Application Note: AZD020
IQ Switch® - ProxSenseTM Series
IQS222 GUI Overview (Win XP)

Introduction

The IQS222 GUI aids designers by visually displaying details of each channel of the IQS222 device. This includes displaying the current measurement (called Current Sample (CS)) made of the capacitance and the immediate reaction of every channel to a touch or proximity condition. The designer can see how a module reacts to the environment it is built into, and makes PCB layout and setting sensitivity levels much easier. In the Raw Data view, all the above mentioned data is available and the IQS222 GUI enables application designers to adjust all the settings of the IQS222 device. Please refer to the IQS222 datasheet for a description of the adjustable settings. In the second view, “Mp3 Player”, the IQS222 GUI implements a practical example of an Mp3 Player, to show the capabilities of the IC in the real world. The two views in the GUI are interchangeable, and will allow the designer to change settings in the Raw Data view, and take them over to the Mp3 player. This allows the designer to see the impact the changes have on performance of the device.

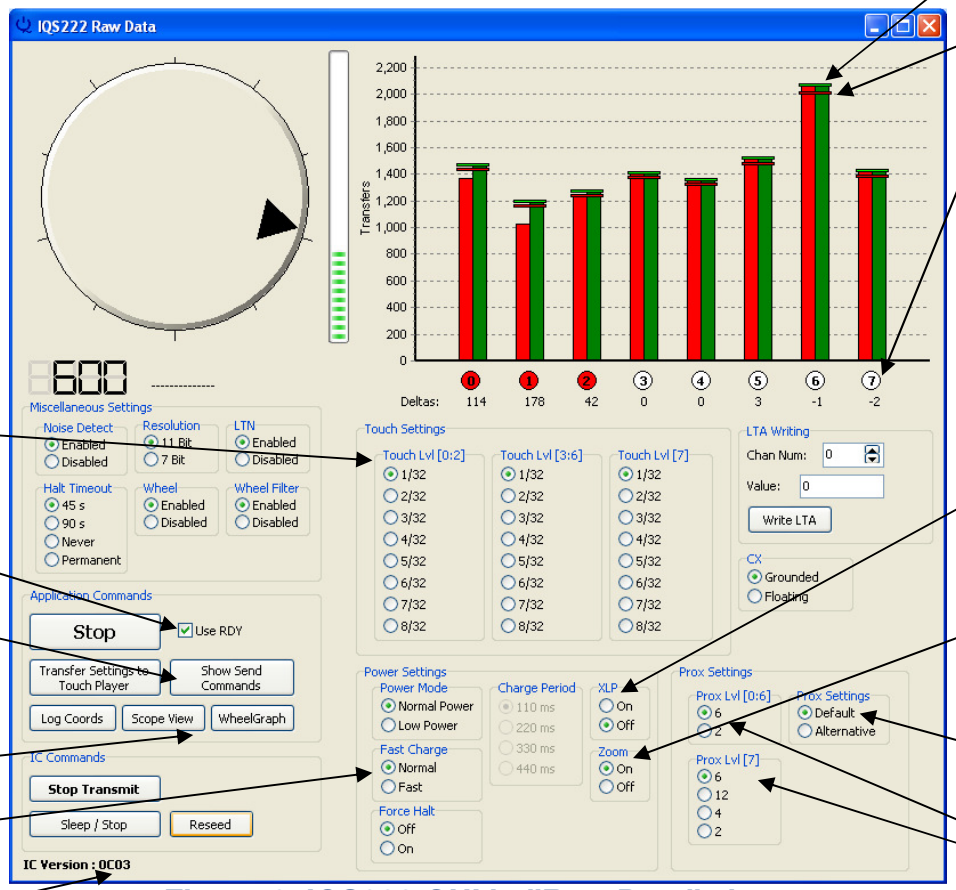
The GUI connects to the IQS222 via USB, either directly as with Azoteq EV-kits (AZP154 and AZP158), or through a USB configuration tool (CT tool). When the GUI starts, it will give the user an option to choose a view, as shown in Figure 1. A check box is also included to load default settings to the Mp3 player.

Figure 1. Azoteq IQS222 Demo GUI.

Using IQS222 Demo GUI in the Raw Data View

Figure 2. IQS222 GUI in "Raw Data" view.

Using IQS222 Demo GUI in the Raw Data View



Prox Threshold Level (Green)

Touch Threshold Level (Red)

Indicates Channel number and Prox (Green) or Touch (Red)

Touch Thresholds

Streaming Using the RDY Pin

Displays commands sent from the GUI to the CT tool

Scope views, see Figure 3 & 4

Controls the charging time

IC Firmware Version

Device periodically switches off all channels except channel 7

Device zooms into normal power mode when a proximity condition is detected

Proximity Range

Proximity Thresholds

Figure 2. IQS222 GUI in "Raw Data" view.

