USING THE B0716 COMMS-LINK TO CONNECT QTBTN WITH B0702-B Touch Switch

1 Introduction

QtBtn is a Windows based application that may be used with B0702-B touch switches to view the signal, view and change the sensitivity and other settings for the touch sensing, and view and change the Rule configuration. QtBtn communicates with B0702-B over via a standard PC COM port or virtual COM port using TTL UART serial over a half-duplex, single wire.

The easiest way to make the connection is to use the B0716 Comms-Link, but any virtual COM port cable/adapter with TTL-level Rx / Tx pins should work fine once Rx & Tx are connected together through a resistor (see the schematic for the B0716). FTDI cables and adapters have been found to work well and are used in the B0716 Comms-Link.

This document is specific to the B0716 Comms-Link.

CAUTION: Do not use RS232. RS232 voltages may damage or destroy the B0702-B, and the signals are inverted copies of the TTL ones.

1.1 Install the Virtual COM Port Drivers / Plugging-in the B0716 Comms-Link for the First Time

The first time an FTDI serial adapter is plugged into a PC, or a different USB port on the PC, the device drivers will need to be linstalled for that USB port. If the PC is connected to the internet these drivers will normally be installed automatically via Windows Update, otherwise they can be downloaded from the FTDI website www.ftdichip.com/Drivers/VCP.htm. It is recommended to always reboot the PC after plugging in the FTDI cable for the first time and after the drivers have been installed, to ensure Windows has loaded the drivers correctly, otherwise communication between QtBtn and the B0702-B may not work.

1. Plug the B0716 Comms-Link into the USB port of your PC.
2. Wait for the drivers to be fully installed. A new virtual COM port will be allocated to your device. Eg COM5.
3. Open Window's Device Manager from the Control Panel (Needs to be run as an administrator).
   Expand the "Ports" item, and locate the new COM port, which can be identified by removing the B0716 Comms-Link USB cable, waiting a few seconds, and then re-pluggin the cable while watching the list of ports in Device Manager. The new COM port will disappear when the device is unplugged.
4. (Optional) Right click on the COM port for your cable and select "Properties". Select the "Port Settings" tab, then click the "Advanced..." button. Change the "Latency Timer (msec)" setting to a lower value. Lower values reduce delays inserted by the FTDI adapter and result in faster communications with the touch switch. A value of 1 works fine on many PCs but you may need to use a larger value to achieve stable communications. Click OK to all the dialog boxes and close Device manager.
5. Reboot Windows to ensure all these settings take effect.

1.2 QtBtn to B0702-B - Establishing Contact

There is a short time window after the B0702-B is powered-up when it may enter configuration mode and communicate with QtBtn. This is either 1s or 10s, the default, depending on an internal configuration setting. After this time configuration mode is disabled so the output can operate normally. Because this time window is so short it is important to follow a specific procedure to establish contact beween QtBtn and the B0702-B. There are two different procedures, one using a .btn file, and a method to manually select the communications settings.

1.2.1 Manually Selecting Communications Settings

1) Plug-in the B0716 Comms-Link to a USB port (This step makes the COM port available to QtBtn in the next steps).
2) Start QtBtn.
3) Select B0702 from the Device Name ComboBox in the main window.
4) From the PC Interface combobox select the COM port corresponding to your B0716 CommsLink.
5) Tick the "Connect" checkbox.

6) Momentarily press the reset button on the B0716 Comms-Link, or remove the B0716 Comms-Link USB connection, wait for the Windows bing-bong confirmation, then re-plug the B0716 Comms-Link. This step re-starts the time window when the B0702-B can communicate with QtBtn.

7) After a few seconds QtBtn should connect and download the existing configuration from the B0702-B.

1.2.2 Using a .btn file to automatically Select the Communications Settings

1) Plug-in the B0716 Comms-Link to a USB port.

2) Start QtBtn.

3) Open a .btn file.

4) Momentarily press the reset button on the B0716 Comms-Link, or remove the B0716 Comms-Link USB connection, wait for the Windows bing-bong confirmation, then re-plug the B0716 Comms-Link. This step re-starts the time window when the B0702-B can communicate with QtBtn.

5) After a few seconds QtBtn should connect and download the existing configuration from the B0702-B.

1.3 QtBtn - .btn files

QtBtn can save a complete B0702-B configuration to a file for convenience. This can be reloaded at a later date making it quick and easy to change the configuration in touch switches. These files use the file extension ".btn". .btn files also store information about the position and layout of all the QtBtn Windows, your QtBtn options/preferences, and the communication parameters (COM port etc) in use to the connected touch switch. When opening a .btn file, this information is used to restore QtBtn to exactly the same state as when the .btn file was saved, and to automatically try and establish communication with any B0702-B already connected to the PC.

.btn files supplied by Coastform or other users, or moved from one PC to another, or used with a different FTDI adapter may have a different COM port setting to that allocated to your B0716 Comms-Link. In this case QtBtn will fail to establish contact automatically when the .btn file is opened. This can be remedied simply by changing the COM port setting using the PC Interface combobox on the QtBtn main window; remember to also click the reset button on the B0716 Comms-Link. After QtBtn has established contact, save the .btn file (File | Save) to update the saved COM port setting and to remove the need for this step when loading this .btn file in future.

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