Designed for use in a wide range of popular applications, these advanced proximity switches use a patented method for detection to deliver enhanced performance.

KEY FEATURES
- Support for matrix arrangement of up to 28 sensors with a single IC
- Adjustable response time and sensitivity
- Continuous autocalibration
- AEC-Q100 qualified (PCA8885TS)
- Digital processing method
- Copes with up to 6 mm of acrylic glass or 10 mm of glass
- I2C Fast-mode plus (Fm+) compatible interface (up to 1 MHz)
- Can be configured as two cascaded ICs for 8 x 8 matrix
- Interrupt via output or signaling over I2C bus
- Large supply voltage range (VDD = 2.5 to 5.5 V)
- Ideal of battery-powered operation (Idd ~ 10 µA)
- Sleep mode (Idd < 100 nA)

APPLICATIONS
- White goods, washing machines, water heaters
- Multimedia units, TVs, audio equipment
- Self-care medical devices
- Gaming, toys
- Industrial equipment
- Home automation
- Automotive: climate control, HVAC, center stack, car entertainment unit, mirror control

The NXP PCF8885TS and PCA8885TS are capacitive 8-channel proximity switches that use a patented method (EDISEN) to detect a change in capacitance on remote sensing plates. Changes in the static capacitances (as opposed to changes in the dynamic capacitances) are automatically compensated by using continuous autocalibration.

Both switches are well suited to a wide range of applications, including man-to-machine interfaces and hermetically sealed units. They deliver reliable performance in harsh environments and can be used for system wake-up and activation. They also support use with single buttons, slider wheels, and key matrixes. The PCA8885TS is an AEC-Q100 qualified touch switch optimized for use in automotive applications.

Both versions interface to the system controller via an I2C-bus operating at up to 1 MHz (Fm+), and generate an interrupt whenever a touch has occurred. Onboard sensor pads or remote sensing plates, connected via coaxial cables, can be used for touch or proximity sensing.
The eight input channels operate independently of each other. There is also a built-in option for a matrix arrangement. With this arrangement, an interrupt is only generated when two channels are activated simultaneously. The configuration suppresses additional channel outputs when two channels are already active.

Both capacitive sensor circuits make it straightforward to implement a touch display and to add significant improvements to the user interface. A passive display can be integrated with touch capabilities in three ways:

1. **Add-on integration**, where touch pads reside on an extra touch foil or glass,
2. **On-cell integration**, where touch pads are deposited in a separate layer between the front glass and the top polarizer,
3. **In-cell integration**, where touch pads are placed on the same layer as the display segments, surrounding the segment electrodes.

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**Selection guide**

<table>
<thead>
<tr>
<th>Type number</th>
<th>Channels</th>
<th>Touch /proximity pads</th>
<th>Package(s)</th>
<th>Grade</th>
<th>Evaluation and demo board(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCF8885TS</td>
<td>8</td>
<td>28 with one circuit</td>
<td>TSSOP28</td>
<td>Industrial</td>
<td>Evaluation boards OM11056/7/7A</td>
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<td>64 with two cascaded</td>
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<td>Touch-on-display demo board OM11058</td>
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<td>2 touch or proximity</td>
<td>TSSOP16</td>
<td>Automotive</td>
<td>Evaluation and demo board OM11052</td>
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<td>Industrial</td>
<td>Evaluation and demo board OM11055</td>
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<td></td>
<td></td>
<td>pad</td>
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</tbody>
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**Demo board OM11058 for climate-control application with touch foil on TFT display**

**Evaluation board OM11056 with two PCF8885TS switches enabling 64 touch sensors**

**Demo boards OM11057 and OM11057A for multiplexed and direct-touch applications**

**Touch control on a passive LCD, with touch sensors integrated into LCD cells**