



IQS269AEV04 DEMO USER GUIDE

The IQS269A ProxFusion® IC is an 8-channel self/mutual-capacitive proximity and touch controller with best in class sensitivity, signal to noise ratio and power consumption. In addition, the device offers mixed sensing abilities such as HALL and inductive sensing. Other features include automatic tuning and differential offset compensation for sense electrodes.

1 Introduction

The IQS269AEV03 is designed to serve as a demo for the features of the IQS269A. The base board is plugged into an Arduino Uno and requires an IQS269A stamp board to be plugged into the centre of the base board. The user has the option to plug in a 2 button, 8 button or inductive board, each showcasing a set of features available on the IQS269A.

2 Board Layout

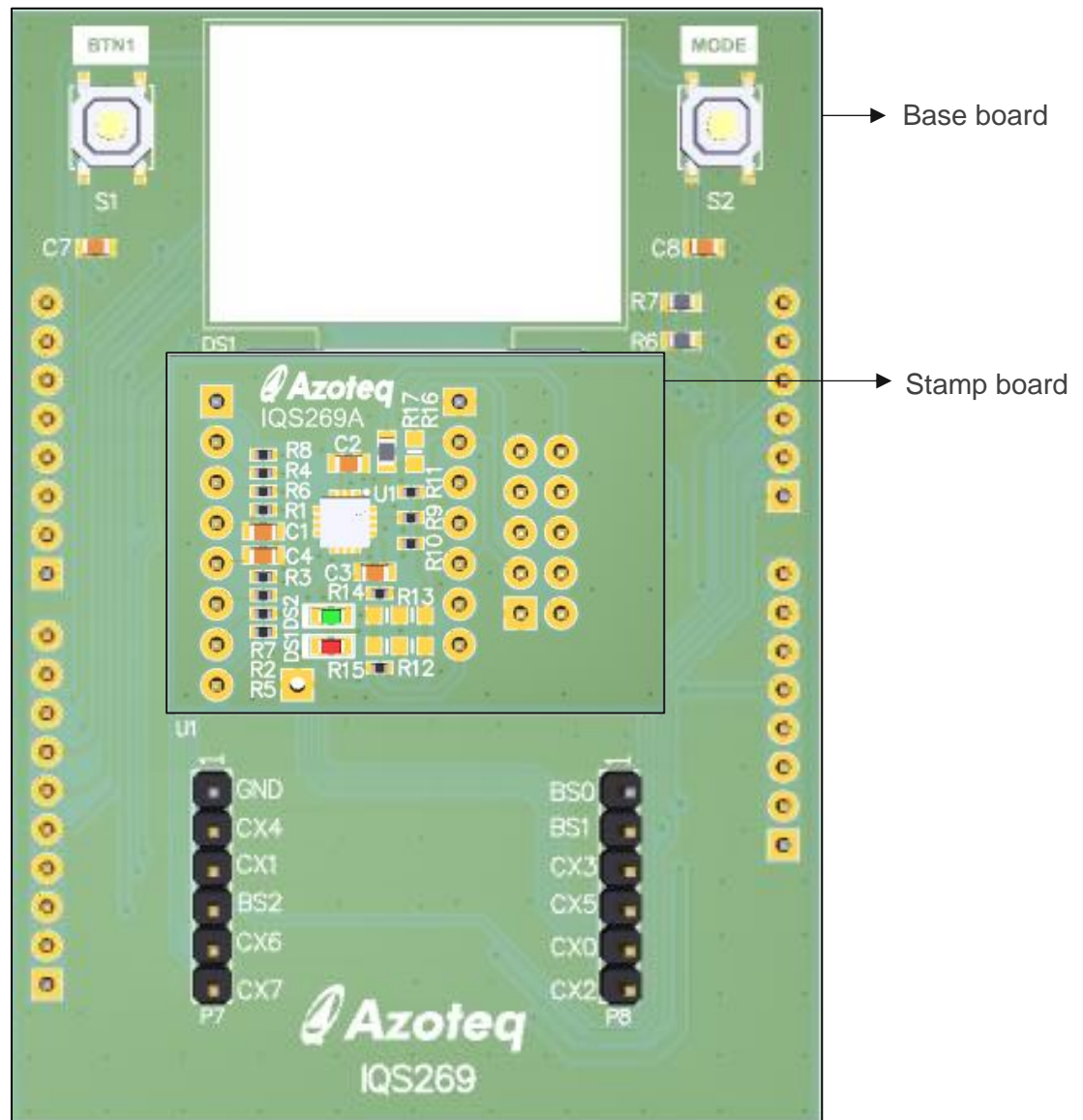


Figure 2.1 Base Board and Stamp Board Layout



3 Button boards

Separate software files need to be loaded onto the Arduino Uno for correct demonstration. The files for each demonstration can be found on Azoteq's website on the [IQS269A EV kit page](#).

3.1 Two Button Board



Figure 3.1 Two Button Board

Upload: IQS269A_AZP985A03_2button_V2.3.0

The 2-button board has 2 modes: default mode (wear detection) and dynamic C mode.

3.1.1 Default Mode

Default mode displays the following:

- > Proximity, touch, and deep touch on the self-capacitive channel.
 - Proximity is indicated with numbers 1 and 2
 - Touch is indicated by numbers 1 and 2, each encased by a single rectangle
 - Deep touch is indicated by numbers 1 and 2, each encased by two rectangles
- > The delta on the self-capacitive channel is displayed on the right side of the screen when a prox, touch or deep touch event is recorded on the self-capacitive channel.

3.1.2 Dynamic C Mode

Dynamic C mode displays the following:

- > A bi-directional bar and delta for the self-capacitive channel with proximity, touch and deep touch indicated by a P, T and D respectively. The self-capacitive channel uses both electrode 1 and 2.
- > A bi-directional bar and delta for the mutual-capacitive channel with proximity, touch and deep touch indicated by a P, T and D respectively. The mutual capacitive channel uses electrode 1 as an Rx and electrode 2 as a Tx.

