

APPENDIX E

Communication Converters and Cables

WARNING! DO NOT connect or disconnect the Communications Converter Cable from MDrive while power is applied!

MD-CC40x-001 Communications Cable

The MD-CC40x-001 is an in-line USB to RS-422/485 converter with attachable cable to interface with the MDrivePlus P2 Communications connector. The included components will allow you to connect the USB port of a PC directly to the MDrive Motion Control. The converter will automatically detect if RS422 or RS485 is being used and configure itself accordingly.

There are three variations of this cable, which can be used with the different P2 connector variations of the MDrive14Plus:

1. MD-CC402-001 USB to 10-Pin Friction Lock Wire Crimp Connector at P2 (. Note that this cable also has an optional prototype development cable available to interface to multiple MDrives for party mode communications. Part Number PD10-1430-FL3.
2. MD-CC403-001: USB to 12-Pin Locking Wire Crimp at P1 (MDrive14Plus Only).

Supplied Components: MD-CC40x-001 Communications Converter, Drive Interface Cable, USB Cable, USB Drivers, IMS Terminal Interface Software.

Electrical Specifications

MD-CC400-000 Specifications	
BAUD Rate	Up to 115 kbps
Power Requirement	Power from USB

Table E.1: MD-CC400-000 Electrical Specifications

MD-CC402-001 Mechanical Specifications and Connection

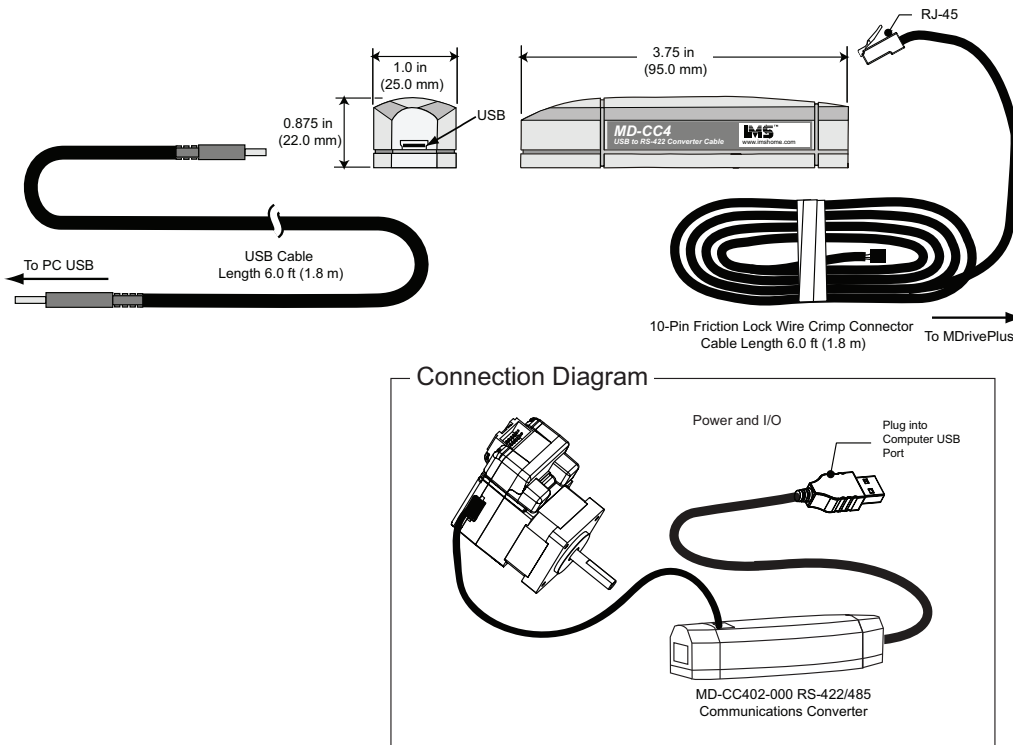


Figure E.1: MD-CC402-001 Mechanical Specifications and Connection

MD-CC403-001 Mechanical Specifications and Connection

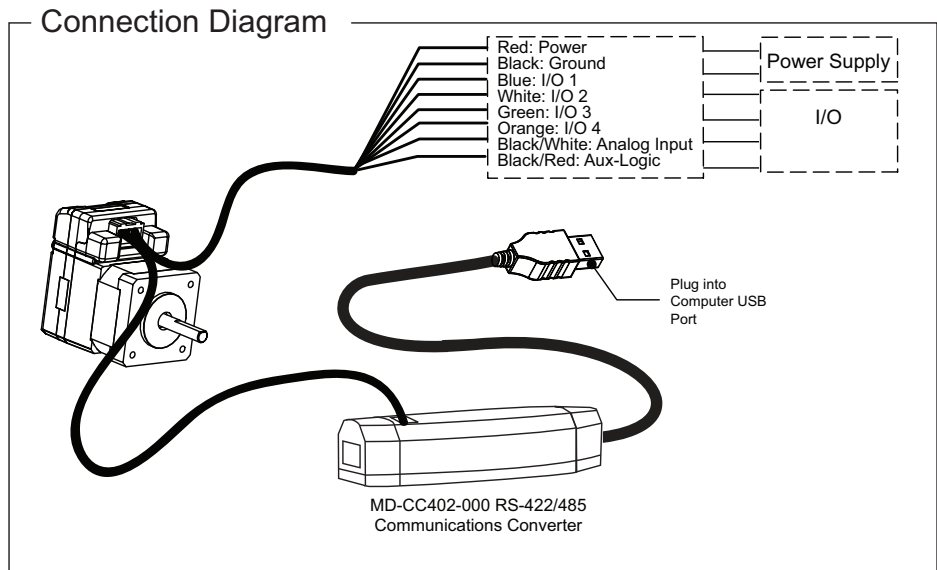
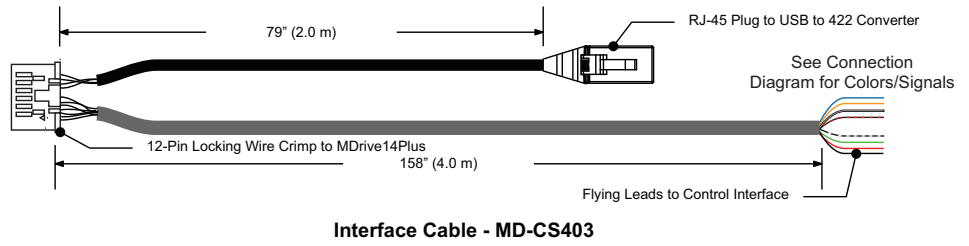
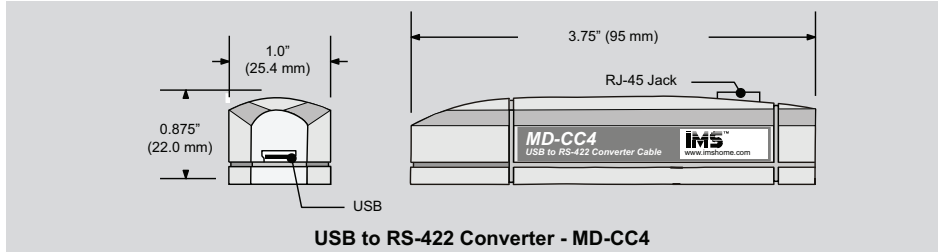
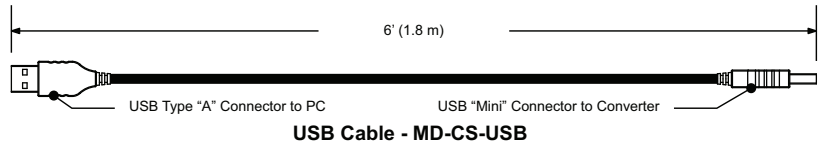


