



Application Note: AZD006
VisualProxSense Overview (Win XP)

Overview

VisualProxSense aids the designer by visually displaying intricate details of each channel. 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.

Streaming Data:

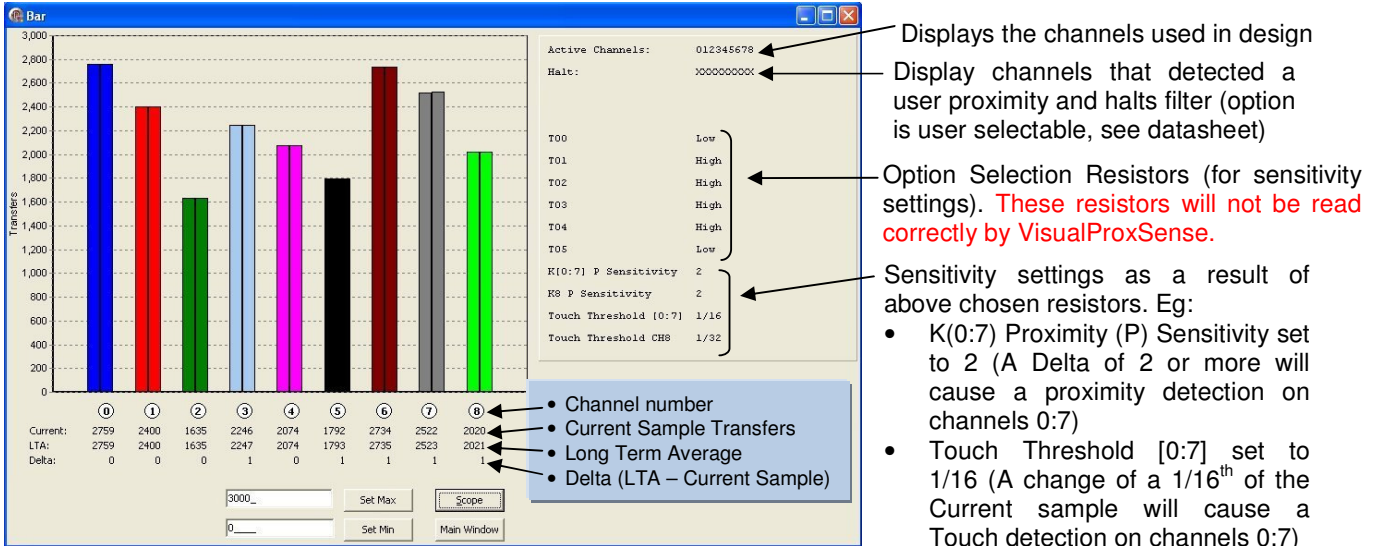
Steps to initialise the Module:

- Connect CTxxx to computer via USB cable (USB will power module)
- Connect Module
 - IQS221 or IQS240 through SPI header to CTxxx (CT100,CT120,CT200)
 - IQS222 through I²C header to CTxxx (CT120 or CT200)
 - IQS127 through 1-wire protocol to CTxxx (CT120 or CT200)
- Open latest version of VisualProxSense vX.XX.exe (IQS222 has own demo software)
- Select applicable device
- Click on “Start Data” and select preferred data display (only IQS221 & IQS240)
- Click on “Bar Graph” to view data as displayed in Figure 1
- Click on “Scope” to view data as displayed in Figure 2
- Please Note: The IQS221 / IQS240 / IQS222 ICs can be in any Output Mode and still display data on the PC. IQS127 must be in configured in “Serial Mode / Debug Mode”



Using VisualProxSense

The levels of the channels may vary due to PCB layout and variations in Cs capacitors.



- Displays the channels used in design
- Display channels that detected a user proximity and halts filter (option is user selectable, see datasheet)
- Option Selection Resistors (for sensitivity settings). **These resistors will not be read correctly by VisualProxSense.**
- Sensitivity settings as a result of above chosen resistors. Eg:
 - K(0:7) Proximity (P) Sensitivity set to 2 (A Delta of 2 or more will cause a proximity detection on channels 0:7)
 - Touch Threshold [0:7] set to 1/16 (A change of a 1/16th of the Current sample will cause a Touch detection on channels 0:7)

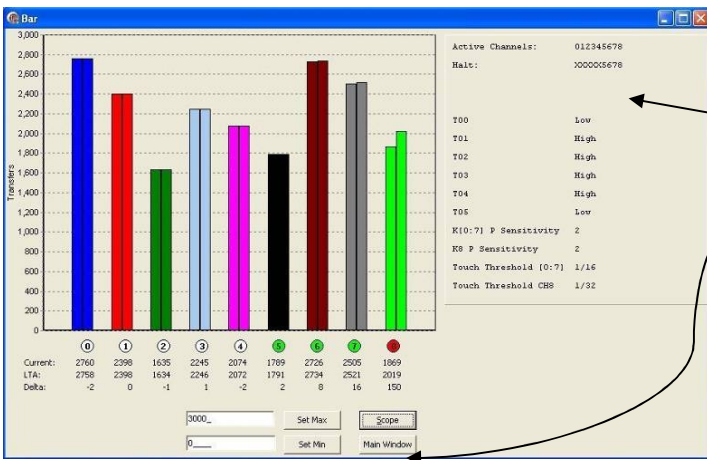
Figure 1: VisualProxSense-Bar display of channels – No Touch / Proximity detected

For each channel: The left-hand bar displays the Current sample Transfer and the right-hand bar displays the channels' LTA.



