

**Future Technology Devices International Ltd****USB NMC-2.5m****USB to USB Null Modem Cable****Datasheet**

Neither the whole nor any part of the information contained in, or the product described in this manual, may be adapted or reproduced in any material or electronic form without the prior written consent of the copyright holder. This product and its documentation are supplied on an as-is basis and no warranty as to their suitability for any particular purpose is either made or implied. Future Technology Devices International Ltd will not accept any claim for damages howsoever arising as a result of use or failure of this product. Your statutory rights are not affected. This product or any variant of it is not intended for use in any medical appliance, device or system in which the failure of the product might reasonably be expected to result in personal injury. This document provides preliminary information that may be subject to change without notice. No freedom to use patents or other intellectual property rights is implied by the publication of this document. Future Technology Devices International Ltd, Unit 1, 2 Seaward Place, Centurion Business Park, Glasgow G41 1HH United Kingdom. Scotland Registered Company Number: SC136640

1 Description

The USB-to-USB Null Modem Cable is a modern replacement for the traditional serial null modem cable. The traditional null modem cable was used to connect two PCs via their RS232 serial ports, but fewer modern PCs continue to implement the RS232 serial port.

The RS232 port has almost entirely been replaced by the USB port. However, there is still a need to transfer files between PCs that are not networked.

The FTDI USB Null Modem Cable (NMC) solves this problem and allows a user to connect two PCs using their USB ports. The user can then perform file transfers between the PCs via the USB interface.

The NMC cable contains a small internal electronic circuit board encapsulated into the USB connector at both ends of the cable. The electronics is based on the FTDI FT232RQ USB to Serial UART IC and handles all the USB signalling and protocols. The FT232RQ datasheet, DS_FT232R, is available at <https://ftdichip.com/>.

The NMC cable is a USB powered, USB 2.0 full speed compatible, 2.5m cable which supports data transfer rate up to 3 Mbaud at TTL levels. The NMC cable supports the FTDIChip-ID™, with each cable end programmed with a unique USB serial number. This can be used to create security or password protected file transfer between PCs. Further information and examples on this feature are available at <https://ftdichip.com/> under [FTDIChip-ID Projects](#).

The cable requires USB drivers, available free from <https://ftdichip.com/>, which are used to make the FT232RQ within the cable ends appear as a virtual COM port (VCP). This then allows the user to communicate with the USB interface via a standard PC serial emulation port (TTY). Another FTDI USB driver, the D2XX driver, can also be used with application software to directly access the FT232RQ through a DLL. This is illustrated in the Figure 1-1:

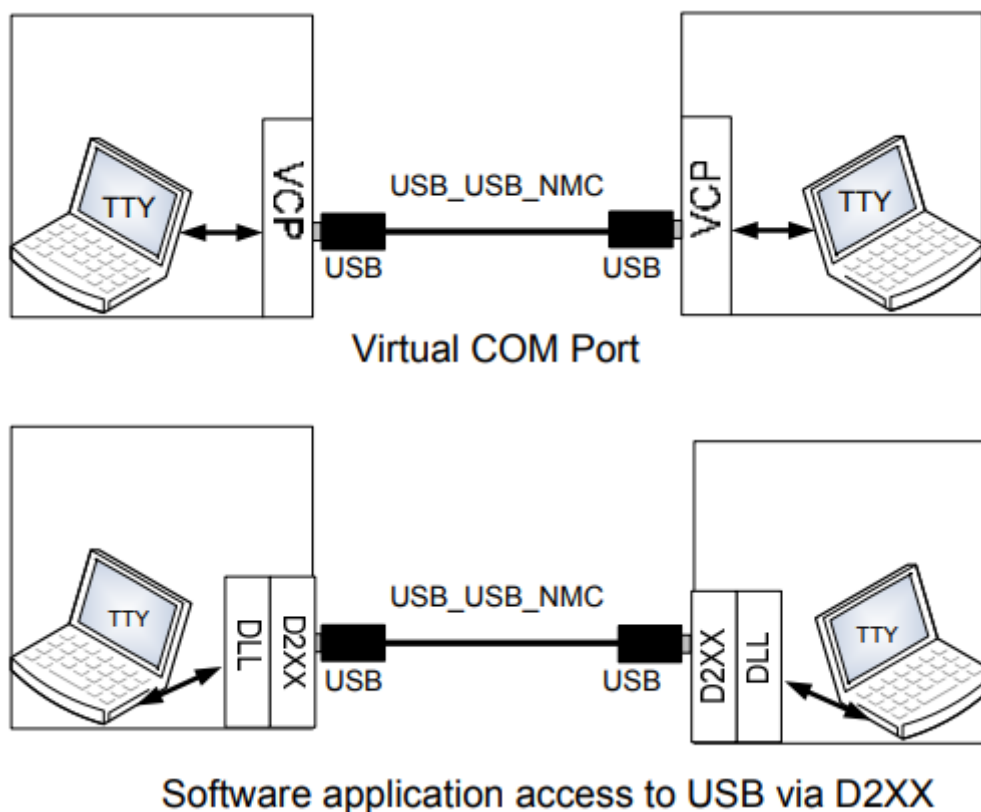


Figure 1-1 Using the USB NMC-2.5m Cable

1.1 Certifications

The FTDI USB to USB Null Modem Cable is fully RoHS compliant as well as CE, UKCA and FCC certified.



Table of Contents

1	Description.....	2
1.1	Certifications	3
2	Typical Applications	5
2.1	Driver Support	5
2.2	Features.....	6
3	Contact Information.....	7
	Appendix A - Cable EEPROM Configuration	8
	Appendix B - References	9
	Document References	9
	Acronyms & Abbreviations	9
	Appendix C - List of Figures and Tables	10
	List of Figures	10
	List of Tables	10
	Appendix D – Revision History	11

2 Typical Applications

- PC to PC networking using USB port.
- File transfer between PCs.
- Password protected file transfer between PCs.

2.1 Driver Support

Royalty free VIRTUAL COM PORT (VCP) and D2XX Direct Drivers are available for the following Operating Systems (OS):

- Windows
- Linux
- Mac
- Android (J2xx / D2xx only)

See the following website link for the full driver support list including OS versions and legacy OS.

<https://ftdichip.com/drivers/>

Virtual COM Port (VCP) drivers cause the USB device to appear as an additional COM port available to the PC. Application software can access the USB device in the same way as it would access a standard COM port.

D2XX Direct Drivers allow direct access to the USB device through a DLL. Application software can access the USB device through a series of DLL function calls. The functions available are listed in the [D2XX Programmer's Guide](#) document which is available from the [Documents](#) section of our website.

Please also refer to the [Installation Guides](#) webpage for details on how to install the drivers.

2.2 Features

The USB NMC has the following features:

- USB powered – no external power supply needed.
- Based on back-to-back FTDI FT232RQ devices.
- Entire USB protocol handled by USB connector encapsulated electronics.
- USB Type A connector on both ends of cable.
- Data transfer rates from 300 baud to 3 Mbaud at TTL levels.
- Lower Operating (20mA) and USB suspend mode current (70µA).
- Improved EMI Performance – FCC, UKCA and CE compliant.
- Supports FT232RQ FTDIChip-ID™, with each cable end programmed with a unique USB serial number.
- Support for USB suspend and resume.
- UHCI / OHCI / EHCI host controller compatible.
- USB 2.0 Full Speed compatible.
- Custom versions also available (subject to MOQ).
- -40°C to +85° C operating temperature range.

3 Contact Information

Head Office – Glasgow, UK

Future Technology Devices International Limited
Unit 1, 2 Seaward Place, Centurion Business Park
Glasgow G41 1HH
United Kingdom
Tel: +44 (0) 141 429 2777
Fax: +44 (0) 141 429 2758

E-mail (Sales) sales1@ftdichip.com
E-mail (Support) support1@ftdichip.com
E-mail (General Enquiries) admin1@ftdichip.com

Branch Office – Tigard, Oregon, USA

Future Technology Devices International Limited
(USA)
7130 SW Fir Loop
Tigard, OR 97223
USA
Tel: +1 (503) 547 0988
Fax: +1 (503) 547 0987

E-Mail (Sales) us.sales@ftdichip.com
E-Mail (Support) us.support@ftdichip.com
E-Mail (General Enquiries) us.admin@ftdichip.com

Branch Office – Taipei, Taiwan

Future Technology Devices International Limited
(Taiwan)
2F, No. 516, Sec. 1, NeiHu Road
Taipei 114
Taiwan, R.O.C.
Tel: +886 (0) 2 8797 1330
Fax: +886 (0) 2 8751 9737

E-mail (Sales) tw.sales1@ftdichip.com
E-mail (Support) tw.support1@ftdichip.com
E-mail (General Enquiries) tw.admin1@ftdichip.com

Branch Office – Shanghai, China

Future Technology Devices International Limited
(China)
Room 1103, No.666 West Huaihai Road,
Shanghai, 200052
China
Tel: +86 21 62351596
Fax: +86 21 62351595

E-mail (Sales) cn.sales@ftdichip.com
E-mail (Support) cn.support@ftdichip.com
E-mail (General Enquiries) cn.admin@ftdichip.com

Web Site

<http://ftdichip.com>

Distributor and Sales Representatives

Please visit the Sales Network page of the [FTDI Web site](http://ftdichip.com) for the contact details of our distributor(s) and sales representative(s) in your country.

