

## **FT8U2XXAM E2PROG Guide**

**Future Technology Devices International Limited**

**St. George's Studios  
93/97 St. George's Road  
Glasgow G3 6JA  
UK**

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## High Speed USB Controllers for serial and FIFO applications

### Introduction

E2PROG is an application for configuring, serialising, and testing serial communications functionality in FT8U232AM and FT8U245AM systems. The application maintains data which describes USB devices and formats it so that it can be programmed into EEROM. Configurable parameters include Vendor ID (VID), Product ID (PID), device description, and manufacturer name.

Users of FTDI's IC devices can use their own or FTDI's VIDs and PIDs. FTDI's VID and PIDs are as follows

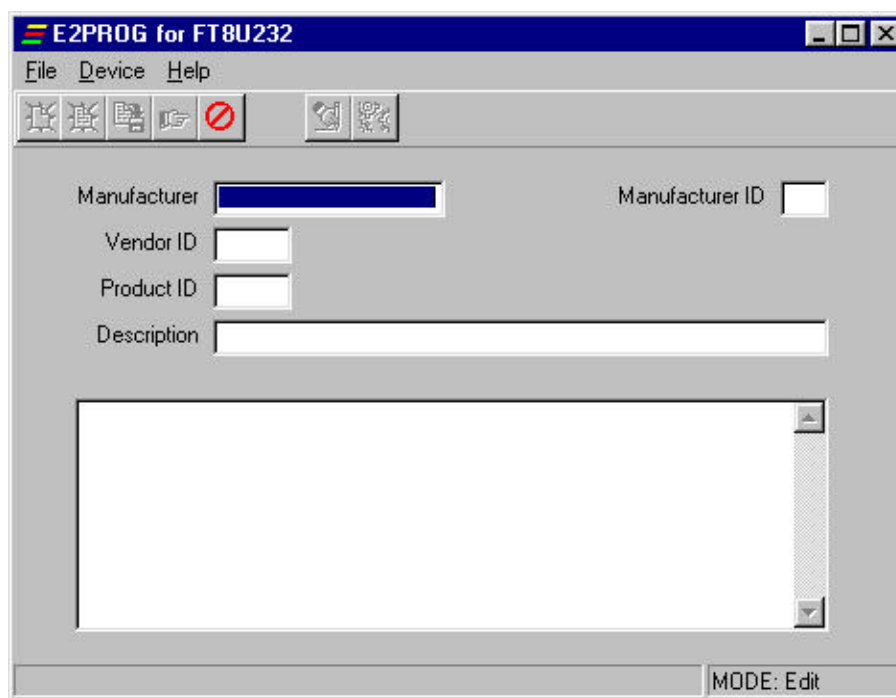
FT8U2XXAM VID = 0403, PID = 6001

Note – where a manufacturer uses their own VID and PID they will need to include these in the INF files shipped with the product. Ask FTDI for further advice on this.