In the “Raw Data” view, shown in Figure 2, the GUI displays bar graphs of all the channels of the IQS222. This will allow the designer to view which channels are active or disabled, as well as the level of the channels (dependant on the CS capacitor selection). In the GUI the proximity and touch thresholds off all the channels are shown, with options to change them. The bar graphs will display when proximity (green circle) or touch (red circle) conditions are detected on each channel, as the current sample falls below the threshold. The wheel and slider positions are shown in the display in Figure 2, as well as a scope view to follow and log the coordinates, shown in Figure 3. As an alternative to the bar graphs, all the channels can be shown in a scope view, shown in Figure 4.

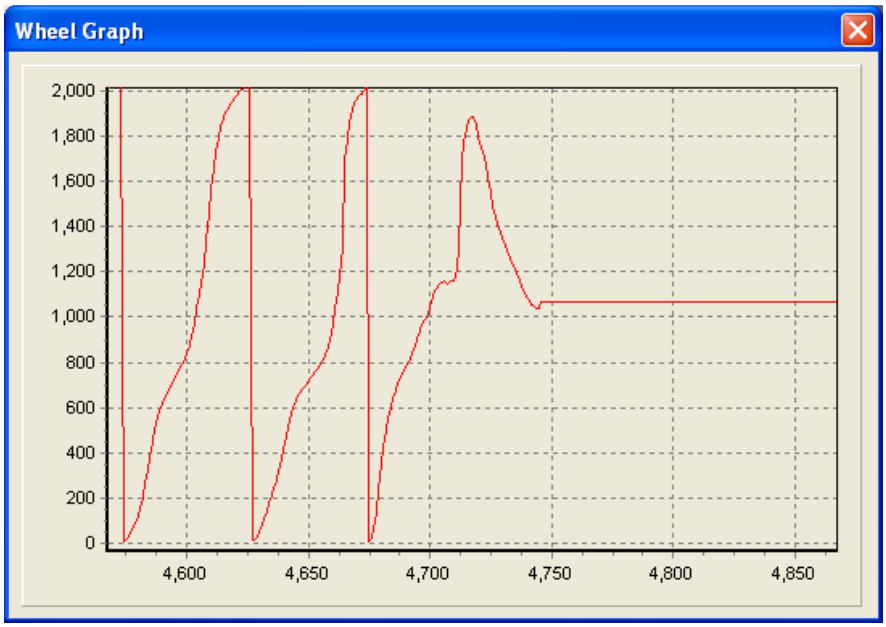


Figure 3. Scope view of the wheel coordinates.

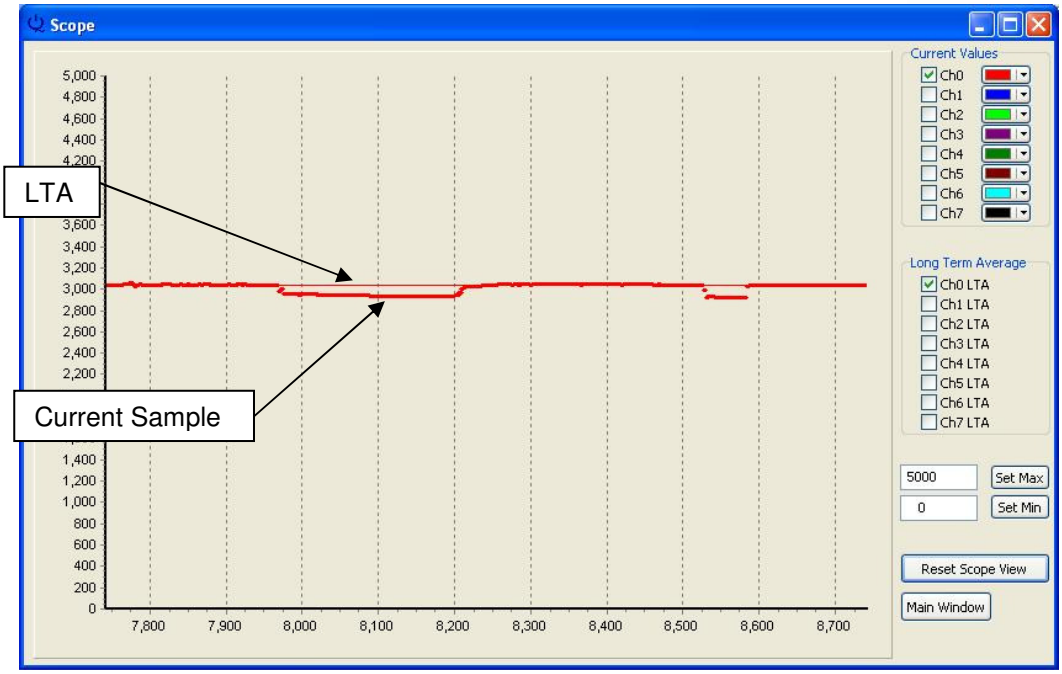


Figure 4. Scope view of current samples and LTA's of channels.

