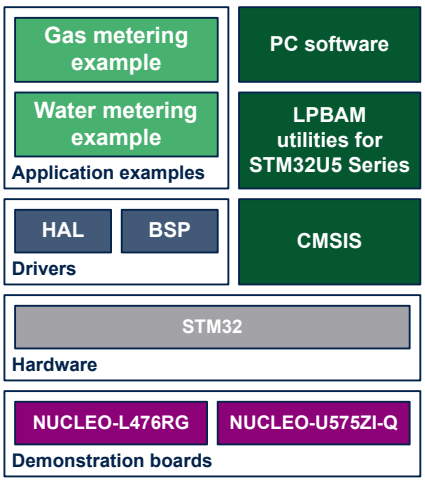
# X-CUBE-LCSENSOR

Data brief

## LC sensor metering software expansion for STM32Cube




| Product status link |
| --- |
| X-CUBE-LCSENSOR |

## Features

- Contains one subpackage for the STM32L4 Series and one subpackage for the STM32U5 Series
  - Example code for LC sensor metering evaluation on the NUCLEO-L476RG board
    - Basic counting with one LC sensor
    - Counting with several LC sensors for rotation and direction detection of one or two rotating wheels
    - Tachometer with two LC sensors for speed and direction detection of a rotating wheel
  - Example code for LC sensor metering on the NUCLEO-U575ZI-Q board featuring LPBAM
    - Counting demonstration with four LC sensors: rotation and direction detections to use with a rotating wheel
    - Operation of the peripherals used by the LC sensor application in autonomous mode down to Stop 2 mode
    - Support of a variety of integrated development environments such as IAR Systems® IAR Embedded Workbench®, Arm® Keil® MDK-ARM, and GCC-based IDEs such as STM32CubeIDE
- Each subpackage is a starting point for gas or water metering development based on STM32 microcontrollers

## Description

The X-CUBE-LCSENSOR is an STM32Cube Expansion Package. The software runs on STM32 microcontrollers. It includes examples for gas or water metering with an LC sensor.

The X-CUBE-LCSENSOR is the starting point for the implementation of gas or water meter applications based on the inductive detection of the rotation of a mechanical wheel.

The software comes with implementation examples running on the NUCLEO-L476RG board, and NUCLEO-U575ZI-Q board featuring LPBAM.

# 1 General information

The X-CUBE-LCSENSOR Expansion Package runs on STM32 microcontrollers based on Arm® cores.

*Note: Arm is a registered trademark of Arm Limited (or its subsidiaries) in the US and/or elsewhere.*

## 1.1 Ordering information

X-CUBE-LCSENSOR is available for free download from the *www.st.com* website.

## 1.2 What is STM32Cube?

STM32Cube is an STMicroelectronics original initiative to improve designer productivity significantly by reducing development effort, time, and cost. STM32Cube covers the whole STM32 portfolio.

STM32Cube includes:

- A set of user-friendly software development tools to cover project development from conception to realization, among which are:
  - STM32CubeMX, a graphical software configuration tool that allows the automatic generation of C initialization code using graphical wizards
  - STM32CubeIDE, an all-in-one development tool with peripheral configuration, code generation, code compilation, and debug features
  - STM32CubeCLT, an all-in-one command-line development toolset with code compilation, board programming, and debug features
  - STM32CubeProgrammer (STM32CubeProg), a programming tool available in graphical and command-line versions
  - STM32CubeMonitor (STM32CubeMonitor, STM32CubeMonPwr, STM32CubeMonRF, STM32CubeMonUCPD), powerful monitoring tools to fine-tune the behavior and performance of STM32 applications in real time
- STM32Cube MCU and MPU Packages, comprehensive embedded-software platforms specific to each microcontroller and microprocessor series (such as STM32CubeU5 for the STM32U5 Series), which include:
  - STM32Cube hardware abstraction layer (HAL), ensuring maximized portability across the STM32 portfolio
  - STM32Cube low-layer APIs, ensuring the best performance and footprints with a high degree of user control over hardware
  - A consistent set of middleware components such as ThreadX, FileX / LevelX, NetX Duo, USBX, USB-PD, touch library, network library, mbed-crypto, TFM, and OpenBL
  - All embedded software utilities with full sets of peripheral and applicative examples
- STM32Cube Expansion Packages, which contain embedded software components that complement the functionalities of the STM32Cube MCU and MPU Packages with:
  - Middleware extensions and applicative layers
  - Examples running on some specific STMicroelectronics development boards

# 2 License

X-CUBE-LCSENSOR is delivered under the SLA0048 software license agreement and its Additional License Terms.

# Revision history

Table 1. **Document revision history**

| Date | Revision | Changes |
|---|---|---|
| 4-Oct-2017 | 1 | Initial release. |
| 30-Nov-2022 | 2 | Added the support for the NUCLEO-U575ZI-Q board featuring LPBAM in *Features* and *Description*.<br>Added the cover image, *License*, and *What is STM32Cube?* |
| 7-Dec-2022 | 3 | Updated the cover image and What is STM32Cube? |