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IQS680EV02 Overview

Combination sensor with dual channel capacitive proximity/touch, Passive Infrared Radial sensor and metal detection capabilities

The IQS680 ProxFusion® IC is a multifunctional Capacitance, Passive Infrared Radial (PIR) & Inductance sensor designed for applications such as domestic energy efficient lighting applications with movement detection. The IQS680 is an ultra-low power solution designed for short or long-term activations through any of the sensing channels. The IQS680 operates standalone or via the I²C protocol and custom configurations are stored in an on-chip EEPROM.

EV-Kit Overview

- PIR sensing (Movement sensing)
- Capacitive sensing
- Inductive sensing (Requires writing to the EEPROM)
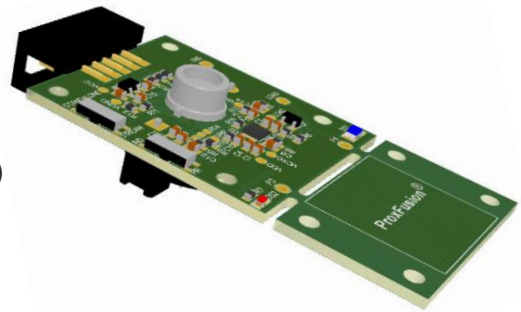- Sample coil/touch pad supplied

Evaluation Modes

- Standalone Mode (Default)
  - Events shown by LED's
- Connect IQS680EV02 via a CT210A USB Dongle[1] to PC GUI
  - Raw information displayed in GUI
- Assemble the module into a mock-up application and test
  - Sample inductive coil/touch pad supplied
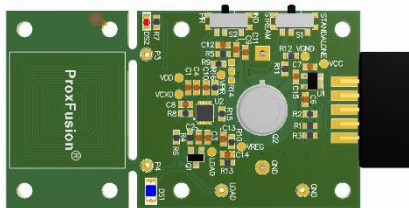- Connect custom coil or touch pad to sensor board

Figure 1: IQS680EV02 Orthogonal view
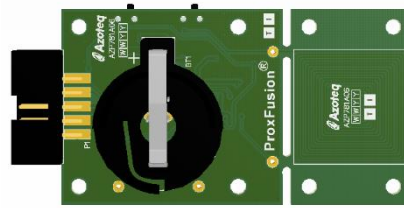

Figure 2: IQS680EV02 Top view

**Figure 3: IQS680EV02 Bottom view**

Applications

- Under Cabinet Lighting
- Standard PIR sensor cost reduction
- Battery powered PIR sensors solutions
- Smart Lights
- Night Lights

- Movement detection
- White goods and appliances
- Human Interface Devices
- Movement activated backlighting

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[1]Sold Separately


Quick Start (Default Settings)

- Ensure that two 3V coin-cell batteries are inserted in the battery holder (6V).
- Place a lens over the PIR sensor and switch S1 to standalone and S2 to PIR mode.
- Wait for both LED's to go off (PIR is stabilizing).
- A movement will trigger the PIR sensor.
- A PIR event is indicated by the red LED and the blue LED has a predefined timeout.
- A capacitive touch on the coil will switch the light on/off and a long press will change the brightness of the blue LED.
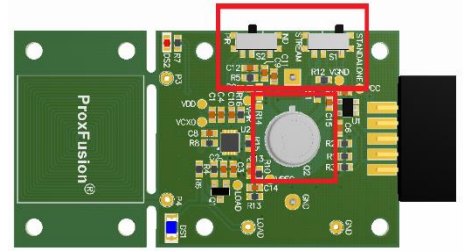
Get the latest software at http://www.azoteq.com/design/software.html

Hardware

- If standalone mode is required, ensure that two 3V coin-cell batteries are inserted in the battery holder (6V) and place a lens over the PIR sensor. Switch S1 to standalone mode and evaluate using battery power supply.
- If streaming mode is required, switch S1 to streaming mode and place board in a stationary position and connect IQS680EV02 via a CT210A USB Dongle to PC GUI.
- After programming the EEPROM with the GUI, select the desired UI (PIR/Inductive) using S2.
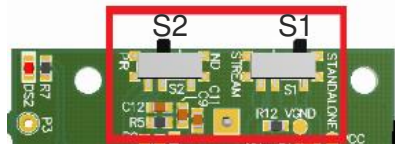
Software

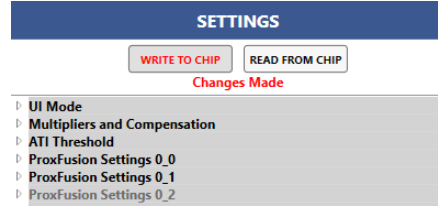- Click START STREAMING and choose the desired UI from the options below:
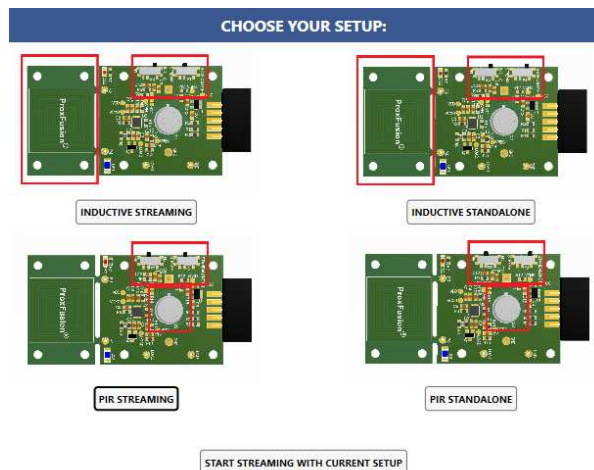
- The GUI will update the EEPROM and start streaming.
- Unplug the CT tool for Standalone mode and switch S1 to Standalone side.
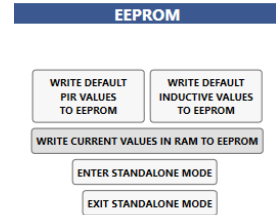
Evaluation

- Settings can be changed and written to the RAM of the IQS680.

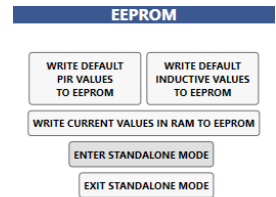- The raw information of the PIR or inductive sensor is displayed on the GUI.

- Current settings in the RAM can be written to the EEPROM.

- The voltage can be changed to 1.8 V to evaluate the IC, but it should be noted that the blue LED will not go on at 1.8 V.

- Standalone mode can be entered with the current settings. Only after writing to the EEPROM, unplug cable from IQS680EV02 and switch S1 to Standalone mode. Evaluate using battery power supply.

- PIR Standalone
  - o A movement will trigger the PIR sensor.
  - o A PIR event is indicated by the red LED and the blue LED has a predefined timeout.
  - o A capacitive touch on the coil will switch the light on/off and a long press will change the brightness of the blue LED.
- Inductive Standalone
  - o Program the EEPROM using the GUI as described in this document.
  - o Place a piece of metal on the inductive coil to trigger the inductive sensor.
  - o The blue LED will switch off if metal is detected.

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IQS680 Datasheet

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