

## Introduction

ADVANCED Motion Controls® DigiFlex® Performance™ digital servo drives connect to DriveWare® via either USB or RS232 for commissioning and configuration. This document provides instructions on how to troubleshoot USB and RS232 connection issues.

**Note: Sections of this application note require knowledge of the ports and devices used with your computer, and the software tools used to manage them. If you are not familiar with certain aspects of your computer, you may need to consult your IT Department. The OS used for this procedure is Windows 7.**

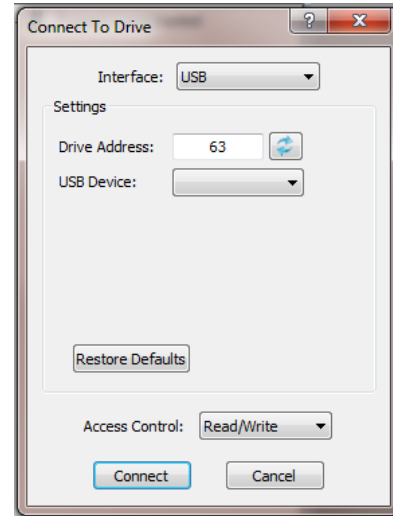
## USB Troubleshooting

The following are examples of drives using USB for configuration:

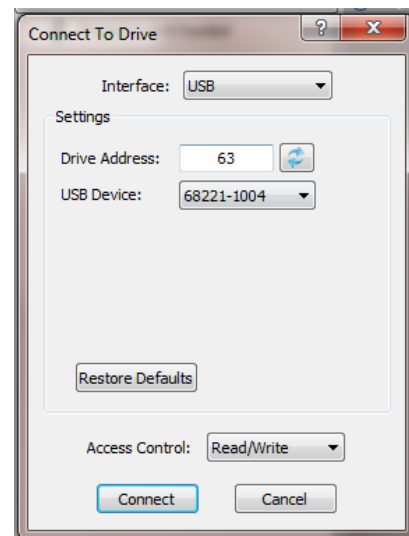
- DPEANIU-015S400
- DZEANTU-020B080
- DVC200A100
- DPPANIU-040A400

Prior to beginning the following procedure, make sure logic power is supplied to the drive in use.

1. Open DriveWare. Click on *Connect* in the opening window.
2. In the *Connect to Drive* window, select **USB** as the *Interface*.
3. For the *Drive Address* field, the default is **63** for single-axis drives. When using multi-axis mounting cards, the second, third, and fourth axes will automatically be addressed as 62, 61, and 60, respectively.
4. Click on the *Search for USB drives...* button next to the *Drive Address* field. DriveWare will search for drives connected via USB with the same address. Once DriveWare finds a drive, the serial number of the drive will become selectable in the *USB Device* drop-down menu.



5. Select the serial number from the *USB Device* drop-down menu and click on *Connect*.

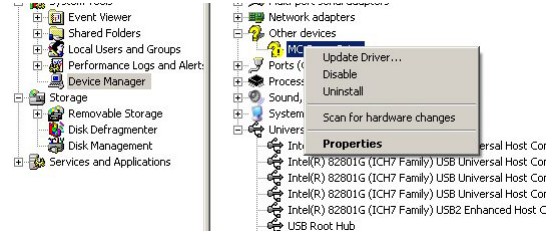
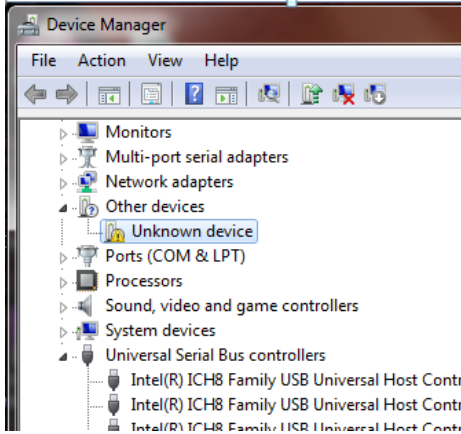


If there are no devices to select, proceed to the next step.