### Getting Started

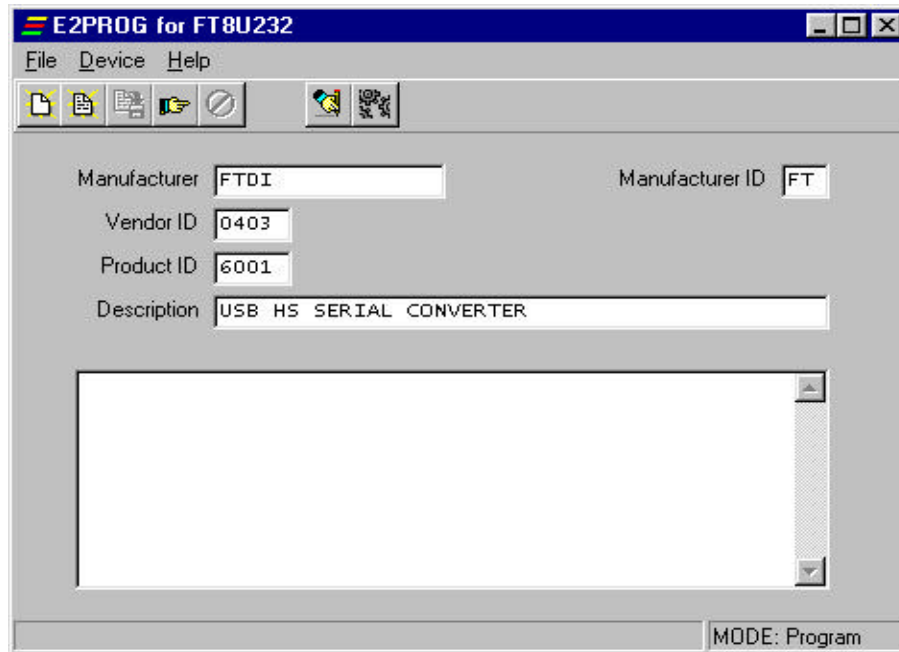
This section describes how to use E2PROG to program your first device.

When E2PROG is run for the first time, its display appears as follows:-



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E2PROG is in Edit mode which means that the user must enter data in the edit fields. Nothing else is possible since all menu items (except Exit) and all buttons on the Toolbar are disabled. Fill in the fields moving between them using the Tab key. When all fields have been filled in the display looks like :-



Click on the Advanced Setup option which has become enabled on the Toolbar, or via the Device menu, to

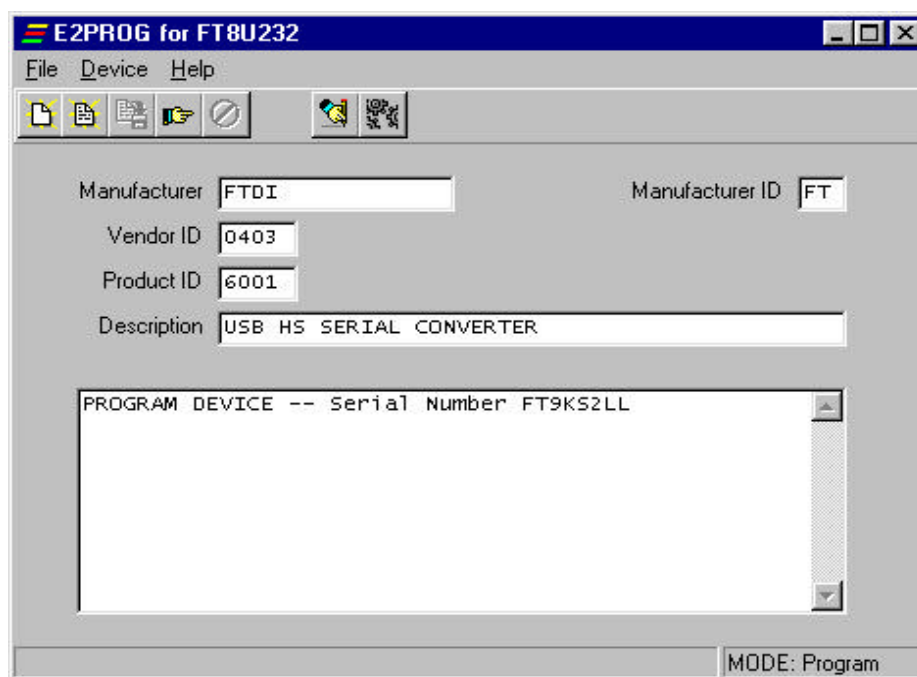


run the Advanced Setup dialog. Select appropriate settings for Options and Embedded Ports and click OK.

E2PROG has now accepted the device data and enables the Save option on the Toolbar and in the Device menu.

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Review the data entered (mistakes can still be corrected at this stage), then click Save. E2PROG saves the device data and changes to Program mode. New options are made available as indicated by the buttons enabled on the Toolbar. Select Program to write to the EEROM, and the serial number generated by E2PROG for the device is displayed in the log window.