Using IQS222 Demo GUI in the Mp3 Player View

The Mp3 player has more than one display, supporting 4 different layouts PCB's, which automatically adjust to the demo board used on start up. It is also user selectable. Each display replicates the position of the buttons, wheel and slider on the board, and changes colour on proximity and touch conditions. All the buttons and wheel/slider has a function for the Mp3 player as shown. For the layouts shown in Figure 4 and 5, the wheel function is controlled by the centre button, switching between the volume and seek bar. To load *.mp3 files, click on the "+" button and point to the directory containing the appropriate file. To remove files, click on the file and press delete, or use the "Clear" button to clear the whole playlist. The GUI has a pop-up window notification, as shown in Figure 8 and 9, to show when touch selections are made, even if the GUI is minimised.

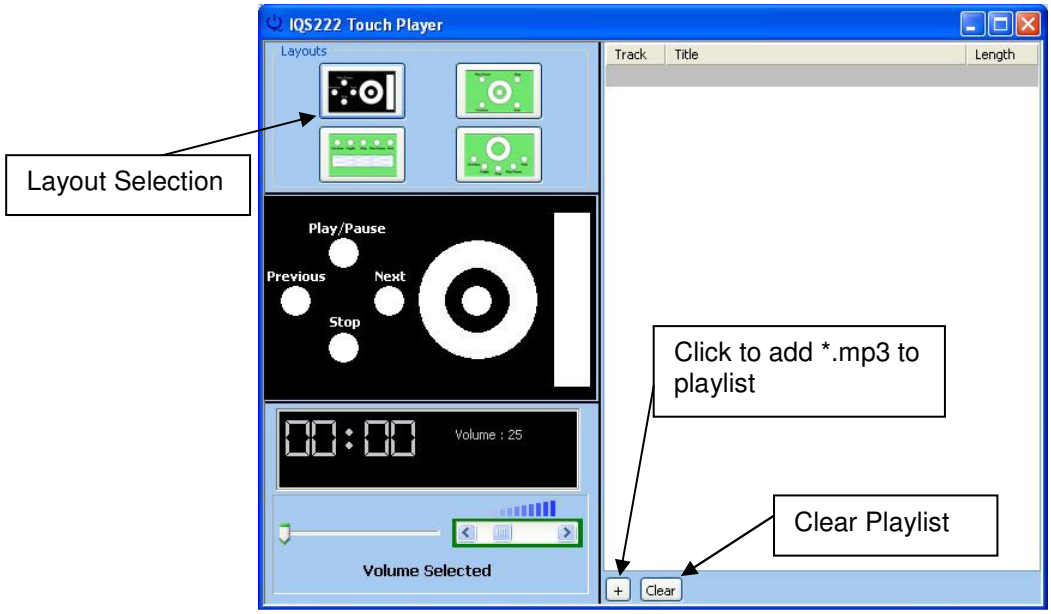


Figure 5. Board layout of the AZP154 board.

