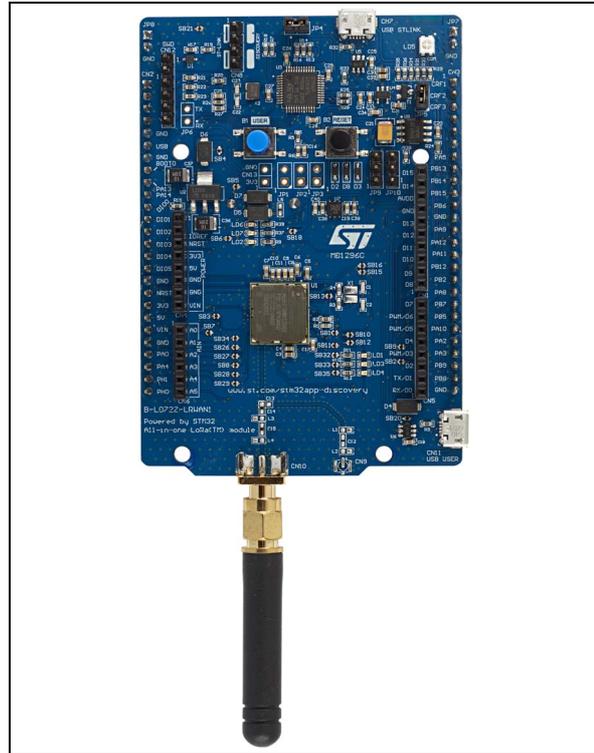


Discovery kit for LoRaWAN™, Sigfox™, and LPWAN protocols with STM32L0

Data brief

Features

- CMWX1ZZABZ-091 LoRa®/Sigfox™ module (Murata)
 - Embedded ultra-low-power STM32L072CZ Series MCUs, based on Arm® Cortex® -M0+ core, with 192 Kbytes of Flash memory, 20 Kbytes of RAM, 20 Kbytes of EEPROM
 - Frequency range: 860 MHz - 930 MHz
 - USB 2.0 FS
 - 4-channel, 12-bit ADC, 2xDAC
 - 6-bit timers, LP-UART, I²C and SPI
 - Embedded SX1276 transceiver
 - LoRa®, FSK, GFSK, MSK, GMSK and OOK modulations (+ Sigfox™ compatibility)
 - +14 dBm or +20 dBm selectable output power
 - 157 dB maximum link budget
 - Programmable bit rate up to 300 kbit/s
 - High sensitivity: down to -137 dBm
 - Bullet-proof front end: IIP3 = -12.5 dBm
 - 89 dB blocking immunity
 - Low Rx current of 10 mA, 200 nA register retention
 - Fully integrated synthesizer with a resolution of 61 Hz
 - Built-in bit synchronizer for clock recovery
 - Sync word recognition
 - Preamble detection
 - 127 dB+ dynamic range RSSI
- SMA and U.FL RF interface connectors
- Including 50 ohm SMA RF antenna
- On-board ST-LINK/V2-1 supporting USB re-enumeration capability
- USB ST-LINK functions:
 - Virtual COM port
 - Mass storage
 - Debug port



Picture is not contractual.

- Board power supply:
 - Through USB bus or external $V_{IN}/3.3\text{ V}$ supply voltage or batteries
- 3xAAA-type-battery holder for standalone operation
- 7 LEDs:
 - 4 general-purpose LEDs
 - A 5 V-power LED
 - An ST-LINK-communication LED
 - A fault-power LED
- 2 push-buttons (user and reset)
- Arduino™ Uno V3 connectors
- Arm® Mbed™ (see <http://mbed.org>)



Description

The B-L072Z-LRWAN1 LoRa[®]/Sigfox[™] Discovery kit is a development tool to learn and develop solutions based on LoRa[®], Sigfox[™], and FSK/OOK technologies. This Discovery kit features an all-in-one open module CMWX1ZZABZ-091 (by Murata). The module is powered by an STM32L072CZ and an SX1276 transceiver. The transceiver features the LoRa[®] long-range modem, providing ultra-long-range spread spectrum communication and high interference immunity, minimizing current consumption. Since CMWX1ZZABZ-091 is an open module, user has access to all STM32L072 peripherals such as ADC, 16-bit timer, LP-UART, I²C, SPI and USB 2.0 FS (supporting BCD and LPM).

The B-L072Z-LRWAN1 Discovery kit includes an ST-LINK/V2-1 embedded debug tool interface, LEDs, push-buttons, antenna, Arduino[™] Uno V3 connectors and USB OTG connector in Micro-B format.

The LoRaWAN[™] stack is certified class A and C compliant. It is available in the I-CUBE-LRWAN firmware package. Several examples, including an AT-command stack, are available to help users setting up a complete LoRaWAN[™] node.

The Sigfox[™] stack is RCZ1, RCZ2, and RCZ4 certified. It is available in the X-CUBE-SFOX Expansion package. Several examples, including an AT-command modem, are also available to help users setting up a complete Sigfox[™] node.

System requirements

- Windows[®] OS (7, 8, 10), Linux[®] or macOS^{®(a)}
- USB Type-A to Micro-B cable

Development toolchains

- Keil[®] MDK-ARM^(b)
- IAR[™] EWARM^(b)
- GCC-based IDEs including free SW4STM32 from AC6
- Arm[®] Mbed^{™(c)} online

a. macOS[®] is a trademark of Apple Inc., registered in the U.S. and other countries.

b. On Windows[®] only.

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

Demonstration software

The demonstration software is preloaded in the STM32 Flash memory. The latest versions of the demonstration source code and associated documentation can be downloaded from the www.st.com/i-cube-lrwan webpage.

Ordering information

To order the B-L072Z-LRWAN1 Discovery kit refer to [Table 1](#).

Table 1. Ordering information

| Order code | Target STM32 |
|----------------|--------------|
| B-L072Z-LRWAN1 | STM32L072CZ |

Revision history

Table 2. Document revision history

| Date | Revision | Changes |
|-------------|----------|--|
| 30-Jan-2017 | 1 | Initial release. |
| 31-Jan-2018 | 2 | Extended the document scope to Sigfox™: updated Features , Description , and System requirements . |
| 28-Jun-2018 | 3 | Updated Features with frequency range. |

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