Figure E.2: MD-CC403-001 Mechanical Specifications and Connection

Installation Procedure for the MX-CC40x-001

These Installation procedures are written for Microsoft Windows XP Service Pack 2. Users with earlier versions of Windows please see the alternate installation instructions at the IMS web site (<http://www.imshome.com>).

The installation of the MD-CC40x-001 requires the installation of two sets of drivers:

- Drivers for the IMS USB to RS-422 Converter Hardware.
- Drivers for the Virtual Communications Port (VCP) used to communicate to your IMS Product.

Therefore the Hardware Update wizard will run twice during the installation process.

The full installation procedure will be a two-part process: Installing the Cable/VCP drivers and Determining the Virtual COM Port used.

Installing the Cable/VCP Drivers

- 1) Plug the USB Converter Cable into the USB port of the MD-CC40x-001.
- 2) Plug the other end of the USB cable into an open USB port on your PC.
- 3) Your PC will recognize the new hardware and open the Hardware Update dialog.
- 4) Select “No, not this time” on the radio buttons in answer to the query “Can Windows Connect to Windows Update to search for software?” Click “Next” (Figure E.4).
- 5) Select “Install from a list or specific location (Advanced)” on the radio buttons in answer to the query “What do you want the wizard to do?” Click “Next” (Figure E.5).



Figure E.4: Hardware Update Wizard

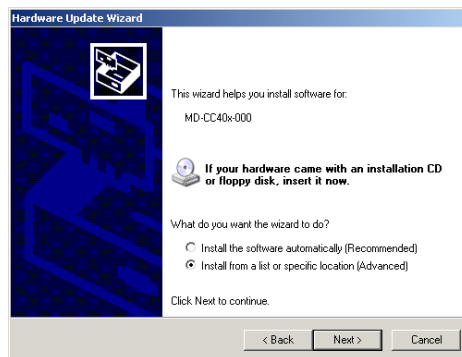


Figure E.4: Hardware Update Wizard Screen 2

- 6) Select “Search for the best driver in these locations.”
 - (a) Check “Include this location in the search.”
 - (b) Browse to the MDrive CD [Drive Letter]:\ Cable_Drivers\MD CC40x000_DRIVERS.
 - (c) Click Next (Figure E.6).

