



ECIO

Guide to getting started

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I. Installing the USB Drivers

The USB drivers allow the ECIO to be connected to a computer, allowing the device to be programmed.

a. Windows XP/2000

If you received a CD with your ECIO then insert the Flowcode CD into your CD-ROM drive and then click on the Start menu and click Run. Type the following command into the run dialogue and then click OK.

D:\etc\drivers\ECIO\ECIO_Driver_Install.exe

Where D is the letter of your CD-ROM drive.

If you did not receive a CD then you can download the ECIO drivers from

http://www.matrixmultimedia.com/software/ECIO_Drivers.zip



Click Next and then when asked click to agree with the license agreement. Then click next again and then click continue anyway and finish. This needs to happen only once and will pre install the drivers so that they are ready for when you plug your ECIO into the USB.

When the ECIO is plugged in, the “New Hardware Wizard” may appear, If it does then select “Install the software automatically (recommended)”. Select “continue anyway” when prompted.





b. Windows Vista

The Vista install is very similar to the XP / 2000 install with the difference of an extra UAC screen which you must agree to before proceeding.

Once the driver has been installed on Windows Vista you must insert a USB cable between the computer and the ECIO and switch the ECIO power jumper to USB. Then you have to right click on my computer and select properties. Then select device manager and scroll down to Universal serial bus devices. Inside the Universal serial bus devices option there should now be a device called ECIOXXP. Double click the ECIO and then click on the Power Management tab. Un-tick the box that says allow this device to be powered down to save power.

c. Windows ME / 98

1. The ECIO device drivers are located on the Flowcode CD. If you have not got the latest CD then the driver can be downloaded from the following location.

http://www.matrixmultimedia.com/software/ECIO_Drivers.zip

2. Insert the Flowcode CD into your CD drive.

3. Insert a USB cable into a spare USB port on your computer,

4. Insert the other end of the cable into the USB port onboard the ECIO and make sure that the ECIO power jumper is set to USB. The green power LED on the ECIO should light.

5. The following screen should pop up on your computer, choose the (Recommended) option and click next.



6. At the next screen click "Continue Anyway".



7. Click Finish



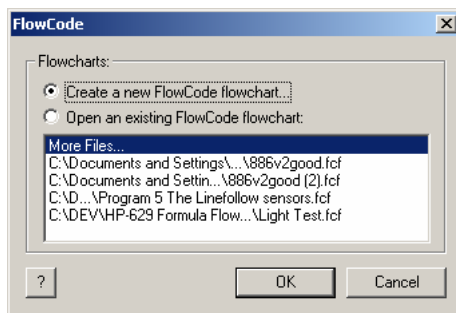
2. Installing Flowcode

For help installing Flowcode please refer to the Flowcode manual available from the Flowcode section of our website.

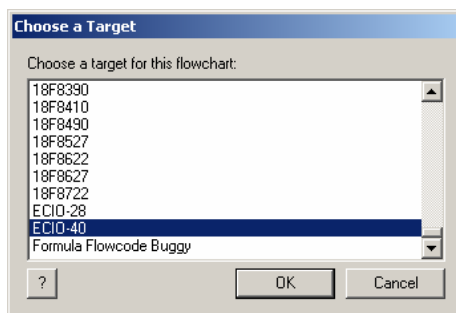
<http://www.matrixmultimedia.com/software/FLOWCODE%20%20MANUALpq.pdf>

Steps to creating your first program

1. Create a new Flowchart.



2. Scroll down to one of the ECIO devices.



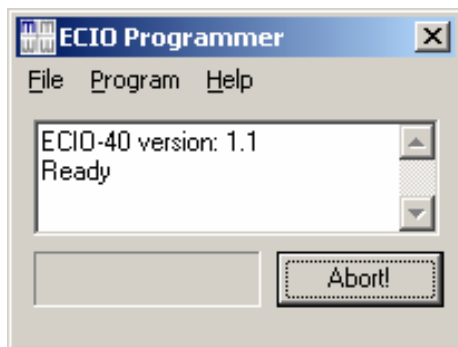
3. Create your program.