6. If DriveWare did not find a drive for selection, you will need to utilize the Device Manager tool on the PC in use to troubleshoot the issue.
7. Open the Device Manager by typing “device manager” in the PC’s *Run...* prompt, or by opening the Control Panel from Windows Explorer and searching for the Device Manager in the search box.

## Troubleshooting USB and RS232 Connection Issues

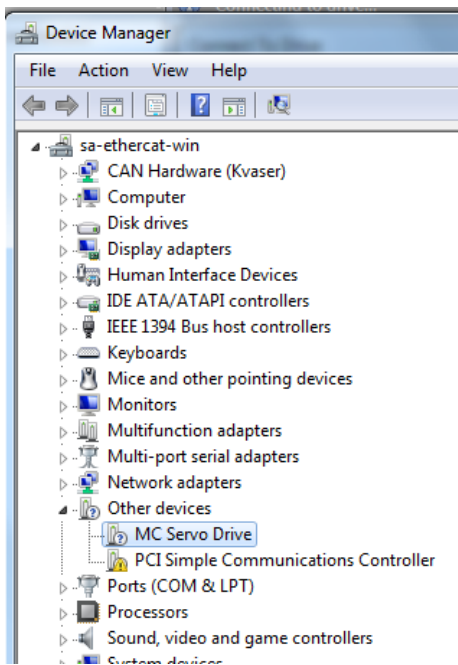
- The drive plugged into the USB port may show up in the Device Manager as *Other Devices > Unknown Device*, or as *Other Devices > MC Servo Drive*.



- From the Device Manager window menu bar, select *Action > Scan for hardware changes*.

- The USB port associated with the drive should now appear in the Device Manager under *Universal Serial Bus Controllers*.

- Open DriveWare and select *Connect*. The serial number for the drive should now appear in the *USB Device* menu. Select the device and click the *Connect* button. This should connect the drive via the selected USB port.



- If the drive is listed in the Device Manager as indicated above, proceed to the next step. If the drive doesn't appear in the Device Manager at all, there may be an issue with the drive or the USB cable. Try using a different USB cable, or a different PC.

- The drive must be uninstalled from the *Other Devices* heading. Right-click the device (either *Unknown Device* or *MC Servo Drive*), and select **Uninstall**.

- If after attempting all the troubleshooting steps above DriveWare still does not find the drive, please contact the factory.

## RS232 Troubleshooting

The following are examples of drives using RS232 for configuration:

- DPRALTE-025B200
- DPRANIE-030A800
- DZXRALTE-015L080
- DPCANTE-060B080

Prior to beginning the following procedure, make sure logic power is supplied to the drive in use.

If you are using a panel mount drive (DPxxxx-), make sure you are using a straight serial cable versus a null modem or crossover cable. For a straight serial cable, RX is connected to RX and TX is connected to TX as shown below.

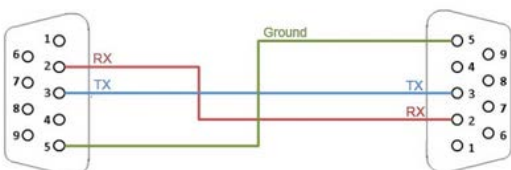


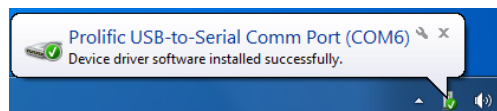
Image source: <http://digital.ni.com/public.nsf/allkb/1EE0DD8AF67922FA86256F720071DECF>

If you are using a straight serial cable, skip to Step 4 below. If you are using a USB to serial converter, the same troubleshooting procedure as given below applies. However, you will be plugging into a USB port instead of a native serial port. Below is a list of specific models that have been tested to work well with DigiFlex<sup>®</sup> Performance<sup>™</sup> servo drives.