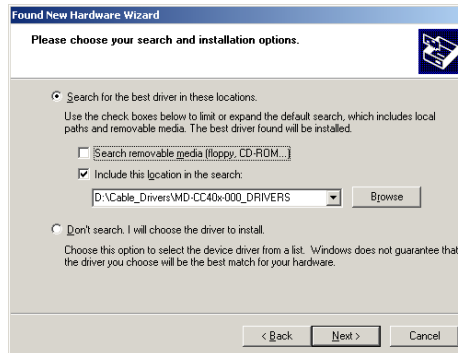


Figure E.6: Hardware Update Wizard Screen 3

- 7) The drivers will begin to copy.
- 8) On the Dialog for Windows Logo Compatibility Testing, click “Continue Anyway” (Figure E.7).
- 9) The Driver Installation will proceed. When the Completing the Found New Hardware Wizard dialog appears, Click “Finish” (Figure E.8).
- 10) Upon finish, the Welcome to the Hardware Update Wizard will reappear to guide you through the second part of the install process. Repeat steps 1 through 9 above to complete the cable installation.
- 11) Your IMS MD-CC40x-001 is now ready to use.

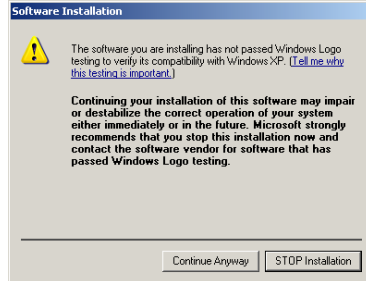


Figure E.7: Windows Logo Compatibility Testing

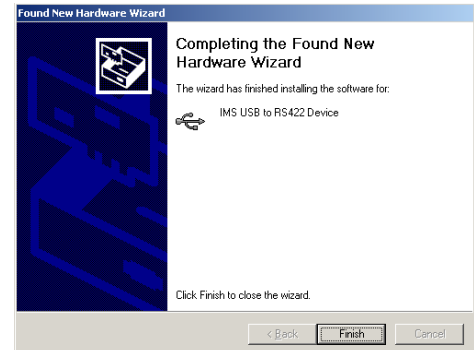


Figure E.8: Hardware Update Wizard Finish Installation

Determining the Virtual COM Port (VCP)

The MD-CC40x-001 uses a Virtual COM Port to communicate through the USB port to the MDrive. A VCP is a software driven serial port which emulates a hardware port in Windows.

The drivers for the MD-CC40x-001 will automatically assign a VCP to the device during installation. The VCP port number will be needed when IMS Terminal is set up in order that IMS Terminal will know where to find and communicate with your IMS Product.

To locate the Virtual COM Port.

- 1) Right-Click the “My Computer” Icon and select “Properties”.
- 2) Browse to the Hardware Tab (Figure E.12), Click the Button labeled “Device Manager”.
- 3) Look in the heading “Ports (COM & LPT)” IMS USB to RS422 Converter Cable (COMx) will be listed (Figure E.12). The COM # will be the Virtual COM Port connected. You will enter this number into your IMS Terminal Configuration.

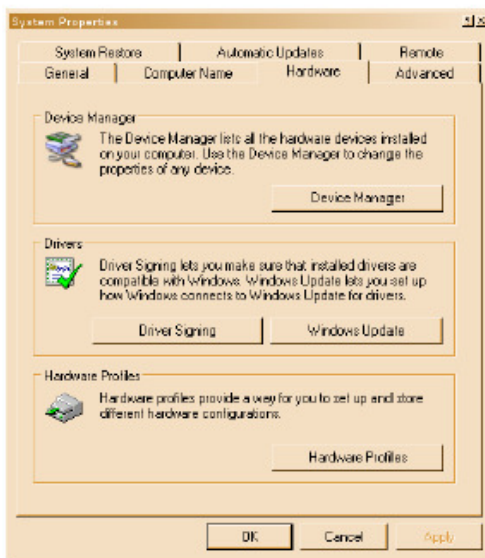


Figure E.9: Hardware Properties

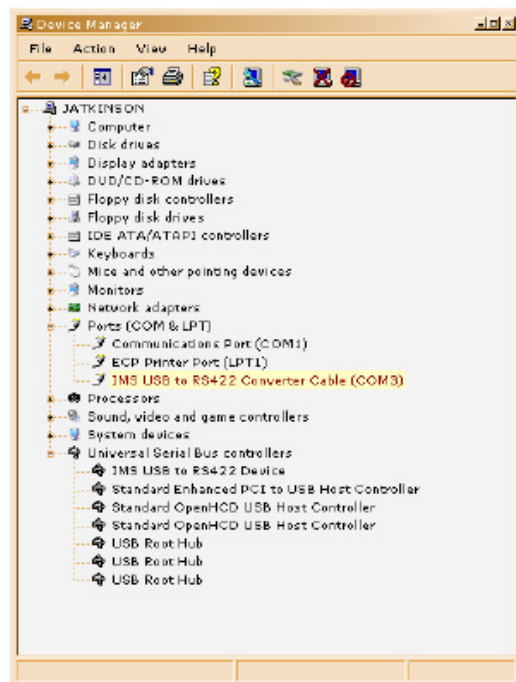


Figure E.10: Windows Device Manager