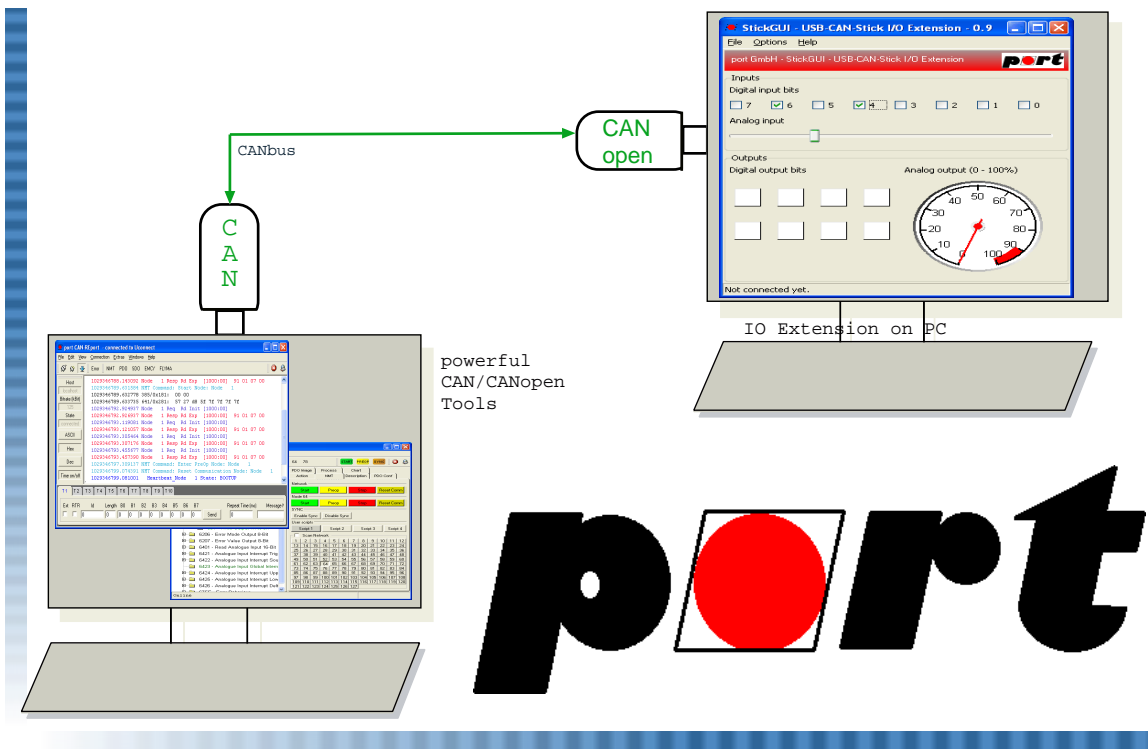


# UConnect CAN/CANopen examples — Getting Started —





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## 1. Scope

This Getting Started guide explains the required steps to open *port*'s CAN/CANopen examples projects in the compiler and how to put them into operation on 2 UConnect sticks. One example will act as a basic CAN monitor and the other one is a complete CANopen slave device.

## 2. Step-by-Step Guide

### 2.1. Required Tools

The following development tools have to be installed to use the examples:

- Infineon DAS Server
- Altium Tasking classic version
- Infineon DAVE<sup>1</sup> and XE166 Series DAVE DIP File

The tools can be found on this CD or another CD shipped with the UConnect stick or have to be downloaded from the internet.

### 2.2. CAN-Monitor (horch) Example

To install this example, select "CAN-Monitor (horch) Example Setup" and start the setup program. This setup will install

- the example project (to <InstallPath>\UConnect\_horch),
- the CAN-REport
- and the RS-232-Horch-Server.

Then the UConnect can be plugged in into the PC. The next step is to start the Tasking Compiler and to open the project file of the UConnect horch project. To do so start "All Programs → Tasking C166-ST10 → C166-ST10 EDE" from your start menu. Then open the project via "File -> Open ProjectSpace" and select the file `xe164.psp` from the folder <InstallPath>\UConnect\_horch. The next step is building the program via "Build → Rebuild". The program will build without errors.

