Press Release

Azoteq announces the IQS680, a multifunctional capacitance, Passive Infrared (PIR) and inductance sensor designed for applications such as domestic energy-efficient lighting applications with movement detection.

Austin, Texas, May 15th. Azoteq, a pioneer in sensor fusion, announced the release to market of the IQS680. The IQS680 ProxFusion® IC is a multifunctional capacitance, Passive Infrared (PIR) and inductance sensor designed for applications such as domestic energy-efficient lighting applications with movement detection. The IQS680 is a standalone ultra-low-power solution designed for short- or long-term activations through any of the sensing channels.

The IQS680 combines up to three sensing technologies into a single, integrated ASIC. Two of the three sensing technologies can be used simultaneously. The IQS680 omits the need for the conventional, high BOM count, low-noise amplifier circuit for the PIR sensor. Signal processing is performed on-chip, along with either an inductive or capacitive-sensing channel for an enhanced user interface and control.

The ProxFusion® family builds on Azoteq's decade of capacitive-sensing experience and adds unique sensing capabilities in single-chip solutions.

"The IQS680 is a big step forward in PIR-controlled lighting applications", said Jean Viljoen, Azoteq's VP of Marketing. "All amplifier and sensing circuitry are performed in a single ASIC, while the inductive and capacitive channels allow for additional human or mechanical control of the light source."

Samples, production quantities and evaluation kits are available through Azoteq's distribution channels and popular online distributors.

Features

- **Unique Combination of Sensors:**
    - PIR and capacitive sensing
    - Inductive sensing

- **Capacitive Sensing**
    - 2 pF to 200 pF external capacitive load capability
    - Fully adjustable sensing options
    - Self-capacitance

- **Inductive Sensing**
    - Distinguishes between ferrous and nonferrous metals
    - Only external sense coil required (PCB trace)

- **PIR Sensing:**
    - DSP algorithm for long-range movement detection
    - Automatic temperature drift compensation

Figure 1: IQS680EV_02

- **Multiple integrated UIs**
- **Automatic tuning implementation** (ATI) – performance enhancement (10 bit ATI)
- **EEPROM** included on-chip for calibration data and settings
- Minimal external components
- Standalone IC with a single output or standard **I²C** interface (polling with sub-1 ms clock stretching)
- Optional RDY indication for standalone mode operation

- **Low power consumption:**

  - 59 uA (100 Hz response, including PIR element current)
  - 23 uA (10 Hz response, including PIR element current)

- **Supply voltage:** 1.8 V to 3.6 V

Applications

- Under-cabinet lighting (UCL)
- Standard PIR sensor cost reduction
- Smart lights
- Night lights
- Battery-powered PIR-sensor solutions
- Movement detection
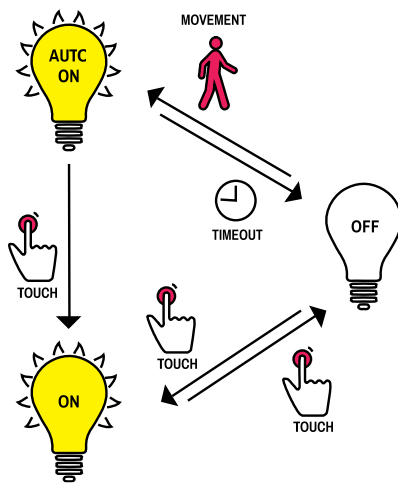- Room occupancy detection

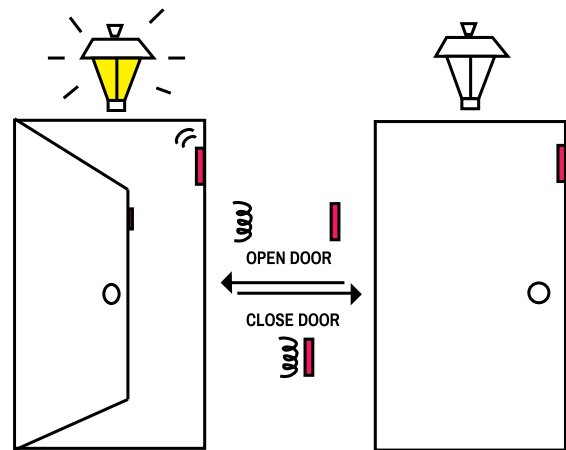*Figure 2: Typical PIR and touch triggered UI – e.g. under-cabinet lights.*

Figure 3: Typical door triggered application for the inductive sensor – e.g. in-cabinet UI.

About Azoteq (Pty) Ltd

Azoteq (www.azoteq.com) is a pioneer in sensor fusion. With more than 12 years of capacitive-sensing experience, the sensor offering is now expanded to include multi-sensor technologies on single ICs. The first generation of ProxFusion® offers capacitive, Hall-effect, IR, PIR, inductive and ambient-light sensing. Azoteq has design and manufacturing centers in South Africa and China, and sales offices and distributors in South Africa, Asia, Europe and the USA.

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