IQS316 Evaluation Kit User Guide
IQ Switch® - ProxSense® Series
IQS316 EV-Kit and software GUI

1   Introduction

This user guide describes the operation of the IQS316 Evaluation Kit. The EV-Kit is manufactured in three parts, consisting of a controller board, and two separate plug-in keypad boards. The controller board is interfaced to any personal computer with the Azoteq Configuration Tool (CT210) or DS100 Data Streamer, and the IQS316 Graphical User Interface (GUI). The keypad module boards consist of a 16-key touch panel and an 8-key touch panel. The purpose of the IQS316 EV-Kit is to facilitate application and development engineers in evaluating the IQS316 proximity and touch sensor.

A digital copy of this user guide is available for download at the website.

2   IQS316 EV-Kit Controller Board
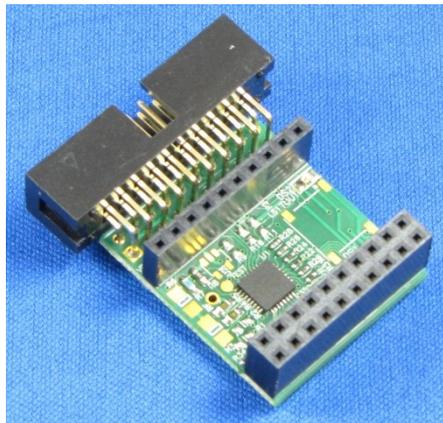
Figure 2.1   Top view of IQS316 EV-Kit controller board

3   16-Key Touch panel

This demo utilises the 16-Key touch panel interfaced to the IQS316 controller board. The 16-Key touch panel plugs into the controller board port. The controller board is in turn interfaced to a personal computer running the IQS316 GUI software, by means of a CT210. The touch panel is illustrated in the figure below.

The 16 touch keys have a 1mm Perspex overlay and are arranged in a 4 x 4 matrix, labelled from 1 to 16. A green LED is used to indicate proximity, and a red LED to indicate when a key is touched.
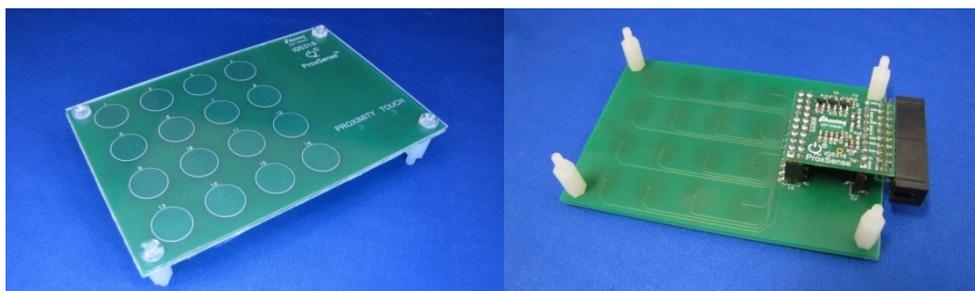
Figure 3.1   16-Key Touch panel (left), 16-Key Touch panel with controller board attached (right)

The 16-Key touch panel with attached controller board is depicted in the figure above.

4 8-Key Touch panel

The 8-Key touch panel is interfaced to the IQS316 Controller board in the same way as the 16-Key touch panel, by simply plugging it into the controller board port.
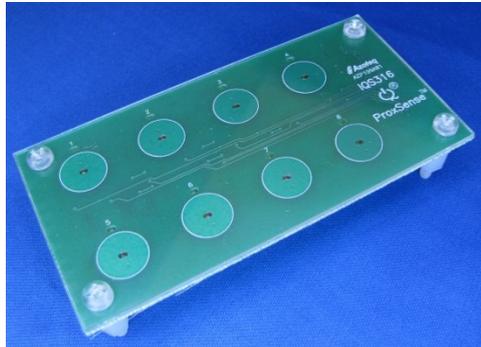
Figure 4.1   8-Key Touch panel

The 8-Key touch panel is illustrated in the figure above. The 8 touch keys are arranged in a 2 x 4 matrix and covered by a 1 mm Perspex overlay.

Each touch key has a green LED in the center of the key, and all 8 LEDs illuminate simultaneously upon the detection of a proximity condition. Each touch key has a red LED located above the key, which indicates individual key presses.

