



# Sensor Starter Kit User Guide

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## INTRODUCTION

With the first digital sensors featuring the possibility to be controlled via the I<sup>2</sup>C-bus Vishay offered a demo kit that allowed for an easy connection to any Windows PC.

This demo kit was for the very first proximity / ambient light sensor (VCNL4000) and it looked as follows:



Fig. 1 - VCNL4000 Demo Kit

This VCNL4000 demo kit came with a mini-CD containing the USB driver and software, a USB dongle and the VCNL4000 sensor board.

This kit has now been replaced with the Sensor Starter Kit.



Fig. 2 - Sensor Starter Kit

The Sensor Starter Kit includes a USB dongle and mini-CD, which includes the needed USB driver and updated software. This is now the base for all of Vishay's sensor boards.

This kit (order name: **SensorStarterKit**) can be purchased from any of our catalogue distributors. It serves as the base for the VCNL4010, VCNL4020, VCNL4020X01, and VCNL3020 sensor boards and the VCNL4020 gesture demo board.

Every new digital sensor will also be available on a new sensor board, which can be connected to the USB dongle and operated with the Sensor Starter Kit software.

APPLICATION NOTE

## Sensor Starter Kit User Guide

For the sensor boards, please contact [sensorstechsupport@vishay.com](mailto:sensorstechsupport@vishay.com) and we will send you the requested board absolutely free of charge. Software upgrades will be provided by e-mail and are also available as a download, under the “Software” section from the Sensor Starter Kit website:

[www.vishay.com/moreinfo/vcnldemokit/](http://www.vishay.com/moreinfo/vcnldemokit/)

The VCNL4020 is the default sensor board attached to the Sensor Starter Kit because this is best starting point to learn about proximity and ambient light sensors.



Fig. 3 - VCNL4020 Sensor Board

The VCNL4010 and VCNL3020 are function and feature-wise the same as the VCNL4020, except the VCNL3020 does not include the ambient light sensor. The VCNL4020X01 is nearly identical to the VCNL4020, although it covers the higher temperature range required for automotive applications and comes with a bit higher internal emitter intensity.

For complete details on the VCNLs please read their datasheets

[www.vishay.com/optical-sensors/reflective-outputs-16/](http://www.vishay.com/optical-sensors/reflective-outputs-16/)

and corresponding application notes “Designing VCNLxyz into an Application”:

[www.vishay.com/doc?84138](http://www.vishay.com/doc?84138) (VCNL4010)

[www.vishay.com/doc?84136](http://www.vishay.com/doc?84136) (VCNL4020)

[www.vishay.com/doc?84139](http://www.vishay.com/doc?84139) (VCNL3020)

There will soon be more digital sensors, an ambient light sensor, an RGB sensor and the next generation of proximity / ambient light sensors. This common base will be used for all these new devices. All available sensor boards that can be driven with the Sensor Starter Kit are shown here: [www.vishay.com/moreinfo/vcnldemokit/](http://www.vishay.com/moreinfo/vcnldemokit/)

### ESD WARNING

The VCNLs are sensitive to electrostatic discharge. Please take necessary precautions when handling the sensors and kit. For further information please read “Assembly Instructions” and “Packaging and Ordering”.

### KIT COMPONENTS

There are three main components to the kit:

1. The blue sensor board, on which is soldered the VCNL4020, a decoupling capacitor, an additional IRED (VSMF2890GX01), some switching components, and the 2 x 8 pin connector
2. The USB dongle, which takes care of delivering the needed I<sup>2</sup>C-bus and supplies “clean” power to the sensor board (plus some GPIOs)
3. The development software found on the CD

The sensor board can be plugged into the USB dongle in the up or down orientation. An indicator light within the dongle will be illuminated when the sensor board is receiving power and the development software is started. The CD also contains a software license file. Note that the license file will be installed automatically by the installer. If for some reason this does not happen, the license folder is also included on the CD and should be saved to the C: drive before the software will run:

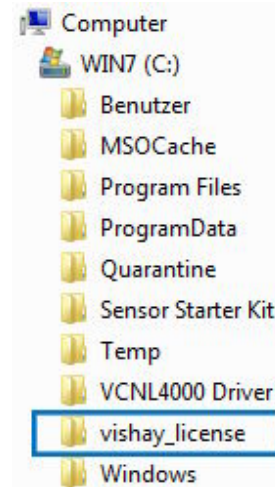


Fig. 4 - Vishay License in C:/ Directory

Please follow the Sensor Starter Kit installation guide, [www.vishay.com/doc?84242](http://www.vishay.com/doc?84242)

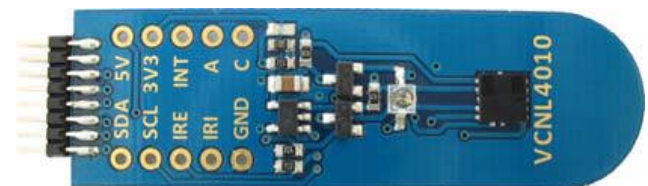


Fig. 5 - VCNL4010 Sensor Board