

Engineering & Application Note

Issue Date:	August '09
Subject:	<i>i</i> ³ Config v8.80 Installing <i>CANopen</i> Firmware
Relevant Products:	<i>i</i> ³ Config v8.80 and <i>i</i> ³ firmware v12.50 or later

Article Description

'*i*³ Config' v8.80 now includes an optional firmware for each of the types of *i*³ (*i*³A, *i*³B and *i*³C), which replaces the default CAN network protocol called *iCAN* with a full version of *CANopen*.

CANopen is a CAN-based higher layer protocol. It is developed as a standardized embedded network with highly flexible configuration capabilities. *CANopen* is designed for motion-oriented machine control networks, such as handling systems. It is used in various fields, such as medical equipment, off-road vehicles, maritime electronics, public transportation, building automation, etc.

This firmware upgrade should only be made if the *i*³ is to communicate with other third party devices on a *CANopen* network. It is unnecessary if the *i*³ is only to communicate with other *i*³'s over CAN since the *iCAN* protocol is sufficient.

Article Details

Prerequisites

The *i*³ model to be upgraded needs to support CAN networking. All *i*³C, *i*³B models provide a CAN networking port, which is implemented with a 5-pin connector. The connector is labeled **NET1**. Only two models of the more basic *i*³A provide a CAN network port.

For the *i*³A the model must also have MicroSD, non MicroSD versions of the *i*³A are not supported by the *CANopen* firmware. Check your part number for an *i*³A, it must have a C and an F in the locations indicated:

I3A12X/10D03-SCHF

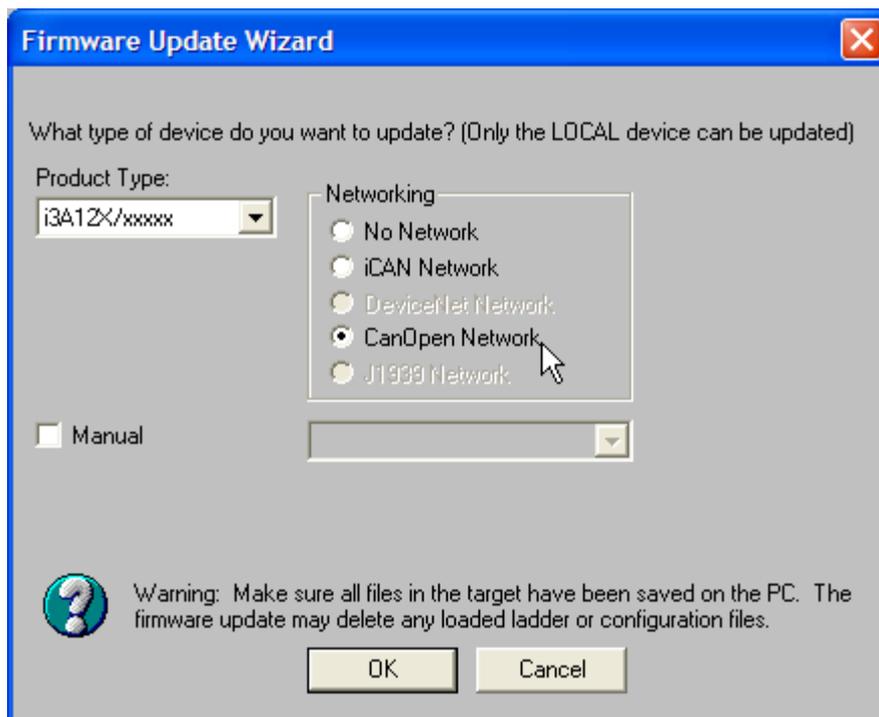
Note that following the upgrade the part number used in the *i*³ Config software will change, even though the part number of the physical hardware remains the same. E.g. the *i*³ above becomes:

I3A12X/10D03-SCAF

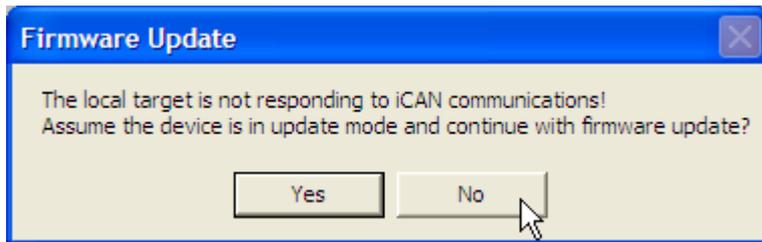
You should remember that any program present in the *i*³ will be erased by the process, so make sure you have a copy stored on your PC.

Firmware Upgrade Procedure

- 1) Run the *i*³ Configurator Software, v8.8 or later.
- 2) Make sure that the *i*³ is connected to the PC via a serial cable. In *i*³ Configurator choose **Tools-->Editor Options**, then go to **Communications Port** settings. Ensure that the connection is set to serial. On the *i*³ itself, from the system menu make sure that under **Set Serial Ports**, the default programming port is set to **MJ1**.
- 3) Confirm that the serial link is operating ok. From the **Controller** menu choose **Status**. A successful status check indicates connection is ok. If there is no connection please refer to the *i*³ Configurator help file, in the section 'How to Download to a Controller'.
- 4) Now remove the serial cable from the PC.
- 5) Go to the **File** menu, **Firmware Update Wizard** option. Note that if you select this option with the serial cable connected, you will only be presented with the option to upgrade the current firmware type, i.e. *iCAN* network.
- 6) Choose the correct product type from the dropdown box, and select the **CANopen** network type:

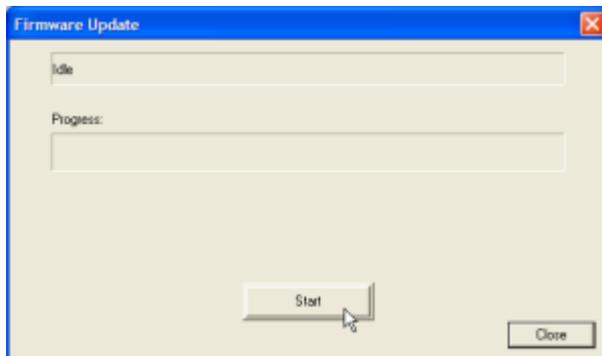


7) Now reconnect the serial cable. It is important to do this before proceeding any further. If you forget you will get the following error message:



Here the text refers to *iCAN* communications, meaning the *iCAN* link on the serial cable. Click **No** and return to the previous dialog.

8) Click **OK**. The following dialog will appear, click **Start** to begin the upgrade process.



9) Once complete the wizard will close and show a completion message. Your *i³* will reboot and is ready to be programmed.

10) Check the *i³* status, from the system menu on the unit choose **View Status**. Check that the version number of the firmware is correct (v12.50 or later) and that the correct part number is displayed.

Returning to iCAN Networking

To return to *iCAN* firmware simply follow to same procedure, but choose the *iCAN* network type on the **Firmware Upgrade Wizard**.