5 Using the Software GUI

☐ Download and install the IQS316 software GUI.
☐ Plug the ribbon cable provided into the CT210 or DS100, and into the controller board.
☐ Plug the desired keypad into the controller board.
☐ After opening the GUI, the following screen is displayed as illustrated below.
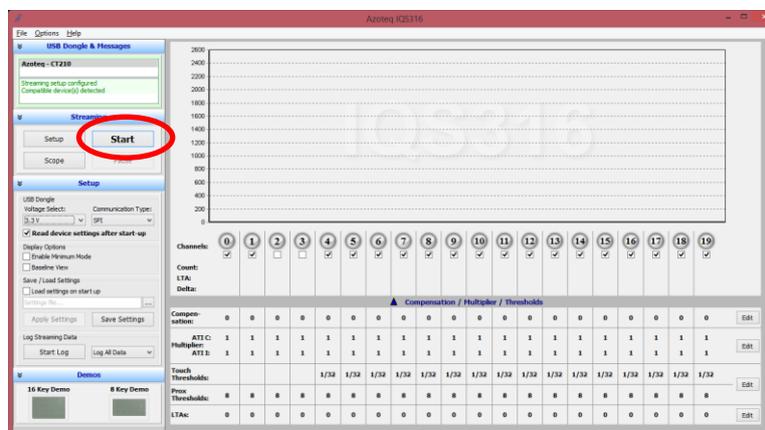
Figure 5.1   Start-up Screen for the IQS316 GUI

☐ Click on "Start" as illustrated above.

5.1 16-Key Demo

☐ To enter the 16-Key Demo mode, click on "16 Key Demo" in the lower left-hand corner of the IQS316 GUI start-up screen, as indicated below.
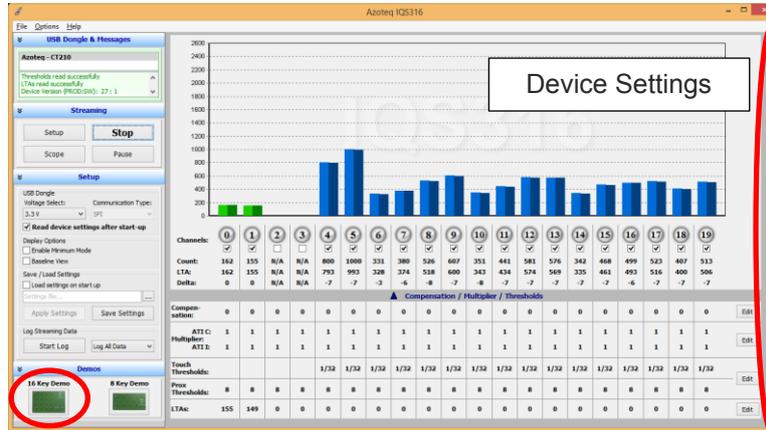
Figure 5.2   Start-up Screen for the IQS316 GUI

☐ The device settings can be viewed and adjusted by clicking on the bar on the right-hand side of the GUI, as depicted above.

☐ Click on "Load optimal settings" as depicted below
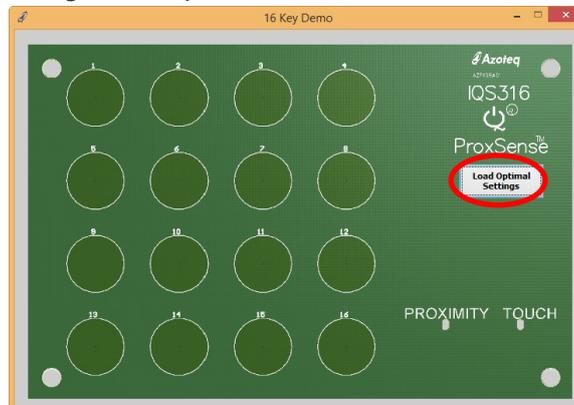
Figure 5.3   Setting up the GUI for 16-Key Demo operation
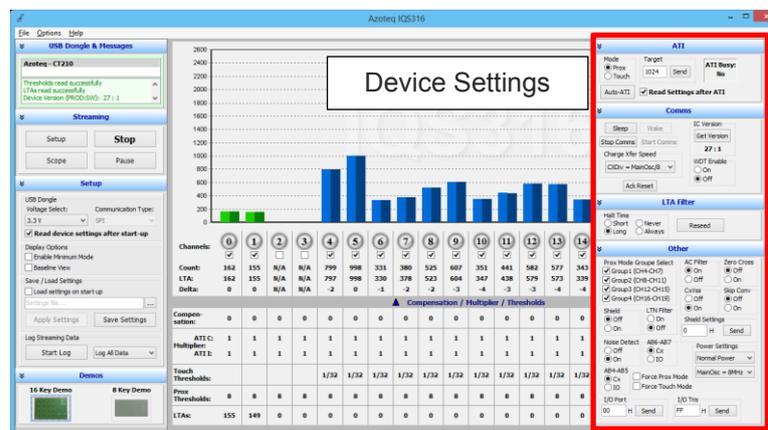
Figure 5.4   Device settings menu

