

A GUIDE TO CAPACITIVE SENSING

Why use a capacitance-to-digital converter (FDC)?

Enables improved industrial design: Capacitive sensors can sense through any non-conductive material, so there's no need to drill holes in end equipment, improving aesthetics and lowering production costs.

Detect all material types: Capacitive sensors respond to any material, including metals, conductors, liquids and the human body.

Low-cost and reliable sensing: Capacitive sensors can be any conductor, are insensitive to ambient light and can detect the presence of black and dark objects. FDCs allow for remote sensing, enabling multiple sensors and greater functionality at minimum system cost.

Use small sensors: The excellent performance of an FDC, even in the presence of noise, enables designers to use smaller capacitive sensors and extend their proximity sensing range.



up to 50cm

Proximity and coarse gesture sensing

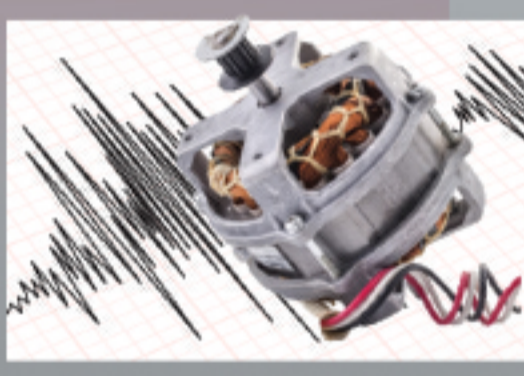
Non-contact foreign object detection

Water, ice, snow, and condensation sensing

Liquid level sensing



RF radio noise



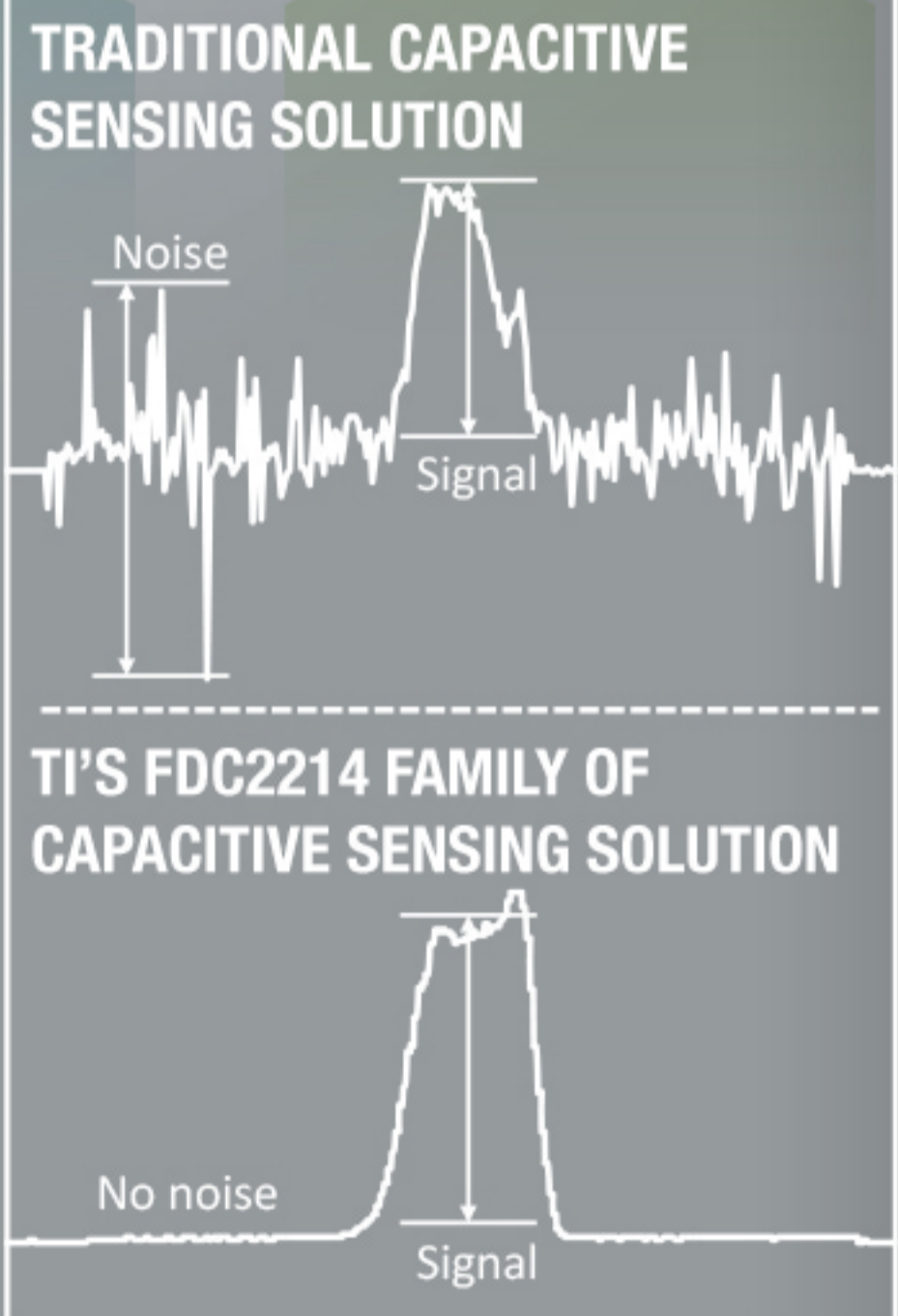
Motor noise



Power supply (50/60Hz) noise



Fluorescent lights



FDC2214 IS THE WORLD'S FIRST NOISE-IMMUNE CAPACITIVE SENSING SOLUTION

Importance of sensors in everyday life

Currently, each vehicle has an average of 60-100 sensors, predicted to **grow to 200 sensors** per car by 2020. These numbers translate to approximately **22 billion sensors** used in the automotive industry per year by 2020.¹

Power savings due to proximity wake up on white goods and consumer electronics will help consumers **save power** and **reduce their energy bills**.



¹ Source: Automotive Conference, Detroit, MI – May 2015

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