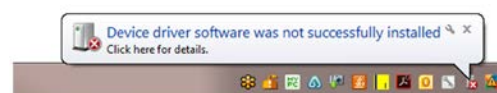
Manufacturer	Model #
ATEN	USB to Serial 1.5
B&B Electronics	USOPTL4
B&B Electronics	USO9ML2-LS
Cables To Go	26886
Dynex	DX-UBDB9
Staples	18762
Bytecc	BT-DB925

**Note: There have been reports of counterfeit Prolific USB to serial ICs using Prolific's trademark, logo, brand name, and device drivers. Counterfeit IC products use the same outside chip markings, but generally are of poor quality and cause Windows driver compatibility issues. Prolific has taken action to ensure these devices will not work by updating their drivers to reject products using the counterfeit chip.**

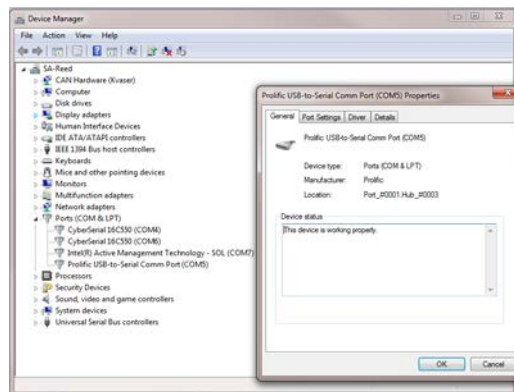
1. Plug the USB to serial converter into one of the USB ports on the PC. The other end should be attached to the serial cable that is connected to the drive.
2. Upon plugging the converter into the USB port on the PC, the following dialog should appear confirming that the drivers were installed successfully.



3. If the drivers do not install successfully, go directly to the website of the manufacturer of the USB to serial converter in use and download the necessary drivers.



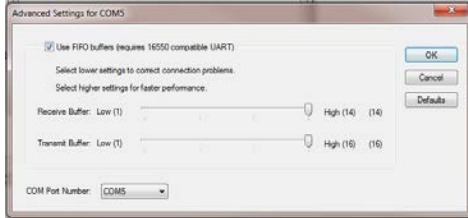
If you are able to successfully install the drivers, proceed to the next step. If not, try using one of the recommended USB to serial converters. If you are still unable to successfully confirm that the COM port associated with the device is working, request help from your IT personnel.



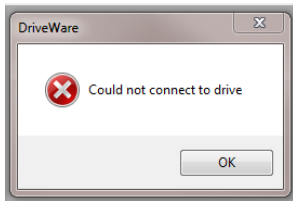
4. Make sure the port the drive is plugged into is less than COM 8 (DriveWare cannot recognize a COM port higher than 8). The COM port designation can be changed by opening the Device Manager on the PC. Right-click on the port you wish to change and select *Properties*. Click on the *Port Settings* tab, and select *Advanced*. Choose the

## Troubleshooting USB and RS232 Connection Issues

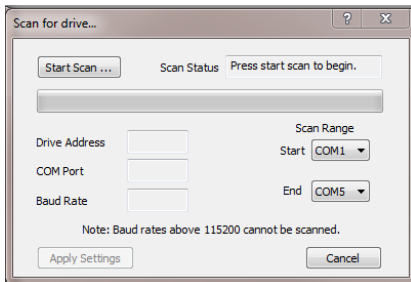
COM port number that you wish to use from the drop-down menu and select **OK**. Do not change any of the other default settings for the port!



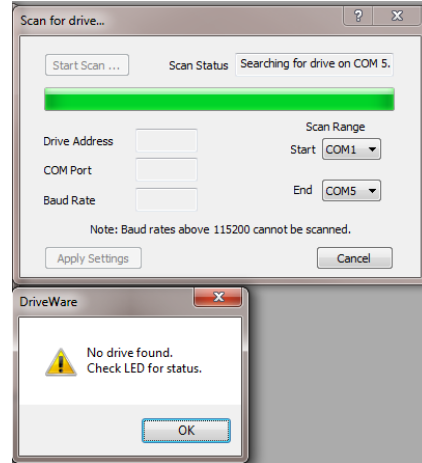
5. Open DriveWare and select *Connect* from the opening window.
6. In the *Connect to Drive* window, select **RS232** as the *Interface*.
7. Enter the drive address, serial port, and baud rate, and click on *Connect*. If the following message appears, proceed to the next step:



8. The *Auto Detect...* feature in the *Connect to Drive* window will automatically scan for devices connected via RS232 over the full range of possible RS232 configuration settings. Click on the *Auto Detect...* button to open the *Scan for drive...* window. If you know the COM port, you may limit the scan range to a smaller selection to speed up the routine.



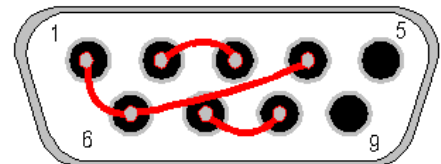
9. If the *Auto Detect...* routine is unable to find a drive, proceed to the next step.



10. Perform a loopback test on the communication port in use.
  - a. First you will need a loopback connector. This can be made by following the instructions below, or by purchasing a pre-made loopback connector. A recommended loopback connector is made by Lindy. More information can be found here: <http://www.lindy-usa.com/serial-loopback-connector-9-way-d-female-60254.html>

To make a loopback connector, the following pins need to be connected together.

- 2 and 3 (Receive and Transmit)
- 7 and 8 (Request to Send and Clear to Send)
- 1, 4, and 6 (Data Carrier Detect, Data Terminal Ready, and Data Set Ready)



**Female DB-9 – Rear View**

Image source: <http://www.passmark.com/support/loopback.htm>

This diagram shows the pin connections that need to be made. This is the rear view of a

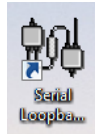
## Troubleshooting USB and RS232 Connection Issues

female DB-9 connector that is required for the plug. The red lines and the gray dots show the connections.

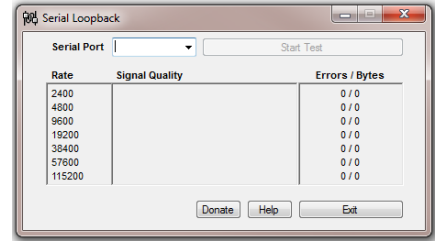
- b. Find a suitable loopback test program. Consult with your IT department if necessary before downloading any programs. The loopback test program used in this procedure can be downloaded from: [http://download.cnet.com/SerialLoopbackTest/3055-2086\\_4-75217096.html?tag=pdl-redir](http://download.cnet.com/SerialLoopbackTest/3055-2086_4-75217096.html?tag=pdl-redir)

The following set of loopback test instructions are for this specific loopback test.

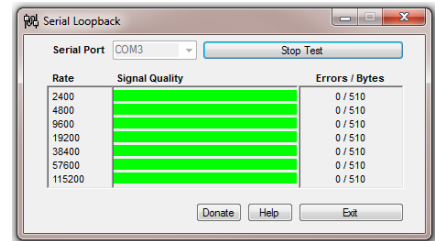
- c. Install the program.
- d. Plug the loopback connector into the COM port you will be using to connect to the drive.
- e. Double-click on the desktop icon for the loopback program to open it.



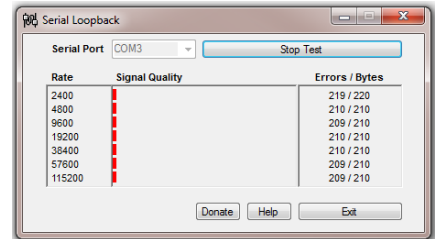
- f. Select the correct COM (Serial) port you will be testing from the drop-down window



- g. Click on *Start Test*.
- h. If the COM port passes, the program should appear as shown.



- i. If the COM port fails, the program should appear as shown.



Contact your IT personnel to help troubleshoot the COM port issue.

- 11. If you have attempted all of the steps as outlined in this procedure and have not had success in connecting to the drive, contact the factory for assistance.