To download the program to the UConnect the debugger has to be started. Select "Build → Debug" to start the CrossView debugger and start the program in the debugger with F5 or "Run -> Run". A first check to verify if the program is running is to check the blue LED on the UConnect. It should blink slowly with a frequency of approx. 1 Hz.

If all steps have been done without errors, continue with starting the CAN-REport.

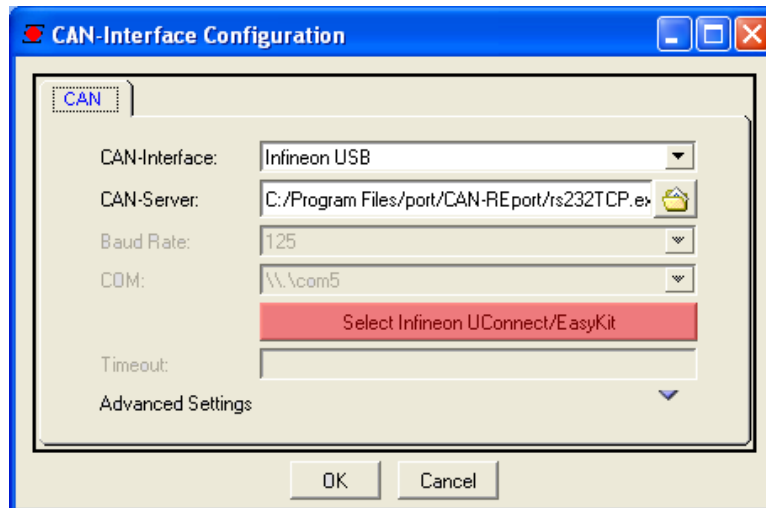
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<sup>1</sup> For DAVE see separate DAVE-CD or download latest version from <http://www.infineon.com/DAVE>.

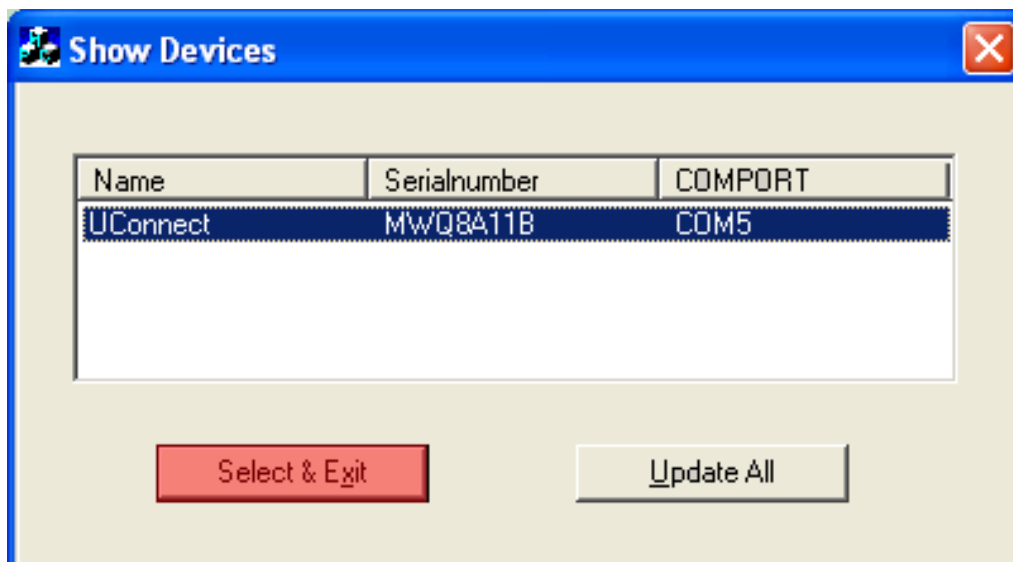
## 2.3. Using CAN-REport to monitor the CANbus

To listen to CAN messages or to send CAN messages the CAN-REport can be used. Start it via "All Programs → port → CAN-REport → CAN-REport" from your start menu.