System and equipment manufacturers and designers are responsible to ensure that their systems, and any Future Technology Devices International Ltd (FTDI) devices incorporated in their systems, meet all applicable safety, regulatory and system-level performance requirements. All application-related information in this document (including application descriptions, suggested FTDI devices and other materials) is provided for reference only. While FTDI has taken care to assure it is accurate, this information is subject to customer confirmation, and FTDI disclaims all liability for system designs and for any applications assistance provided by FTDI. Use of FTDI devices in life support and/or safety applications is entirely at the user's risk, and the user agrees to defend, indemnify and hold harmless FTDI from any and all damages, claims, suits or expense resulting from such use. This document is subject to change without notice. No freedom to use patents or other intellectual property rights is implied by the publication of this document. Neither the whole nor any part of the information contained in, or the product described in this document, may be adapted or reproduced in any material or electronic form without the prior written consent of the copyright holder. Future Technology Devices International Ltd, Unit 1, 2 Seaward Place, Centurion Business Park, Glasgow G41 1HH, United Kingdom. Scotland Registered Company Number: SC136640

Appendix A - Cable EEPROM Configuration

Each end of the NMC cable is controlled by the FTDI FT232RQ IC. This FT232RQ device contains an EEPROM which contains the USB configuration descriptors for that device. When the cable is plugged into a PC or a USB reset is performed, the PC will read these descriptors. The default values stored into the internal EEPROM are defined in the table below.

Parameter	Value	Notes
USB Vendor ID (VID)	0403h	FTDI default VID (hex)
USB Product ID (PID)	6001h	FTDI default PID (hex)
Serial Number Enabled?	Yes	
Serial Number	See Note	A unique serial number is generated and programmed into the EEPROM during device final test.
Pull down I/O Pins in USB Suspend	Disabled	Enabling this option will make the device pull down on the UART interface lines when the power is shut off (PWREN# is high).
Manufacturer Name	FTDI	
Product Description	USB Null Modem Cable	
Max Bus Power Current	90mA	
Power Source	Bus Powered	
Device Type	FT232R	
USB Version	0200	Returns USB 2.0 device description to the host. Note: The device is a USB 2.0 Hi-Speed device (480Mb/s).
Remote Wake Up	Disabled	Taking RI# low will wake up the USB host controller from suspend
High Current I/Os	Disabled	Enables the high drive level on the UART and CBUS I/O pins.
Load VCP Driver	Disabled	Makes the device load the VCP driver interface for the device.
Invert TXD	Disabled	Signal on this pin becomes TXD# if enable.
Invert RXD	Disabled	Signal on this pin becomes RXD# if enable.
Invert RTS#	Disabled	Signal on this pin becomes RTS if enable.
Invert CTS#	Disabled	Signal on this pin becomes CTS if enable.

Table 0.1 Default Internal EEPROM Configuration

The cable EEPROM in the cable can be re-programmed over USB using the utility program [FT_PROG](#) which can be downloaded from <https://ftdichip.com/>.

Appendix B - References

Document References

[FT232R Datasheet](#)

Acronyms & Abbreviations

Terms	Description
DLL	Dynamic Link Library
EHCI	Enhanced Host Controller Interface
EEPROM	Electrically Erasable Programmable Read Only Memory
IC	Integrated Circuit
RoHS	Restriction of Hazardous Substance
OHCI	Open Host Controller Interface
TTL	Transistor-Transistor Logic
USB	Universal Serial Bus
UART	Universal Asynchronous Receiver/Transmitter
UHCI	Universal Host Controller Interface

Appendix C - List of Figures and Tables

List of Figures

Figure 1-1 Using the USB NMC-2.5m Cable	2
---	---

List of Tables

Table 0.1 Default Internal EEPROM Configuration	8
---	---

Appendix D – Revision History

Document Title: USB NMC-2.5m USB to USB Null Modem Cable Datasheet
Document Reference No.: FT_000056
Clearance No.: FTDI# 40
Product Page: [Cables](#)
Document Feedback: [Send Feedback](#)

Revision	Changes	Date
Version 1.0	Full datasheet released	July 2008
Version 1.1	Document template updated. Added UKCA compliance and updated driver section and links.	25-07-2023