

# A touch of magic

**We have known and used mechanical switches and push buttons since childhood. A light switch in the house for example works according to this principle. A clear pressure point, a saturated clicking sound when actuated. We are used to this. But there are other ways, almost magical: A gentle touch is enough for capacitive switches. Have the mechanical switches had their day?**



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"Click" - this is how we imagine the sound a switch makes when it is operated. "Click" – on, "click" – off. We are familiar with that. But these mechanical switches are by no means the ideal solution for every application. Why? For technical reasons, mechanical switches with stroke technology always have a gap between the housing and the actuator. This can allow moisture and dirt particles to penetrate both in outdoor and indoor applications, which is absolutely unwanted. In addition: Mechanical stroke switches have moving parts. They are constantly being pressed on. This leads to wear and tear. At some point, even the best mechanical pushbutton will die. This is inevitable.

## **Capacitive switches: no Haptics and optics wear and tear**

Capacitive switches, on the other hand, perform their work completely free of wear and tear. Their mode of operation is fundamentally different from that of mechanical pushbuttons. There's no stroke here. Nothing is moving. Simply touching the sensor area – corresponding to the mechanical actuator – with the finger alters an electrical field. This touch then triggers a change of the switch state. All this happens without any pressure on the sensor. Wear and tear is therefore not an issue.

Switches are there to be touched. And our fingers are highly sensitive sensors. Especially high quality capacitive switches are made of the best materials. SCHURTER relies on stainless steel for its CPS series ([Landing Page CPS](#) <sup>[1]</sup>). We perceive the surface quality of a switch immediately. Cheap or valuable? We'll feel it in no time. In addition, the demands of designers and manufacturers of input systems for high aesthetics are increasing rapidly. For these reasons SCHURTER offers the CPS with a touch surface made of scratch-resistant ceramic with surface illumination or made of stainless steel

with ring illumination. But both versions are also available without any illumination. More exotic materials such as glass, wood or even plastics are also conceivable for the actuator. As the icing on the cake, you can also get a (customer specific) finger guide, which offers a further increase in comfort.

## Lighting and labelling

What else makes a switch a good or maybe rather moderate switch? A distinct feedback and a fast detectability of the function are elementary requirements for a switch. The user must know whether his input was recognized correctly.

However, the desired switch is not always available as a standard product. Be it a symbol on the actuator or a special illumination colour – customer-specific versions are often requested. The SCHURTER Metal Line, of which the CPS is a part, offers almost unlimited possibilities for adaptation to specific customer requirements. Special requests are welcome. There is a custom-made switch for everyone.

## Configuration of the switch

The mechanical light switch we had in mind at the beginning as an example was a supposedly simple construction with the states "on" and "off". Modern capacitive switches such as the SCHURTER CPS family ([Datasheet CPS](#) [2]) can offer much more variability. The switches are freely configurable factory default.



Customer-specific variants with ceramic actuator

Momentary and latching functions can be implemented; further functions such as delay, repeat, hold, freeze, cleaning mode and others can be implemented. It goes without saying that the customer has the last word here too. On request, SCHURTER can also configure your CPS completely to your specifications.

## Where is the catch?

Capacitive switches do not have a real downside. They need a power supply, right. Due to their sensitivity to moisture, they are only suitable for outdoor use to a limited extent, this is also true. Used in the right place, however, their advantages clearly outweigh the disadvantages. SCHURTER's CPS is an extremely versatile product; it is completely wear-free and can be adapted to any unusual

customer requirement. So back to the initial question: Have mechanical switches had their day? Yes, by no means everywhere but already in many applications.

## About SCHURTER

The SCHURTER Group is a globally successful Swiss family business. With our Components ensuring the clean and safe supply of power, Input Systems for ease of use and sophisticated overall solutions, we impress our customers with agility and excellent product and service quality.

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## References / Document Downloads

- [1]: <http://cps.schurter.com>  
 [2]: <https://www.schurter.com/datasheet/CPS>