

# Thunder and Lightning Storm Home-Renovation Marketplace

## No-Batteries Switch Revolutionizing Remodeling



### Inexpensive, Easy-To-Install Actuator Saving Time and Dollars

#### A Soaring Demand

Sometimes, Brad Face fields the calls himself. Each time, Face, chairman, CEO and president of Face International Corporation, has the same answer: No. No batteries. None. Zip. Zilch.

Simply put, the Face International “Lightning Switch” doesn’t have to be connected to electrical wiring. Push it with a finger and the switch generates its own miniscule bit of electric current. And that tiny bit of electricity is enough to send a radio signal to receiver/receptacles to which lights and lamps can be plugged.

You can carry the switch in your pocket. Or you can attach it to a wall, door, windowsill or any other surface you chose. It can be easily moved. And installation is a breeze. That may be why online demand for the product continues to soar.

“When we started, no one knew what we were talking about,” Face says. “This is a classic disruptive technology. It is an exciting product --- once people learn about it.”

Lightning Switch has also been selected by the Partnership for Advancing Technology in Housing (PATH) as one of a suite of leading-edge technologies to be incorporated in PATH’s Concept Home. PATH is a voluntary partnership between leaders of the homebuilding, product manufacturing, insurance, and financial industries and representatives of Federal agencies concerned with housing.

In just a little over a year, sales of Lightning Switch have doubled. To keep up with demand Face International has opened a manufacturing plant with partner Sunnytec Company Ltd. in Kaohsiung, Taiwan, where the Lightning Switch and associated products are produced and assembled.

Face says Lightning Switch’s success boils down to one word: piezoelectrics.

**“You don’t have to tear up a living room to put in our product. It’s an immediate solution to a problem that otherwise could never be solved ... There are two things we do: We save time and we save money.”**

**Brad Face,  
Chairman, CEO and President  
Face International Corporation**

### **Exceptional Capability at Low Cost**

Piezoelectricity is derived from a Greek word meaning “pressure electricity.” Roughly similar to metal striking stone and producing sparks, piezoelectricity is a natural phenomenon that occurs in a certain class of crystalline materials such as quartz, Rochelle salt and tourmaline. Such materials change their geometry or dimensions when an electrical charge is applied to them or, conversely, they produce an electrical charge when one applies mechanical pressure.

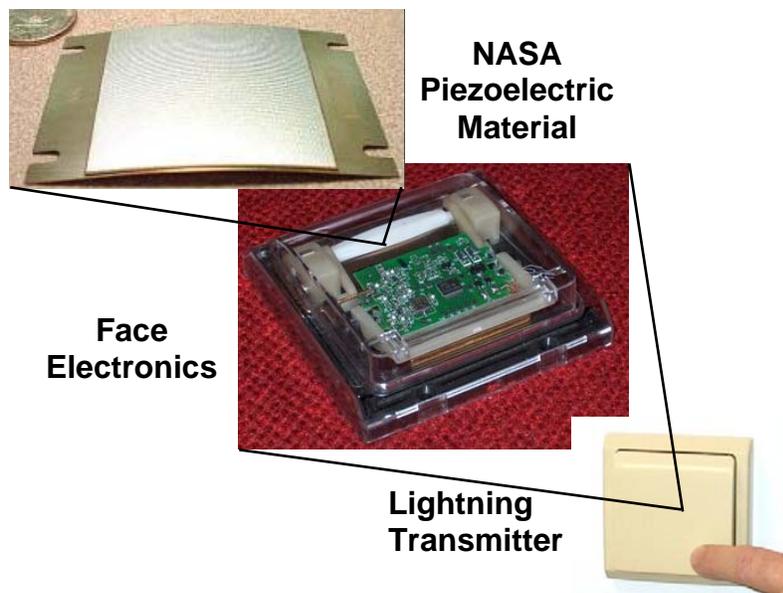
The Face Lightning Switch is an example of the second kind of piezoelectric device. Lightning’s ancestor is Thunder: an acronym for Thin Layer Unimorph Ferroelectric Driver and Sensor, a device known as an actuator that was originally developed at NASA Langley Research Center in the mid-1990s. Thunder is a ferroelectric actuator made of multiple layers of material, typically stainless steel, aluminum and a kind of piezoceramic.

Thunder's individual material layers are held together in a sandwich-like package using a NASA-invented, high-temperature, plastic-like adhesive. The bonding strength of the adhesive enables Thunder to have exceptional ruggedness and performance capability --- at a relatively low cost that lends itself well to mass production.

Face International holds several licenses to Langley's Thunder piezoelectric technology, including an adhesive patent, and the exclusive international marketing rights. The company developed Lightning Switch independently; CEO Face was a Lightning Switch co-inventor. After initial test marketing, Face Corp. now sells its Lightning Switches exclusively on the Internet, at LightningSwitch.com. Contractors in particular seem enthusiastic about the Lightning product line, the basic units of which sell for around \$50.

**"I found your product online when a customer of ours needed to switch a dining room light ... We tried [Lightning Switch] and saved the customer hundreds of dollars, time and the hassle of breaking into the drywall and repairing the wall. This ... needs to be in every service electrician's truck."**

**Kyong Chang  
Logic Electrical Services, Inc.  
Huntington Beach, CA**



## Thunder and Lightning at Work

One popular use of Lightning Switch has come in leased or rental properties, where some tenants want a switch in one spot and subsequent residents may want it in another. Both can be accommodated, and with no added expenditure by the landlord.

Lightning Switch has been used to control landscape lighting, fountains, and pumps for ponds, and as a safe electrical device in wet areas, such as by pools or hot tubs. Some customers have used the switch to trigger lights on the end of a boat dock, as a safety alert for factory floors, and to control heating, ventilating and air-conditioning elements.

A few plan to employ the device for grounds security, with the transmitters packaged to be put in the ground, on doors, gates, and entryways, for permanent wireless and battery-less intruder alerts.

Other Lighting Switch uses include a taxi-calling system for hotel bellmen; as a call-for-assistance system in assisted living facilities, nursing homes, and hospitals; as a control lift for the elderly or disabled; and as a notification system for doctors to indicate to nurses when they are ready for the next patient,

Face is exploring additional uses for Thunder technology, including harvesting energy mechanically from the weight transfer that naturally occurs during walking. Such energy conversion may one day be able to power individual soldier systems for troops in the field. Scaled-up versions connected to solar and wind power may also be possible.

**“We’re getting a lot of word of mouth. We’re picking up repeat users ... Internet sales have been extraordinary. Our performance is many, many times the Internet average.”**

**Brad Face**

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