Then configure the CAN-Interface Configuration via "Connection → CAN-Interface". The following window appears and it should be configured as shown in the figure.

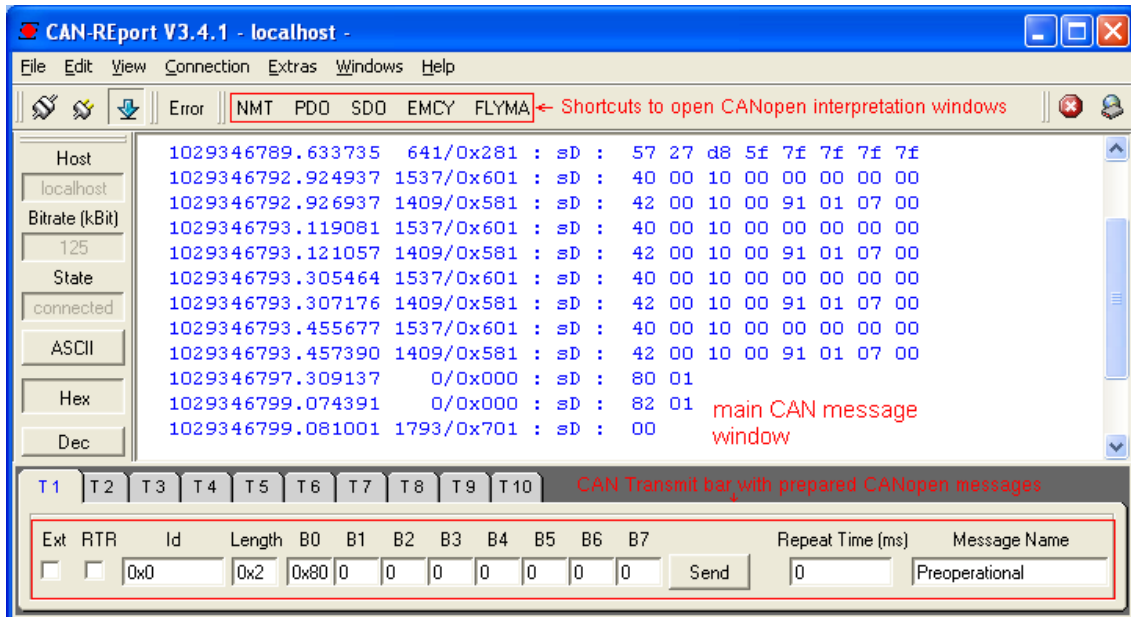


Select "Infineon USB" and then click on the highlighted button "Select Infineon UConnect/EasyKit" to select the connected stick in the following window.



Select your connected UConnect there and click on "Select & Exit" to close the dialog.

Then confirm the CAN-Interface dialog with "OK" and connect to the CANbus via "Connection → Connect". Now CAN messages will be displayed in the main window of the CAN-REport.



Please note that the Horch example for the UConnect supports only a baud rate of 125 kbit/s. As shown in the illustration the transmit bar has been already filled with prepared CANopen messages. For more information please refer to the user manual of CAN-Report.

## 2.4. The CANopen example

N.B. Close all programs before starting with this example and use the 2nd UConnect, if more than one is available.

To install this example, select "CANopen Example Installation" and start the setup program. This setup will install

- the example project (to <InstallPath>\UConnect\_CANopen),
- the CANopen Design Tool light
- and the Stick-GUI I/O extension.

The first step in this example is to start the Tasking Compiler and to open the project file of the UConnect CANopen project. To do so start "All Programs → Tasking C166-ST10 → C166-ST10 EDE" from your start menu. Then open the project via "File -> Open Project Space" and select the file xe164.psp from the folder <Install-Path>\UConnect\_CANopen\eva\_xe164\examples\eva\_xe164. The next step is building the program via "Build → Rebuild". The program will build without errors.

