

## Discovery kit for IoT node, multi-channel communication with STM32L4

Data brief

### Features

- Ultra-low-power STM32L4 Series MCUs based on Arm® Cortex®-M4 core with 1 Mbyte of Flash memory and 128 Kbytes of SRAM, in LQFP100 package
- 64-Mbit Quad-SPI (Macronix) Flash memory
- Bluetooth® V4.1 module (SPBTLE-RF)
- Sub-GHz (868 MHz or 915 MHz) low-power-programmable RF module (SPSGRF-868 or SPSGRF-915)
- 802.11 b/g/n compliant Wi-Fi® module from Inventek Systems (ISM43362-M3G-L44)
- Dynamic NFC tag based on M24SR with its printed NFC antenna
- 2 digital omnidirectional microphones (MP34DT01)
- Capacitive digital sensor for relative humidity and temperature (HTS221)
- High-performance 3-axis magnetometer (LIS3MDL)
- 3D accelerometer and 3D gyroscope (LSM6DSL)
- 260-1260 hPa absolute digital output barometer (LPS22HB)
- Time-of-Flight and gesture-detection sensor (VL53L0X)
- 2 push-buttons (user and reset)
- USB OTG FS with Micro-AB connector
- Expansion connectors:
  - Arduino™ Uno V3
  - PMOD
- Flexible power-supply options:
  - ST LINK USB  $V_{BUS}$  or external sources
- On-board ST-LINK/V2-1 debugger/programmer with USB re-enumeration capability: mass storage, Virtual COM port and debug port



Picture is not contractual.

- Comprehensive free software HAL library including a variety of examples, as part of the STM32Cube M C U Package
- Support of a wide choice of Integrated Development Environments (IDEs) including IAR™, Keil®, GCC-based IDEs, Arm® Mbed Enabled™
- Arm® Mbed™ online (see <http://mbed.org>)



## Description

The B-L475E-IOT01A Discovery kit for IoT node allows users to develop applications with direct connection to cloud servers.

The Discovery kit enables a wide diversity of applications by exploiting low-power communication, multiway sensing and Arm<sup>®</sup> Cortex<sup>®</sup>-M4 core-based STM32L4 Series features.

The support for Arduino Uno V3 and PMOD connectivity provides unlimited expansion capabilities with a large choice of specialized add-on boards.

## System requirements

- Windows<sup>®</sup> OS (XP, 7, 8 and 10), Linux<sup>®</sup> or macOS<sup>®(a)</sup>
- USB Type-A to Micro-B cable

## Development toolchains

- Keil<sup>®</sup> MDK-ARM<sup>(b)</sup>
- IAR<sup>™</sup> EWARM<sup>(b)</sup>
- GCC-based IDEs including free SW4STM32 from AC6
- Arm<sup>®(c)</sup> Mbed Enabled<sup>™</sup> online

## Demonstration software

The demonstration software is preloaded in the STM32L475VG Flash memory for easy demonstration of the device peripherals in standalone mode. The latest versions of the demonstration source code and associated documentation can be downloaded from the [www.st.com/x-cube-cloud](http://www.st.com/x-cube-cloud) webpage.

---

a. macOS<sup>®</sup> is a trademark of Apple Inc., registered in the U.S. and other countries.

b. On Windows<sup>®</sup> only.

c. Arm and Mbed are registered trademarks or trademarks of Arm Limited (or its subsidiaries) in the US and or elsewhere.

## Laser consideration

The VL53L0X contains a laser emitter and corresponding drive circuitry. The laser output is designed to remain within Class 1 laser safety limits under all reasonably foreseeable conditions including single faults, in compliance with IEC 60825-1:2014 (third edition). The laser output will remain within Class 1 limits as long as STMicroelectronics recommended device settings are used and the operating conditions, specified in the STM32L4 Series datasheets, are respected. The laser output power must not be increased by any means and no optics should be used with the intention of focusing the laser beam. [Figure 1](#) shows the warning label for Class 1 laser products.

**Figure 1. Label for Class 1 laser products**



## Ordering information

To order the B-L475E-IOT01A Discovery kit for IoT node, depending on the frequency of the Sub-GHz module, refer to [Table 1](#).

**Table 1. Ordering information**

| Order code      | Sub-GHz operating frequency |
|-----------------|-----------------------------|
| B-L475E-IOT01A1 | 915 MHz                     |
| B-L475E-IOT01A2 | 868 MHz                     |

## Revision history

**Table 2. Document revision history**

| Date        | Revision | Changes   |
|-------------|----------|---|
| 02-Feb-2017 | 1        | Initial version.  |
| 27-Mar-2017 | 2        | Updated <a href="#">Features</a> and <a href="#">Description</a> to add the PMOD connector. |
| 24-Apr-2017 | 3        | Added <a href="#">Section : Laser consideration</a> to add Class 1 laser information.       |
| 11-Jul-2018 | 4        | Updated the description of the Wi-Fi® module in <a href="#">Features</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. 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.

© 2018 STMicroelectronics – All rights reserved