



World Leader in Capacitive Proximity Sensing



Azoteq exhibits at the Guangzhou Lighting Show

Azoteq exhibited at the Guangzhou Lighting Show. The focus of the conference was on new lighting technology and Azoteq demonstrated Capacitive Proximity and Touch solutions.

Azoteq presented a wide range of capacitive proximity and touch solutions at our booth. Azoteq had demos that featured LED lighting solutions, scroll wheel touch, swipe switch activation, and proximity activation.

One such demo that was demonstrated was the Air Slider Lamp. The Air Slider lamp uses the IQS550 to implement two sliders, one on each side of the lamp. One side adjusts the intensity of the LEDs while the other side changes the color of the LEDs inside of the lamp.

We enjoyed meeting everyone and are excited to help you with all of your Capacitive Proximity and Touch Sensor Needs. Contact us today so that we can help you with any questions that you may have!

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To enable next generation capacitive user interfaces and intelligent switch applications for users to interact naturally with products through capacitive proximity and touch

Why add proximity detection to a design?

The ability to detect the proximity of a user to a device not only adds powerful functionality but also adds that “WOW” factor to a design. With Azoteq’s ProxSense[®], proximity detection can be implemented for no additional cost.

Azoteq’s ProxSense[®] technology is able to detect very small (atto-Farad range) changes in the capacitance. Proximity detection is nice feature in handheld battery applications to enable wakeup and therefor reduce power consumption.

- The LCD screen of music players / mobile phones remain off as long as it does not detect a user proximity
- The screen of a phone can be switched off once it detects a user’s ear saving valuable battery power.
- A mouse can be woken from a sleep state to continue communication with a computer once it detects a user.



Wake up upon proximity detection helps save battery power

Advantages of proximity detection and wakeup



The screen of appliances such as printers, copiers, microwave ovens and refrigerators can be switched off when not in use and woken up when a user’s hand approaches. Water faucets can actuate with the presence of a user or a table lamp can be turned on with the wave of a hand.

Navigation devices / tablets / e-readers can display a hidden menu / buttons on a touch screen, enabling larger viewing capacity with no user in the detection distance.

The Many Uses of Capacitive Proximity and Touch



Capacitive Proximity and Touch Sensors can be used to implement several functions on a remote control.

Wake-up on Proximity

One way to save on power is to let your MCU sleep until proximity is detected. Once proximity or touch is detected, an interrupt can be sent to the MCU to bring it back to full functionality.

Touch Keys

Touch Keys are lower cost than mechanical switches and will never wear out.

Compact Capacitive Track Pad

With internet TV becoming more prevalent, it is helpful to have a track pad to move a cursor around. Azoteq's technology allows snap-dome buttons for directional and other inputs.

PEDOT touch screen

Azoteq has partnered up with Kodak to make a touch screen using Kodak's PEDOT film. PEDOT offers several advantages. PEDOT film is much cheaper than ITO (Indium Tin Oxide) film and can be patterned on both sides to produce a single film sensor.

For more information of how Capacitive Proximity and Touch can enhance your design, please contact your local Azoteq Rep!

The Effects of Water and Steam on Capacitive Sensing Technologies

Touch applications can be used in harsh environments when exposed to water and high humidity. Both Self and Mutual Capacitance can be used in different robust applications. Azoteq offers a range of devices with self and mutual capacitance and some devices like the IQS333 offers both in single package.

Technology	ProxSense®
Self Capacitance	IQS243
Mutual Capacitance	IQS253

Azoteq has applied various methods of testing to its sensors. The table below depicts different test cases as well as the results of each test.

Benefits of Self vs. Mutual Capacitance

Water State and composition		Technology	
		Self Capacitance	Mutual Capacitance
Steam		✓✓	✓✓
Droplets (Horizontal)	Fresh	✓✓	✓✓
	Salt	x	✓✓
Droplets (Vertical)	Fresh	✓✓+	✓✓+
	Salt	x	✓
Spills	Fresh	✓✓+	✓✓+
	Salt	x	✓
Submerge	Fresh	x	x
	Salt	x	x

- x False touches not prevented
- ✓ False touches prevented
- ✓✓ False touches prevented and able to sense through water medium
- ✓✓+ False touches prevented (Logical decision by MCU required to sense through water medium)

In some water type applications it is necessary to employ a microcontroller to make a logical decision based on the incoming sensor data.

For a more in depth knowledge of how these tests were conducted, please view application note AZD012 available on Azoteq's website.

[Full Application Note Available here](#)



Water Spray

Various methods such as depicted above have been applied to test our sensors

Azoteq's Registered Trade Marks in the US

Azoteq has a few registered Trade Marks in the United States. A list of the Trade Marks are:

- ProxSense®
- IQ Switch®
- IQ Switch Device®



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