3. The ECIO Programming Software

The ECIO programming software is used to transfer users programs into the memory of the microcontroller onboard the ECIO module. The programming tool is included with versions of Flowcode V3.2 onwards. It is recommended to update your version of Flowcode to the latest version by downloading the latest patch from our website. The tool is located within the Flowcode V3 directory named "ECIOprog.exe". If you intend to use the ECIO without Flowcode then you will need to download the programming tool from the ECIO section of our website.

www.matrixmultimedia.com/software/ECIO_Programmer.zip



The software can be used to transfer a program to the ECIO, read the program back from the ECIO, erase the ECIO or restart the ECIO. There is a help file that accompanies the programming tool, which shows users exactly how to use the tool with command line parameters etc.

a. Using Flowcode

To send a program to the ECIO using Flowcode simply click on the compile to chip button. This will compile the code and then launch the programming software. If the ECIO is plugged into the USB and it is in bootloader mode then the ECIO will be automatically programmed. If the ECIO is not plugged into the USB then insert the ECIO to begin programming. If the ECIO is not in bootloader mode (the LED onboard the ECIO is not flashing) then make sure that the USB is connected and that the ECIO is powered, then press the reset button on the ECIO.

b. Using your own compiler

To use the ECIO with your own compiler you will have to make sure that the hex file generated will work with the bootloader software. To do this you must make sure that the code resides after location 0x800. The bootloader entry points are 0x800 (reset vector), 0x808 (high priority interrupt vector) and 0x818 (low priority interrupt vector). Your compiler should have documentation, which will show you how to achieve this. Once you have allowed for the bootloader you can compile your program and then use the ECIO programming software to transfer the hex file to the ECIO. The sample hex files that are supplied with the test files have already been shifted into the correct memory locations using Flowcode. There is a help file that accompanies the programming tool, which shows users exactly how to use the tool with command line parameters. This will allow for your compiler to automatically program the ECIO as part of the build process.



4. Testing your ECIO

There are test files available which will help to test the ECIO modules. The test file is available from the ECIO section of our website.

www.matrixmultimedia.com/software/ECIO_Test_Files.zip

You can test the functionality of the ECIO modules by doing the following:

1. Run the ECIO programming software "ECIOprog.exe".
2. Load the test file that matches your ECIO module "ECIOXXP Flash.hex" by clicking on file and open.
3. Connect a USB cable between the ECIO and a PC with drivers installed (see section on installing drivers).
4. Make sure that the jumper on the ECIO is set to USB.
5. Click on program and send program to send the hex file to the ECIO.
6. If the programmer software is not finding the ECIO module then press the reset button to initialise the bootloader.
7. Using a Multimeter or an LED verify that pins B0 and B1 are toggling on and off every second.



5. Troubleshooting the ECIO

1. ECIO not running as expected

If you are using the ECIO in USB power mode then firstly make sure that the USB cable is connected to both the ECIO module and the PC supplying the power. Also be aware that the ECIO will enter programming mode for approximately 5 seconds when the USB is connected and when the device is reset.

If you are using the ECIO in External power mode then make sure that the ground and 5V connections are the correct way round. Also make sure that the supply is stabilised by adding a 10uF or a 100uF electrolytic capacitor as near as possible to the ECIO power connections. Also be aware that the ECIO will enter programming mode for approximately 5 seconds when the USB is connected and the device is reset.

2. ECIO not recognised by Windows

If the ECIO is not being recognised by Windows then the problem is most likely to be with the Windows drivers. Try downloading and reinstalling the drivers from the following link.

http://www.matrixmultimedia.com/software/ECIO_Drivers.zip

3. ECIO not programming in Vista (common) / XP (rare)

Due to a problem with several types of USB root hubs shipped with certain motherboards, Windows will disable the power to the ECIO and not allow programming to be performed. To enable programming you will have to do the following.

- a. Right click on My Computer and then click on properties.
- b. Click on the hardware tab (XP only)
- c. Click on the device manager link
- d. Open the menu item for Universal Serial Bus Devices
- e. Set the power jumper on the ECIO to USB
- e. Inset the ECIO into the USB and press reset.
- e. Find the ECIO device and double click it
- f. Click on the Power management tab
- g. Press reset on the ECIO again to refresh the USB connection timeout.
- g. Un-tick the box "Allow this device to be powered down"
- h. Click OK
- i. Close Device manager
- j. Close System Properties.



4. Further Support

For further help with the ECIO or Flowcode you can visit the online forums at <http://matrixmultimedia.com/mmforums/>

There is also the online support FAQ area at <http://www.matrixmultimedia.com/support/>

You can also email matrix multimedia directly at support@matrixmultimedia.co.uk