- Select which channels are shown
- Select which channels' LTA are shown (these can be seen in figure 5)

Figure 2: VisualProxSense-Scope display of channels – No Touch / Proximity



- Channels 5 to 8 detects an user proximity (green circles) (a change of 2 on these channels).
- A Touch (red circle) is made on Channel 8 (A change of 1/32nd (of the LTA) or bigger is detected on Channel 8).

Also see the result on Figure 5

Figure 3: VisualProxSense-Bar

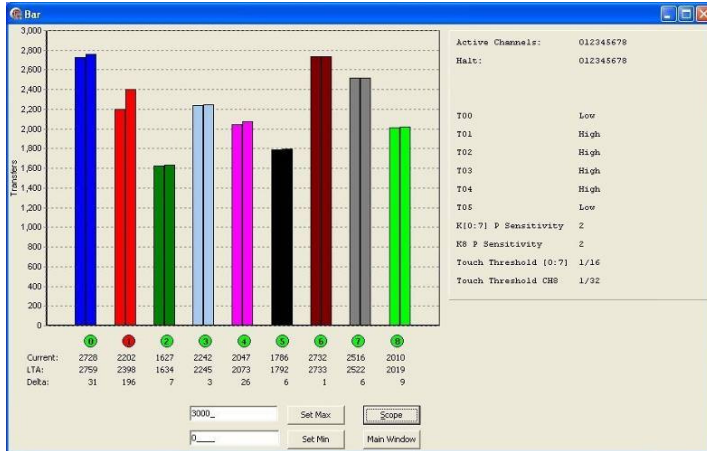


Figure 4:

- A Touch (red circle) is made on Channel 1 (A change of a 1/16th or bigger is detected on Channel 1)
- Channels 0 to 8 (green circles) also detected the user proximity (a change of 2 on these channels).

Also see the result on Figure 5

Figure 4: VisualProxSense-Bar

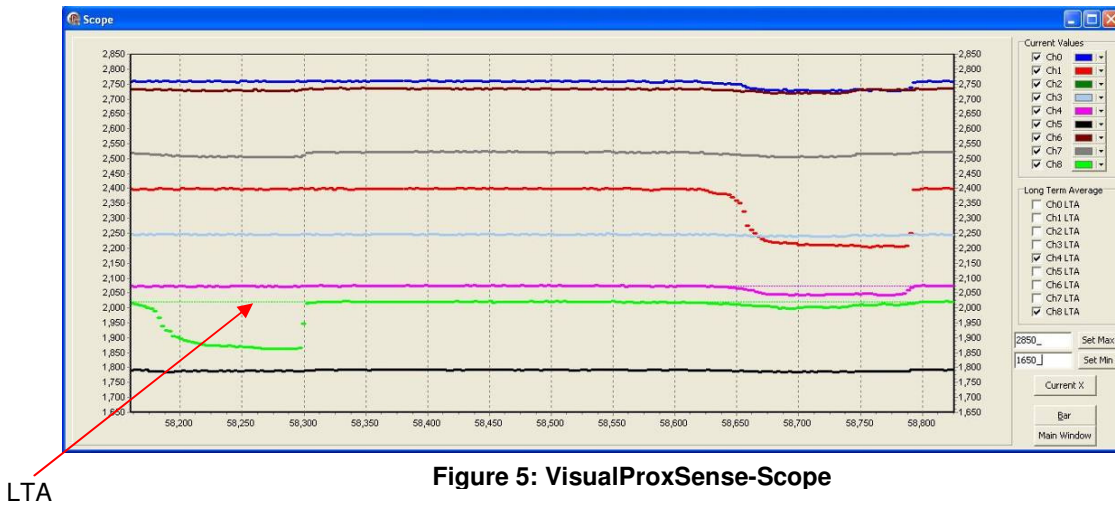


Figure 5: VisualProxSense-Scope

Figure 5:

This Figure displays the current samples in scope mode.

- Firstly a Touch is made on Channel 8 (green line). The LTA that is halted can be seen (see red arrow).
- Secondly a Touch is made on Channel 1 (red line). The LTA for Channel 1 isn't switched on, thus is not displayed.