run should be terminated by a 150 ohm resistor across the line pair. For runs under 20ft almost any wire can be used.