

## Autonomous wireless multi-sensor node powered by PV cells and based on SPV1050 (SPIDEr™)

### Product summary

<b>STDES-IDS002V1:</b> SPIDEr™ Autonomous wireless multi-sensor node powered by PV cells and based on SPV1050
<b>STDES-ERH001D:</b> Power monitoring board of the kits STDES-IDS003V1 and STDES-IDS002V1
<b>STDES-ERH003V1:</b> PV harvester (based on SPV1050) and wireless transmission board of the kit STDES-IDS002V1
<b>STDES-ERH002V1:</b> Wireless receiver board of the kits STDES-IDS003V1 and STDES-IDS002V1
<b>SPV1050:</b> Ultra low power energy harvester and battery charger with embedded MPPT and LDOs
<b>STTS751:</b> 2.25 V low-voltage local digital temperature sensor
<b>LPS25H:</b> MEMS pressure sensor: 260-1260 hPa absolute digital output barometer
<b>LIS3DH:</b> 3-axis MEMS accelerometer, ultra-low-power, $\pm 2g/\pm 4g/\pm 8g/\pm 16g$ full scale, high-speed I2C/SPI digital output, embedded FIFO, high-performance acceleration sensor, LLGA 16 3x3x1.0 package
<b>STSW-IDS002V1:</b> GUI for STEVAL-ISV021V1, STDES-IDS002V1 and STDES-IDS003V1

### Features

- Autonomous wireless sensor node based on ULP energy harvester and battery charger SPV1050
- Designed to represent typical use cases with on-board 3-axis accelerometer, temperature sensor and air pressure sensor
- PV module soldered on top
- Lithium coin-cell battery
- User-friendly software GUI for system configuration
- Can be used with [STDES-ERH001D](#) board monitor efficiency and all fundamental electrical parameters measurements
- RF receiver board powered via USB

### Description

The [STDES-IDS002V1](#) kit is a complete, fully configurable energy reference design wireless sensor node powered by a photovoltaic module soldered on the top. It consists of a fully integrated [STDES-ERH003V1](#) transmitter board with on-board temperature sensor ([STTS751](#)), air pressure sensor ([LPS25H](#)) and 3-axis accelerometer MEMS sensor ([LIS3DH](#)), powered by the [SPV1050](#) device. An ST microcontroller and Sub-1 GHz RF transmitter are also embedded.

The system includes an [STDES-ERH002V1](#) receiver companion board based on the [STM32L151](#)), powered through a USB cable from the PC. The reference design kit is supported by a user-friendly software GUI able to display the electrical characteristics, conversion efficiency, MPPT accuracy of the PV module and battery, as well as sensor readings.

## Revision history

**Table 1. Document revision history**

Date	Version	Changes
04-Oct-2018	1	Initial release.
03-Apr-2019	2	Updated link in <a href="#">Section Description</a>

**IMPORTANT NOTICE – PLEASE READ CAREFULLY**

STMicroelectronics NV and its subsidiaries (“ST”) reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST’s terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers’ products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. For additional information about ST trademarks, please refer to [www.st.com/trademarks](http://www.st.com/trademarks). All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2019 STMicroelectronics – All rights reserved