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# AVR1908: QTouch Xplained Hardware User's Guide

- Xplain compatible top module for Atmel® capacitive touch - QTouch®
  - Two buttons
  - One slider
  - One wheel
- Requires download of
  - Atmel QTouch library software
  - AVR QTouch® Studio for visualization of data (debug frontend)
  - FLIP (Flexible In-system Programmer)

## 1 Introduction

QTouch Xplained is an easy to use low-cost evaluation kit, which demonstrates QTouch and the QTouch Library features. The QTouch Xplained utilizes the Xplain to do this.

The kit demonstrates how a QTouch solution requires only a very simple circuit design and a minimum of external components. It includes support for eight QTouch channels: a slider (3 channels), a wheel (3 channels) and two keys (1 channel each).

**Figure 1-1.** QTouch Xplained Evaluation board



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8-bit **AVR**<sup>®</sup>  
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Application Note

Rev. 8275A-AVR-04/10



## 2 Getting started

### 2.1 Programming the firmware for the Xplain board

In order to get the QTouch board up and running the AT90USB1287 and ATxmega128A1 device mounted on the Xplain board needs to be programmed. The required firmware is included in the .zip file following this application note. For a detailed description about programming the Xplain board, please refer to application note AVR1921.

### 2.2 Connecting the QTouch Xplained

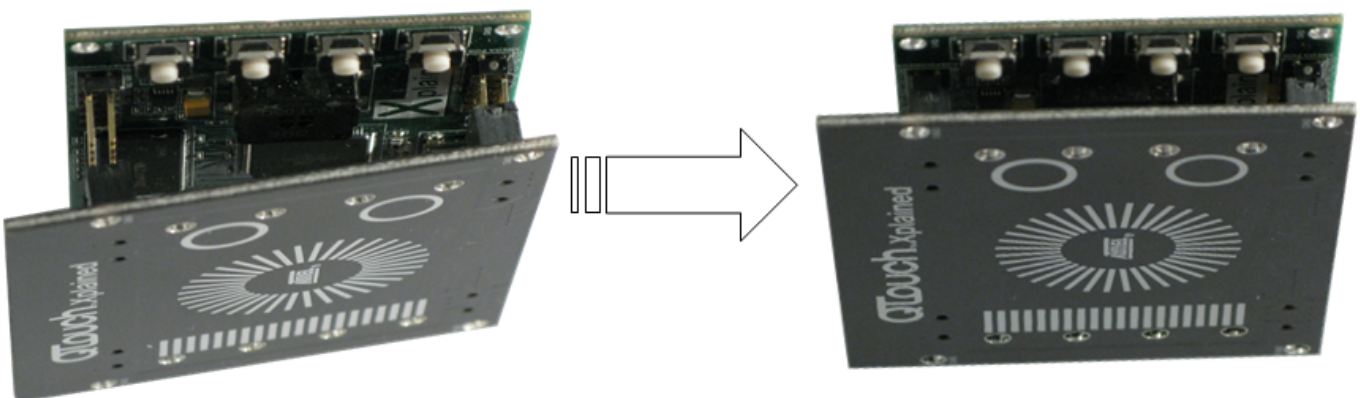
The QTouch Xplained needs to be connected to the Xplain in order to demonstrate QTouch and the QTouch library features. This section provides all information needed to connect the QTouch Xplained add-on board to the Xplain mother board, and then connecting the bundle to the PC host in order to use it with QTouch Studio.

#### 2.2.1 Connecting the QTouch Xplained to Xplain

The QTouch Xplained uses four 10-pin headers to connect to Xplain. This makes it easy to connect and disconnect the QTouch Xplained from the Xplain board. Note that the female SMD mounted pin-headers might get damaged if not handled carefully. The plastic insulation might come off and exposes the conductors. Refer to Figure 2-1 for an illustration how to connect the two boards together.

- Attach the QTouch Xplained to the Xplain board. The QTouch Xplained is connected to the Xplain board by connecting the four 10-pin headers on the QTouch Xplained (female) to the four 10-pin headers on the Xplain (male).
- The text orientation should be the same on both kits.
- Ensure that all four pin headers are properly connected.

**Figure 2-1** Connecting the QTouch Xplained to the Xplain board



#### 2.2.2 Connecting the QTouch Xplained & Xplain to the PC

The Xplain board must be connected to a host PC using an USB cable. The USB connection is used for communication between the QTouch Studio and the

AT90USB1287 device, and to power the QTouch Xplained & Xplain boards. Refer to Figure 2-2 to see how to connect to the PC.

- Connect an USB cable to the Xplain board and the host PC.
- If programmed correctly (see section **Error! Reference source not found.**), the board will register as a Human Interface Device (HID), so no driver installation is required for most modern operating systems.
- Launch QTouch Studio and wait for the Xplain board to register.

**Figure 2-2** Connecting the QTouch Xplained & Xplain to the PC



### 3 Quick introduction to the QTouch Xplained features

The best way to learn how to use the QTouch Xplained is to go through the QTouch Xplained training. This training is included in the zip file that is distributed with this application note.

The QTouch Xplained consists of:

**Figure 3-1** Slider





Figure 3-2 Wheel



Figure 3-3 Buttons





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