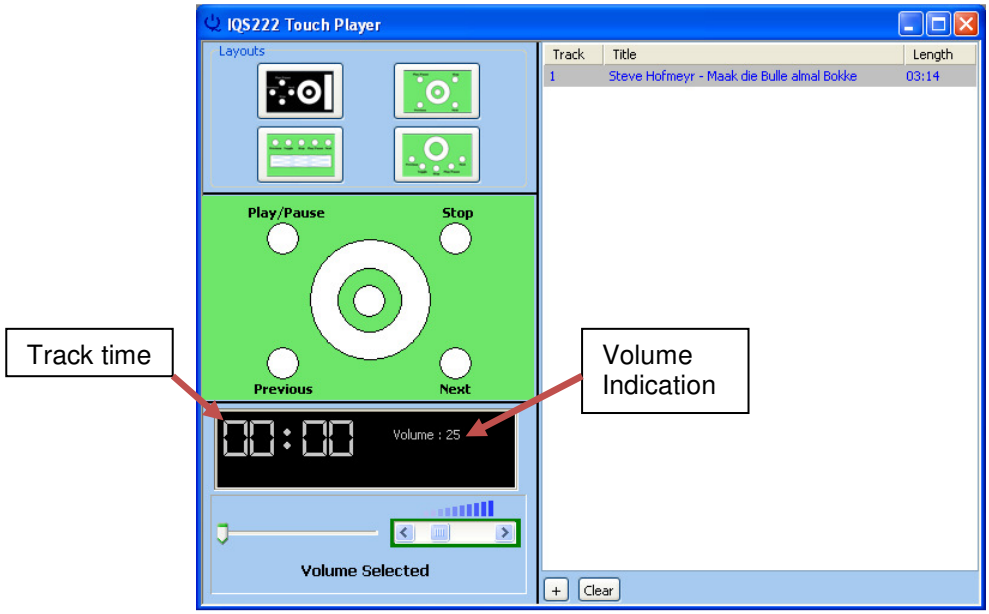


Figure 6. Board layout of the AZP142 board.

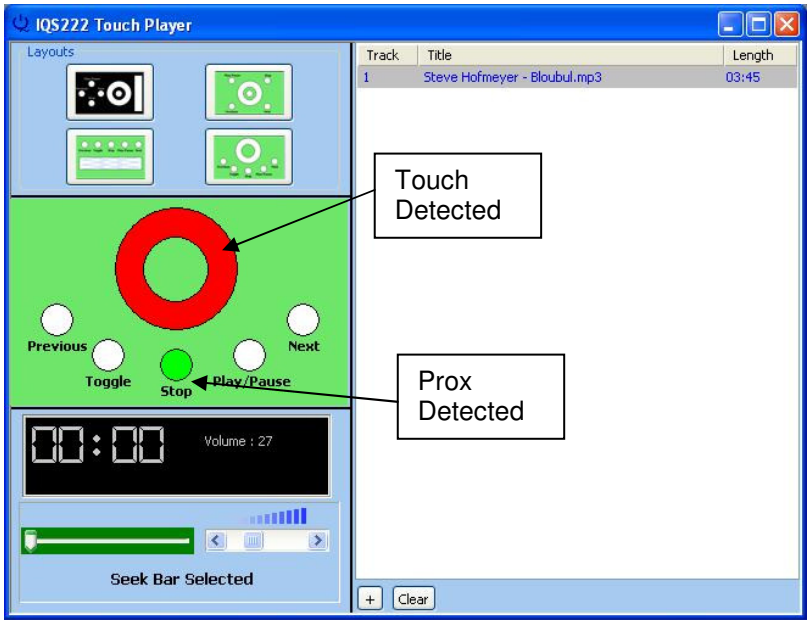


Figure 7. Coulor changes in the GUI if touch or prox events are detected.

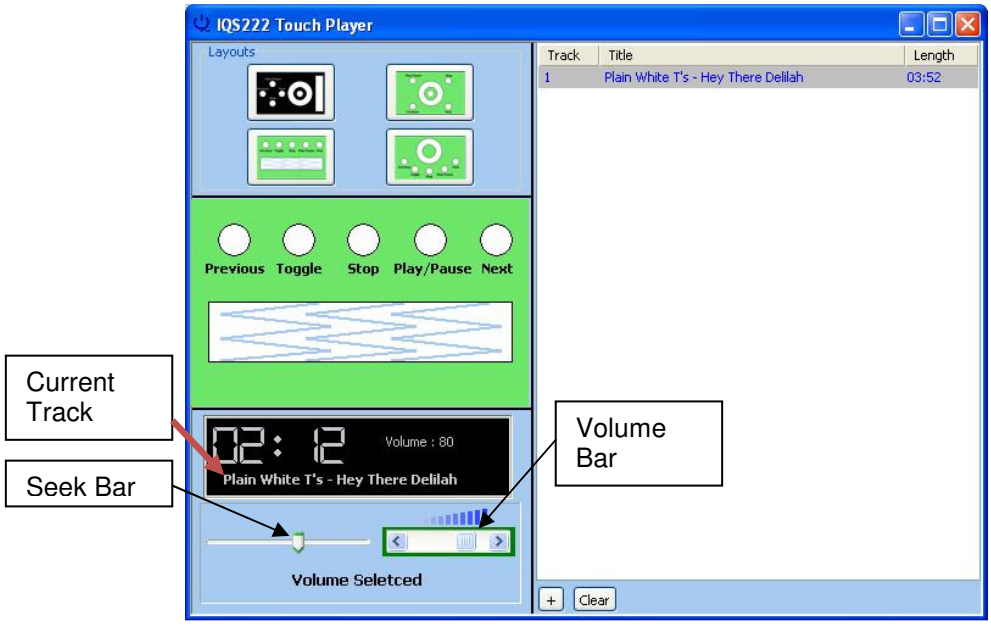


Figure 8. Current track information.

Figure 9. Pop-up notification window for volume selection.

Figure 10. Pop-up notification window for seek bar selection.