Congratulations, your device has now been programmed.

### Edit Fields

This section describes the format of the edit fields.

#### Manufacturer

This is an alphanumeric field of length  $\geq 2$ . Note that the combined length of the Manufacturer and Description fields must be  $\leq 38$ .

#### Manufacturer ID

This is an alphanumeric field of length 2. Allocated by FTDI, it is used as the first two characters of the serial number.

#### Vendor ID

The manufacturer's VID is a hexadecimal field of length 4.

#### Product ID

The PID is a hexadecimal field of length 4. Allocated by the Manufacturer.

#### Description

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This is an alphanumeric field. Note that the combined length of the Manufacturer and Description fields must be  $\leq 38$ .

### Plug and Play Option

Default setting is checked which means enabled. Disable this option if plug and play enumeration is not available on the device. If in doubt use the default setting.

### Self Powered

Default settings is not checked which means the device is bus powered. Check this box if your product is self powered.

### Remote Wakeup

Default settings is checked which means the device can be configured for remote wakeup capability. Disable this option if your product is not to be configured for as remote wakeup capable.

### Max Power (mA)

This informs the system of the max power consumption of the product. The maximum allowable value for this is 100mA – the setting depends on your products power requirements.

## Toolbar Functions

This section describes the functions available on the Toolbar.

### New

Input new device data. The user must fill in the Manufacturer, Manufacturer ID, Vendor ID, Product ID, and Description fields, run the Advanced Setup dialog, and save the device data. E2PROG guides the user in the following manner. The application mode is set to Edit, edit fields are cleared, and all functions (except Cancel) are disabled on the Toolbar. When all edit fields have been filled in, the Advanced Setup function is enabled, and after the Advanced Setup dialog has been run, the Save function is enabled. When the device data has been saved, E2PROG returns to Program mode as indicated on the status bar.

At any time before the new device data has been saved, the user can cancel by selecting the Cancel Edit function. In this case, E2PROG returns to Program mode and the previous device data is re-loaded.

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### Open

Retrieve device data. Data from previous devices can be restored by running the Device Selection dialog.



To retrieve the device data, select the required device and click OK. The edit fields now contain the retrieved data. E2PROG is still in Program mode, and is ready to use the retrieved data to program the device.

### Save

Save the current device data. The current data is saved and E2PROG returns to Program mode.

### Advanced Setup

Display the Advanced Setup dialog. This allows the user to display and/or set Options including Plug and Play Enabled and the Embedded Ports mask.

### Cancel Edit

Cancel the current editing session. The current data is lost, E2PROG returns to Program mode, and the previous device data is re-loaded.

### Program

Program the device. E2PROG generates a serial number, formats it together with the current device data and writes it to EEROM.

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Test the device. The test results are displayed in the log window in the following format:-

**Manufacturer:** FTDI  
**DeviceID:** VID\_0403&PID\_6001  
**Description:** HIGH SPEED USB CONVERTER  
**Serial Number:** FT9KS2VL

|                      |      |
|----------------------|------|
| CTS Test             | PASS |
| DSR Test             | PASS |
| CD Test              | PASS |
| RI Test              | PASS |
| Rx/Tx at 300 Baud    | PASS |
| Rx/Tx at 115200 Baud | PASS |

**DEVICE PASSED**

Of course, failures are indicated with the string "FAIL".

## **Additional Functions**

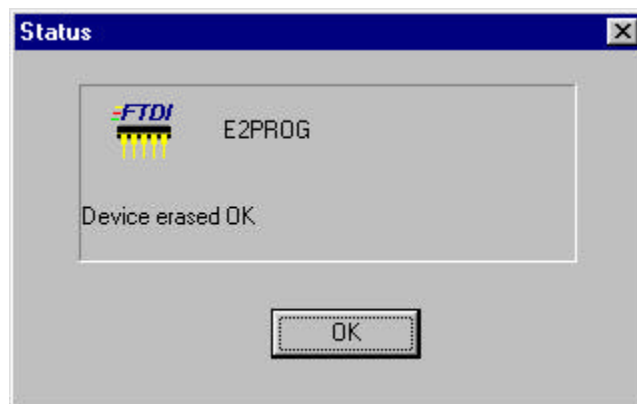
This section describes the additional functions available on the Device menu.