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5.2 8-Key Demo

☐ To enter the 8-Key Demo mode, click on "8 Key Demo" in the lower left-hand corner of the IQS316 GUI start-up screen, as indicated below.
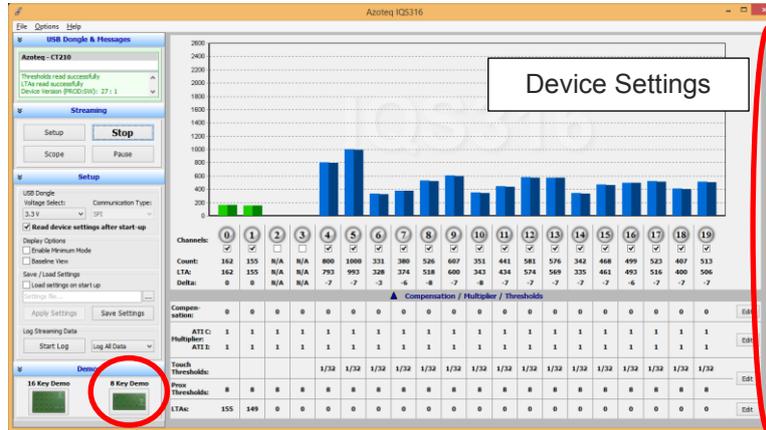
Figure 5.5   Start-up Screen for the IQS316 GUI

☐ The device settings can be viewed and adjusted by clicking on the bar on the right-hand side of the GUI, as depicted above.

☐ Click on "Load optimal settings" as depicted below.

Figure 5.6   Setting up the GUI for 8-Key Demo operation
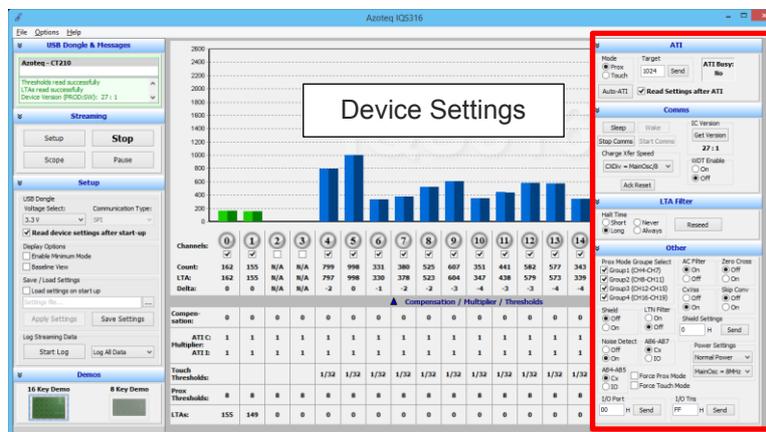
Figure 5.7   Device settings menu

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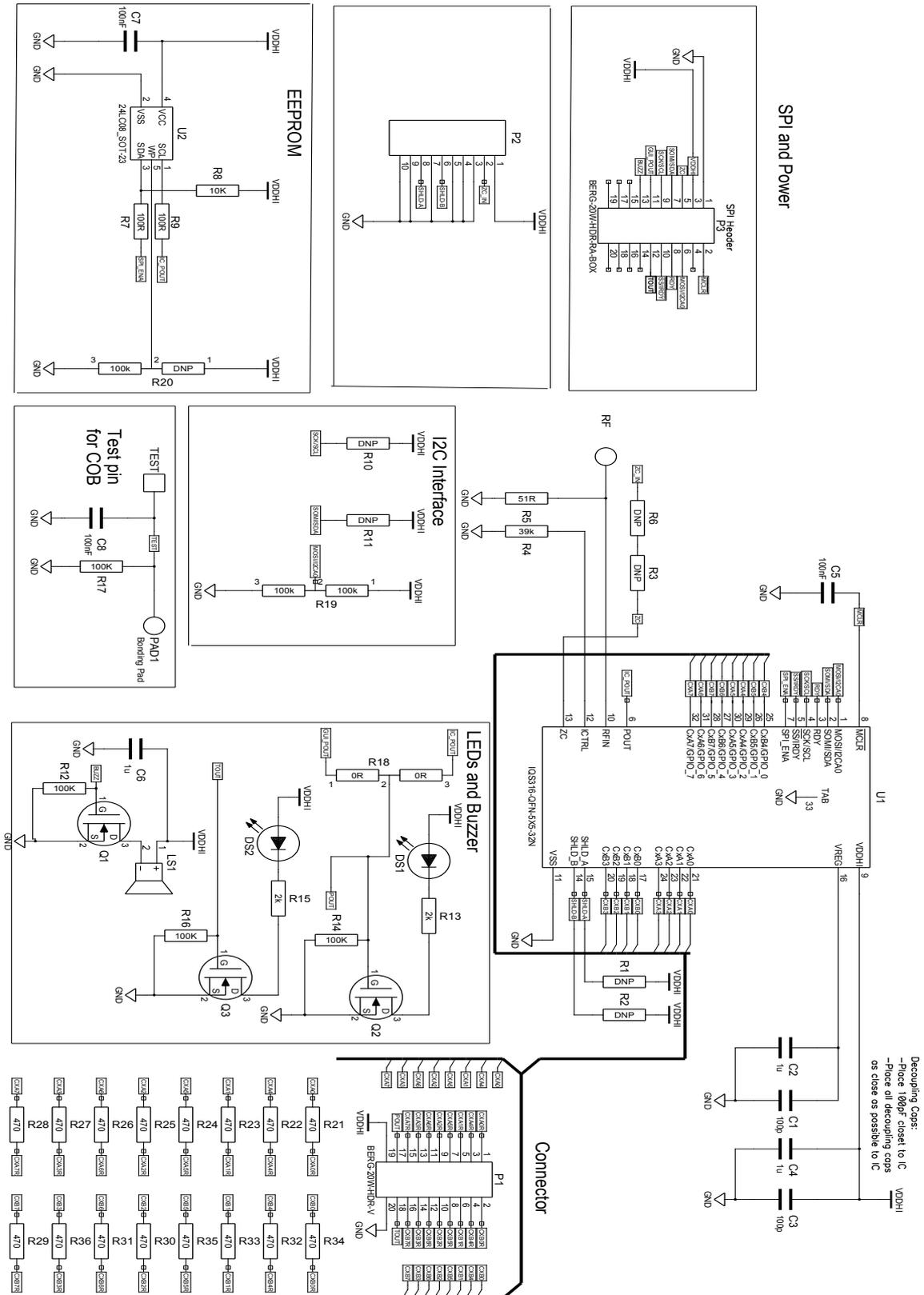
6 Reference design

