



IQ Switch®  
ProxSense® Series

 Azoteq

## IQS9150EV02 USER GUIDE

IQ Switch® - ProxSense® Series





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## 1 Introduction

This user guide describes the operation of the IQS9150EV02 evaluation kit. The EV-Kit consists of three parts:

- > IQS9150 trackpad x 1
- > 3D printed virtual sensor finger guides x 3
- > CT210A x 1

To visualise all sensor data from the EV-Kit, the module board can be interfaced to any Windows PC with USB support, along with the CT210A and the relevant IQS9150 Graphical User Interface software (GUI) available to download from the Azoteq website. The purpose of the IQS9150EV02 EV-Kit is to help application and development engineers in evaluating the IC's capabilities. A picture of the trackpad module from the evaluation kit is shown below.



Download the GUI from Azoteq's website: <https://www.azoteq.com/product/iqs9150/>

The GUI can be found in the following section:

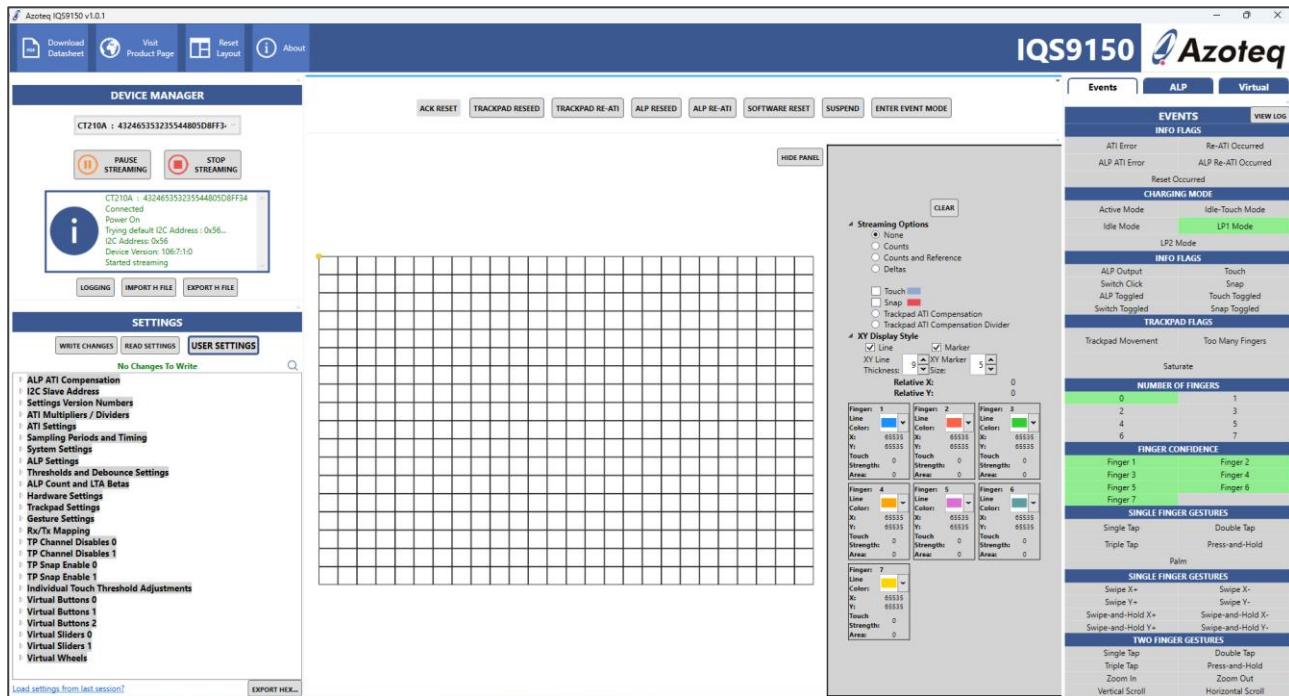
- > Design Support → Software
- > Click on the *IQS9150 Debug and Display Tool* hyperlink to download the GUI.
- > Install GUI on PC.
- > Connect the CT210A to the PC with a USB micro data cable.



## 2 Setting Up the IQS9150 Trackpad Module

To interface the IQS9150 trackpad module to a PC we advise using the CT210A. This module is set up in mutual capacitive mode. This EV-Kit can be set up with the following steps:

- > Plug the module into the CT210A via ribbon cable
- > Run the IQS9150 GUI
- > Click *START STREAMING* button
- > Data should now stream to the GUI
- > Click *ACK RESET* button
- > GUI should look as follow.