3.1.3 Shared Displays

Both modes display the following:

- > Power mode (normal power, low power and ultra-low power) and the current consumption in each mode.
- > The Hall bi-directional bar and delta is displayed on the left side of the screen.



3.1.4 Buttons

The MODE button can be used to skip the start-up routine/

The mode button changes the mode between default and dynamic C mode.

Button 1 activates the reference channel if pressed once. HEAT is activated when the button is pressed again. HEAT heats up an electrode, that cannot be influenced by the user, to simulate environmental changes. The reference channel is used to adjust the LTA of the channel to ensure that the delta of the channel is not affected by the environmental changes. Pressing the button again will deactivate HEAT and then deactivate reference mode.

3.2 Eight Button Board



Figure 3.2 Eight Button Board

Upload: IQS269A_AZP985A03_8button_V2.3.0

The 8-button board has 2 modes: 8btn mode and AbsCap mode.

3.2.1 8Btn Mode

8btn mode displays the following:

- > Proximity, touch, and deep touch on each self-capacitive touch button.
 - Proximity is indicated with the number of the touch button on which the prox is detected
 - Touch is indicated with the number of the touch button on which the touch is detected encased by a single rectangle
 - Deep touch is indicated with the number of the touch button on which the deep touch is detected, encased by two rectangles
- > X & Y slider coordinates
- > Gesture (swipe, tap and hold)

3.2.2 AbsCap Mode

AbsCap mode displays the following:

- > The absolute capacitance measurement on the selected channel
- > The button board can be removed, enabling the user to measure the absolute capacitance of a self-designed electrode



3.2.3 Shared Displays

Both modes display the following:

- > Power mode (normal power, low power and ultra-low power) and the current consumption in each mode.
- > The Hall bi-directional bar and delta is displayed on the left side of the screen.

3.2.4 Buttons

The MODE button can be used to skip the start-up routine.

The MODE button is used to switch between abscap and 8btn mode.

Button 1 is used to switch between channels in absolute capacitance mode.