Figure 6.1   IQS316 reference design

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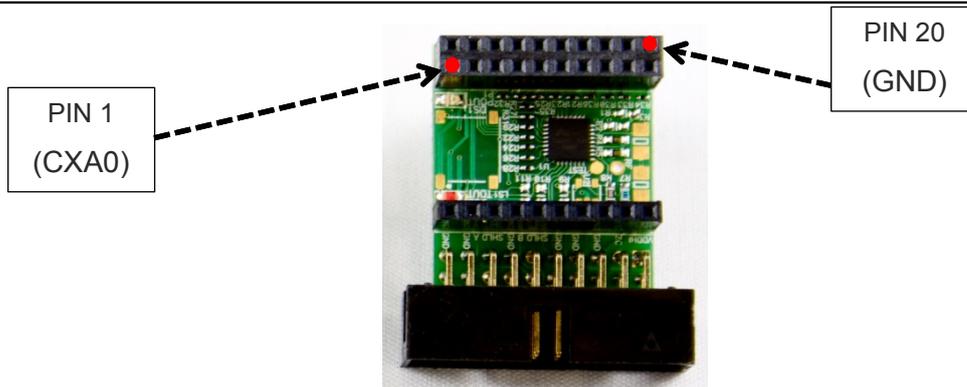
Figure 6.2   IQS316 Controller Module

The IQS316 Controller Module is illustrated above, indicating PIN 1, and PIN20 of the connector.
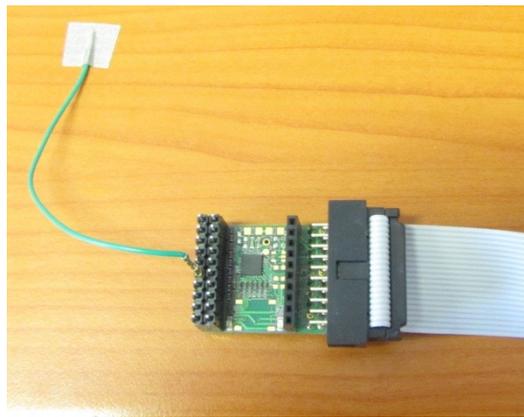
Figure 6.3   Simple touch key connected to IQS316 Controller

A simple touchpad created out of a wire and conductive tape is illustrated above. This illustrates the ease with which external electrodes can be connected to the IQS316 Controller module.

Please note: If the IQS316 Controller Module is connected to a power supply derived from the mains supply, FTB (Fast Transient Burst) spikes could possibly cause interference and undesired operation. For information on how to solve this problem please refer to application note "AZD051 - Electrical Fast Transient Burst Guidelines".

For touch button design guidelines, please refer to application note AZD008 – "Design Guidelines for Touch Pads", on the Azoteq website:

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