Please note the following items while evaluating the IQS9150 trackpad module:

- > Streaming channel data reduces the report rate of the trackpad, after evaluating the channel information (such as counts), it is recommended setting the Streaming Options to None.
- > The trackpad XY output will be plotted onto the central channel canvas area.
- > Numerous trackpad output and information, such as 1 and 2 finger gestures, can be seen on the 'Events' tab on the right side of the window.
- > When the system transitions to LP1 and LP2, the low-power channel is active. To visualise its' data, switch to the 'ALP' tab on the right panel.
- > To start adjusting/experimenting with the on-chip settings, press the *USER SETTINGS* button on the left side to open the pop-up settings window.
- > Note: To reset the module back to the predefined settings, simply press *STOP STREAMING* and then *START STREAMING*.
- > There is also a push button on the bottom side for the *Switch Click* status in the *Info Flags* section.

After evaluating click *STOP STREAMING* button.



### 3 Finger Guides

Three finger guides are added to the EV-Kit named:

- > Numpad
- > Mixer
- > Joypad

These can be slid over the trackpad module to superimpose virtual keys onto the trackpad area. The three different options are shown in this section. When switching between overlays, slide very slowly and carefully to not break the overlay.

#### 3.1 Numpad



Click *START STREAMING* button to start data stream to PC.

Click *ACK RESET* button.

Click *USER SETTINGS* button to open Settings window.

Click on the Numpad picture button to load the predefined settings for this overlay.

Minimize “Settings” pop-up window.

Towards the right, below Azoteq logo, is the *Virtual* button, click to switch to this display.



It should look like the following picture:

Events		ALP	Virtual
EVENTS		VIEW LOG	
BUTTON STATUS			
Button 0	Button 1		
Button 2	Button 3		
Button 4	Button 5		
Button 6	Button 7		
BUTTON STATUS			
Button 8	Button 9		
Button 10	Button 11		
Button 12	Button 13		
Button 14	Button 15		
VIRTUAL SLIDERS			
Slider 0 Finger 1	65535	<div style="width: 100%;"><div style="width: 100%; background-color: green;"></div></div>	
Slider 0 Finger 2	65535	<div style="width: 100%;"><div style="width: 100%; background-color: green;"></div></div>	
Slider 1 Finger 1	65535	<div style="width: 100%;"><div style="width: 100%; background-color: green;"></div></div>	
Slider 1 Finger 2	65535	<div style="width: 100%;"><div style="width: 100%; background-color: green;"></div></div>	
Slider 2 Finger 1	65535	<div style="width: 100%;"><div style="width: 100%; background-color: green;"></div></div>	
Slider 2 Finger 2	65535	<div style="width: 100%;"><div style="width: 100%; background-color: green;"></div></div>	
Slider 3 Finger 1	65535	<div style="width: 100%;"><div style="width: 100%; background-color: green;"></div></div>	
Slider 3 Finger 2	65535	<div style="width: 100%;"><div style="width: 100%; background-color: green;"></div></div>	
Slider 4 Finger 1	0	<div style="width: 100%;"><div style="width: 100%; background-color: grey;"></div></div>	
Slider 4 Finger 2	0	<div style="width: 100%;"><div style="width: 100%; background-color: grey;"></div></div>	
Slider 5 Finger 1	0	<div style="width: 100%;"><div style="width: 100%; background-color: grey;"></div></div>	
Slider 5 Finger 2	0	<div style="width: 100%;"><div style="width: 100%; background-color: grey;"></div></div>	
Slider 6 Finger 1	0	<div style="width: 100%;"><div style="width: 100%; background-color: grey;"></div></div>	
Slider 6 Finger 2	0	<div style="width: 100%;"><div style="width: 100%; background-color: grey;"></div></div>	
Slider 7 Finger 1	0	<div style="width: 100%;"><div style="width: 100%; background-color: grey;"></div></div>	
Slider 7 Finger 2	0	<div style="width: 100%;"><div style="width: 100%; background-color: grey;"></div></div>	
VIRTUAL WHEELS			
Wheel 0 Finger 1	0		
Wheel 0 Finger 2	0		
Wheel 1 Finger 1	0		
Wheel 1 Finger 2	0		
Wheel 2 Finger 1	0		
Wheel 2 Finger 2	0		
Wheel 3 Finger 1	0		
Wheel 3 Finger 2	0		

This tab shows the output status of the virtual buttons on the numpad, as well as the slider outputs for certain numpad keys that were implemented as sliders.