3.3 Inductive Board



Figure 3.3 Inductive Board

Upload: IQS269A_AZP985A03_Inductive_V1.0.0

The inductive board has one mode: coil mode

3.3.1 Coil Mode

Coil mode displays the following:

- > Proximity, touch, and deep touch on the mutual-inductive channel.
 - Proximity is indicated with the letter of the selected coil.
 - Touch is indicated by the letter of the selected coil encased by a single circle
 - Touch is indicated by the letter of the selected coil encased by two circles
- > The delta on the mutual-inductive channel is displayed on the right side of the screen when a prox, touch or deep touch event is recorded on the mutual-inductive channel.
- > Power mode (normal power, low power and ultra-low power) and the current consumption in each mode.
- > The Hall bi-directional bar and delta is displayed on the left side of the screen.

3.3.2 Buttons

The MODE button can be used to skip the start-up routine

Button 1 is used to switch between coils A, B and C.




	USA	Asia	South Africa
Physical Address	6507 Jester Blvd Bldg 5, suite 510G Austin TX 78750 USA	Rm 1227, Glittery City Shennan Rd Futian District Shenzhen, 518033 China	1 Bergsig Avenue Paarl 7646 South Africa
Postal Address	6507 Jester Blvd Bldg 5, suite 510G Austin TX 78750 USA	Rm 1227, Glittery City Shennan Rd Futian District Shenzhen, 518033 China	PO Box 3534 Paarl 7620 South Africa
Tel	+1 512 538 1995	+86 755 8303 5294 ext 808	+27 21 863 0033
Fax	+1 512 672 8442		+27 21 863 1512
Email	info@azoteq.com	info@azoteq.com	info@azoteq.com

Visit www.azoteq.com

for a list of distributors and worldwide representation.

The following patents relate to the device or usage of the device: US 8,395,395; US 8,659,306; US 9,209,803; US 9,360,510; US 9,496,793; US 9,709,614; US 9,948,297; US 10,275,055; US 10,321,532; US 10,527,457; EP 2,351,220; EP 2,559,164; EP 2,748,927; EP 2,846,465; EP 3,262,380; HK 1,157,080; SA 2001/2151; SA 2006/05363; SA 2014/01541; SA 2017/02224;

AirButton®, Azoteq®, Crystal Driver®, IQ Switch®, ProxSense®, ProxFusion®, LightSense™, SwipeSwitch™, and the  logo are trademarks of Azoteq.

The information in this Datasheet is believed to be accurate at the time of publication. Azoteq uses reasonable effort to maintain the information up-to-date and accurate, but does not warrant the accuracy, completeness or reliability of the information contained herein. All content and information are provided on an "as is" basis only, without any representations or warranties, express or implied, of any kind, including representations about the suitability of these products or information for any purpose. Azoteq disclaims all warranties and conditions with regard to these products and information, including but not limited to all implied warranties and conditions of merchantability, fitness for a particular purpose, title and non-infringement of any third party intellectual property rights. Azoteq assumes no liability for any damages or injury arising from any use of the information or the product or caused by, without limitation, failure of performance, error, omission, interruption, defect, delay in operation or transmission, even if Azoteq has been advised of the possibility of such damages. The applications mentioned herein are used solely for the purpose of illustration and Azoteq makes no warranty or representation that such applications will be suitable without further modification, nor recommends the use of its products for application that may present a risk to human life due to malfunction or otherwise. Azoteq products are not authorized for use as critical components in life support devices or systems. No licenses to patents are granted, implicitly, express or implied, by estoppel or otherwise, under any intellectual property rights. In the event that any of the abovementioned limitations or exclusions does not apply, it is agreed that Azoteq's total liability for all losses, damages and causes of action (in contract, tort (including without limitation, negligence) or otherwise) will not exceed the amount already paid by the customer for the products. Azoteq reserves the right to alter its products, to make corrections, deletions, modifications, enhancements, improvements and other changes to the content and information, its products, programs and services at any time or to move or discontinue any contents, products, programs or services without prior notification. For the most up-to-date information and binding Terms and Conditions please refer to www.azoteq.com.

www.azoteq.com/patents-trademarks/

info@azoteq.com