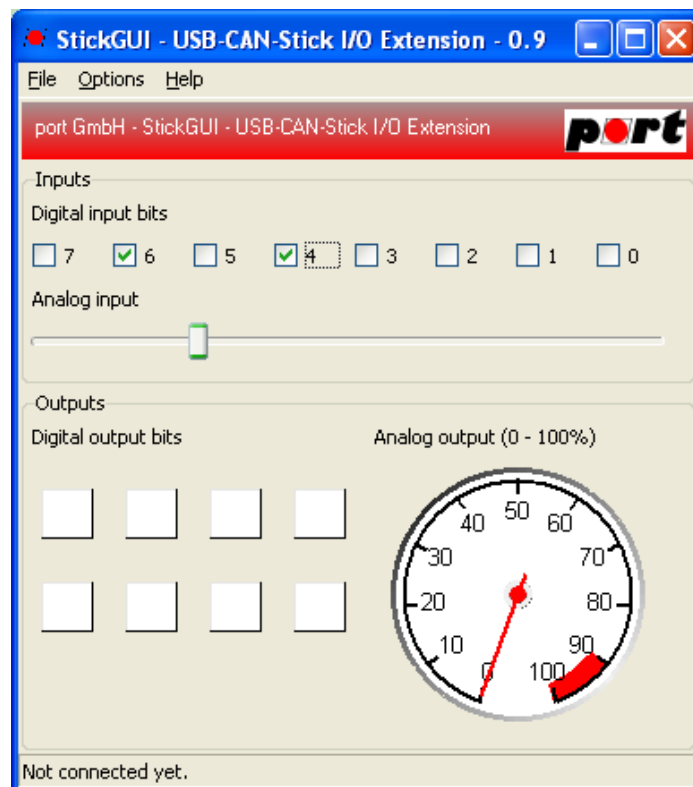
To download the program to the UConnect the debugger has to be started. Select "Build → Debug" to start the CrossView debugger and start the program in the debugger with F5 or "Run → Run".

A first check to verify if the program is running is to check the blue LED on the UConnect. It should blink fast with a frequency of approx. 5 Hz. Then the CANopen example is running with a baud rate of 125 kbit/s using CANopen node ID 32. It will start sending Heartbeat messages every second that will be received by the CAN-REport in its main window like the following line:

```
10.414 1824/0x720 : sD : 7f  
meaning node 32 is in PRE-OPERATIONAL.
```

## 2.5. StickGUI - the I/O extension for the CANopen example

Due to the limited number of I/O elements on the UConnect, there is an I/O extension program for the CANopen example available. To start it select "All Programs → port → UConnect CANopen Example → StickGUI". Then the following window should appear.



Select the UConnect stick via "Options → Connection Settings" and connect it to the CANopen example via "File → Connect". At first the value of the potentiometer on the UConnect is displayed in the window. Further functions are explained in the StickGUI manual ("Help → Show Help").

## 2.6. Connecting both examples

After the examples have been flashed to both sticks (done by the debugger when it started) the programs will start automatically when the sticks are unplugged and plugged into the PC again.

Once both programs are running (Horch example, blinking with 1 Hz; CANopen example blinking with 5 Hz) the UConnects can be connected using a CAN cable. Then the CAN-REport can be connected with the Horch example and the Stick-GUI can be connected with the CANopen example as shown before.

The CANopen EVA manual explains in detail which CAN message can be used to control the CANopen example. To open it select "All Programs → port → UConnect\_CANopen →EVA Manual".

### **3. Modifying the examples**

#### **3.1. General hints**

For each project there is a DAVE project in the project folder. Use this DAVE project to modify any hardware setting.

#### **3.2. CANopen example**

To modify the object dictionary of the CANopen example the CANopen Design Tool should be used. It can be started "All Programs → port → CANopen Design Tool" and the project file for the CANopen example can be found at <InstallPath>\UConnect\_CANopen\eva\_xe164\examples\eva\_xe164\eva.can. Please note that the light version of the CANopen Design Tool is limited to 15 objects.

A detailed description of the CANopen library and the API can be found in the CANopen Library User Manual and in the CANopen EVA Manual. Both manuals can be found in the start menu at "All Programs → port → UConnect CANopen Example".

For further questions contact us via email at [service@port.de](mailto:service@port.de).