After evaluating click **STOP STREAMING** button.



### 3.2 Mixer



Click *START STREAMING* button to start data stream to PC.

Click *ACK RESET* button.

Click *USER SETTINGS* button to open Settings window.

Click on the Mixer picture button to load the predefined settings for this overlay.

Minimize “Settings” pop-up window.

Towards the right, below Azoteq logo, is the *Virtual* button, click to switch to this display.

The virtual buttons, sliders and wheel outputs are displayed on this tab.

Note that the sliders and wheels allow for up to 2 finger inputs simultaneously.

After evaluating click *STOP STREAMING* button.



### 3.3 Joypad



Click **START STREAMING** button to start data stream to PC.

Click **ACK RESET** button.

Click **USER SETTINGS** button to open Settings window.

Click on the Joypad picture button to load the predefined settings for this overlay.

Minimize “Settings” pop-up window.

Towards the right, below Azoteq logo, is the *Virtual* button, click to switch to this display.

The virtual buttons, sliders and wheel outputs are displayed on this tab.

Note that the sliders and wheels allow for up to 2 finger inputs simultaneously.

After evaluating click **STOP STREAMING** button.

## 4 Trackpad Module Design

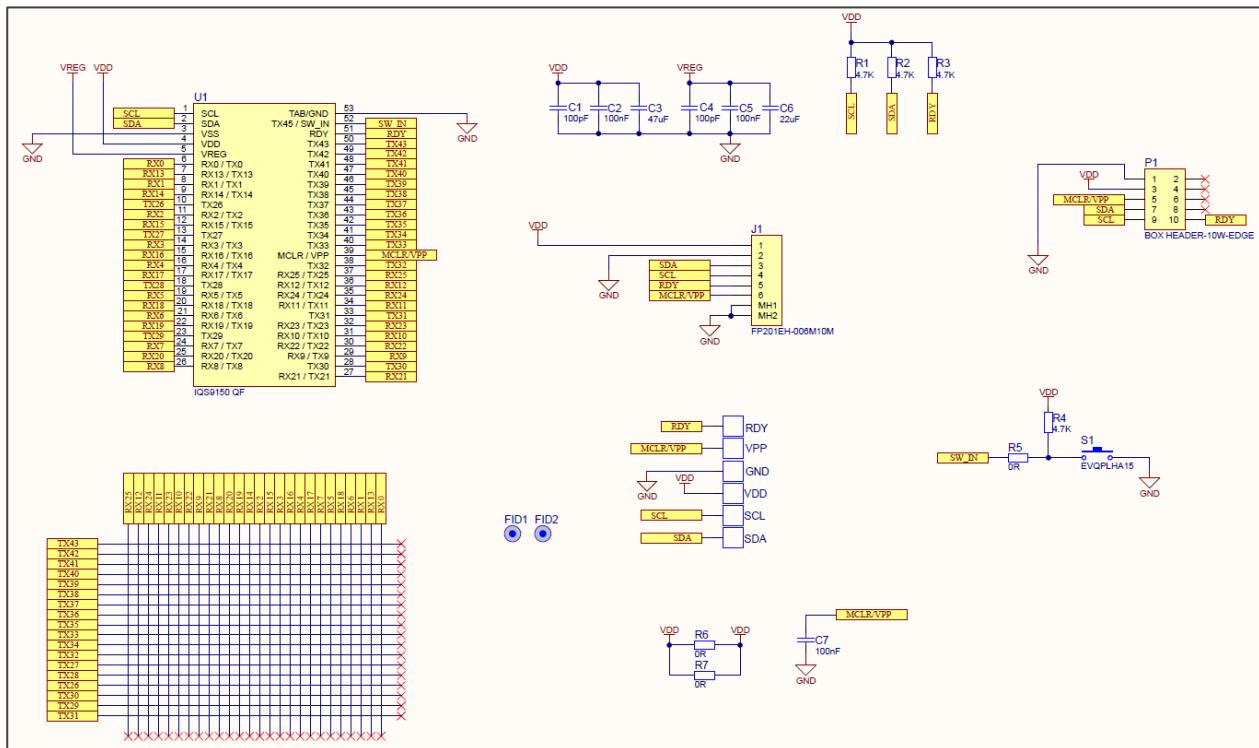


Figure 1 IQS9150 Trackpad Schematic



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