### **Read**

Read the contents of EEROM and display it in hexadecimal format in the log window.

### **Erase**

Erase the contents of EEROM. Displays a status message if successful.



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**High Speed USB Controllers for serial and FIFO applications****Error Messages**

This section describes the error messages displayed by E2PROG. Error messages are displayed in the Error dialog.



Click OK to remove the Error dialog.

**Failed to open device**

E2PROG is unable to find the device probably because it has not been connected.

**Failed to open device for erase**

E2PROG has failed to erase EEROM.

**Failed to write device**

E2PROG writes data to EEROM, then reads it back to confirm that the EEROM has been programmed properly. This error signifies that the confirm check has failed.



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**High Speed USB Controllers for serial and FIFO applications****Appendix: Test Cables**

In addition to serialising FT8U232AM and FT8U245AM based products this software can be used to test serial RS232 operation on products which implement an RS232 link. This required a special cable, the construction of which is described below for both 9 pin and 25 pin cases.

Note that testing using this cables requires a PC with two free serial ports.

The results of a passed test are shown previously in this document under the header Test.

**USB ⇔ Serial Cable****25 pin connector**

Test cable = 25 pin female to 2 x 9 pin female (COM1 and COM2)

|                     |       |               |       |
|---------------------|-------|---------------|-------|
| USB ⇔ Serial Pin 2  | (TXD) | to COM2 Pin 2 | (RXD) |
| USB ⇔ Serial Pin 3  | (RXD) | to COM2 Pin 3 | (TXD) |
| USB ⇔ Serial Pin 4  | (RTS) | to COM2 Pin 8 | (CTS) |
| USB ⇔ Serial Pin 5  | (CTS) | to COM2 Pin 7 | (RTS) |
| USB ⇔ Serial Pin 6  | (DSR) | to COM2 Pin 4 | (DTR) |
| USB ⇔ Serial Pin 7  | (GND) | to COM2 Pin 5 | (GND) |
| USB ⇔ Serial Pin 20 | (DTR) | to COM2 Pin 6 | (DSR) |

|                     |        |               |       |
|---------------------|--------|---------------|-------|
| USB ⇔ Serial Pin 8  | (CDET) | to COM1 Pin 4 | (DTR) |
| USB ⇔ Serial Pin 22 | (RI)   | to COM1 Pin 7 | (RTS) |

**9 pin connector**

Test cable = 9 pin female to 2 x 9 pin female (COM1 and COM2)

|                    |       |               |       |
|--------------------|-------|---------------|-------|
| USB ⇔ Serial Pin 3 | (TXD) | to COM2 Pin 2 | (RXD) |
| USB ⇔ Serial Pin 2 | (RXD) | to COM2 Pin 3 | (TXD) |
| USB ⇔ Serial Pin 7 | (RTS) | to COM2 Pin 8 | (CTS) |
| USB ⇔ Serial Pin 8 | (CTS) | to COM2 Pin 7 | (RTS) |
| USB ⇔ Serial Pin 6 | (DSR) | to COM2 Pin 4 | (DTR) |
| USB ⇔ Serial Pin 5 | (GND) | to COM2 Pin 5 | (GND) |
| USB ⇔ Serial Pin 4 | (DTR) | to COM2 Pin 6 | (DSR) |

|                    |        |               |       |
|--------------------|--------|---------------|-------|
| USB ⇔ Serial Pin 1 | (CDET) | to COM1 Pin 4 | (DTR) |
| USB ⇔ Serial Pin 9 | (RI)   | to COM1 Pin 7 | (RTS) |