

Sub-1 GHz RF communication software expansion for STM32Cube based on S2-LP

Application	Examples
Middleware	6LoWPAN
Hardware Abstraction	STM32Cube Hardware Abstraction Layer (HAL)
Hardware	STM32 Nucleo expansion boards X-NUCLEO-S2868A2/X-NUCLEO-S2915A1 (Connect)
	STM32 Nucleo development board



Features

- Firmware package to start developing using S2-LP expansion boards
- Point-to-point communication sample application for simple buffer transmission and acknowledgement implementation
- Low-power optimizations for the STM32 MCU family
- Easy portability across different MCU families thanks to STM32Cube
- Package compatible with STM32CubeMX, can be downloaded from and installed directly into STM32CubeMX
- Free user-friendly license terms
- Sample implementation available on X-NUCLEO-S2868A2 or X-NUCLEO-S2915A1 expansion boards when connected to NUCLEO-F401RE, NUCLEO-L053R8 or NUCLEO-L152RE development boards

Description

X-CUBE-SUBG2 is an expansion software package for STM32Cube. The software runs on the STM32 and includes drivers that recognize the Sub-1 GHz RF communication for S2-LP.

The expansion is built on STM32Cube software technology to ease portability across different STM32 microcontrollers.

The software comes with sample applications of P2P and 6LoWPAN communication protocols, running on an X-NUCLEO-S2868A2 or X-NUCLEO-S2915A1 expansion board when connected to a compatible STM32 Nucleo development board.

Product summary	
Sub-1 GHz RF communication software expansion for STM32Cube based on S2-LP	X-CUBE-SUBG2
Sub-1 GHz 868/915 MHz RF expansion board based on S2-LP radio for STM32 Nucleo	X-NUCLEO-S2868A2/X-NUCLEO-S2915A1
Ultra-low power, high performance, sub-1 GHz transceiver	S2-LP
Applications	Building Safety and Security Electricity Metering Factory Automation Industrial Tools ISM Radio SubGHz Sigfox Smart City

1 Detailed description

1.1 What is STM32Cube?

[STM32Cube](#) is a combination of a full set of PC software tools and embedded software blocks running on STM32 microcontrollers and microprocessors:

- [STM32CubeMX](#) configuration tool for any STM32 device; it generates initialization C code for Cortex-M cores and the Linux device tree source for Cortex-A cores
- [STM32CubeIDE](#) integrated development environment based on open-source solutions like Eclipse or the GNU C/C++ toolchain, including compilation reporting features and advanced debug features
- [STM32CubeProgrammer](#) programming tool that provides an easy-to-use and efficient environment for reading, writing and verifying devices and external memories via a wide variety of available communication media (JTAG, SWD, UART, USB DFU, I2C, SPI, CAN, etc.)
- STM32CubeMonitor family of tools ([STM32CubeMonRF](#), [STM32CubeMonUCPD](#), [STM32CubeMonPwr](#)) to help developers customize their applications in real-time
- [STM32Cube MCU and MPU packages](#) specific to each STM32 series with drivers (HAL, low-layer, etc.), middleware, and lots of example code used in a wide variety of real-world use cases
- [STM32Cube expansion packages](#) for application-oriented solutions

1.2 How does this software complement STM32Cube?

This software is based on the STM32CubeHAL, the hardware abstraction layer for the STM32 microcontroller. The package extends [STM32Cube](#) by providing a board support package (BSP) for the [X-NUCLEO-S2868A2](#) or [X-NUCLEO-S2915A1](#) expansion board for point-to-point (P2P).

The drivers abstract low-level details of the hardware and allow the applications to access the [S2-LP](#) RF functions in a hardware-independent manner. The package also includes sample applications (that the developer can use to start experimenting with the code) for point-to-point simple communication between two or more nodes.

Revision history

Table 1. Document revision history

Date	Version	Changes
09-Dec-2019	1	Initial release.
10-Feb-2020	2	Added X-NUCLEO-S2868A2 and X-NUCLEO-S2915A1 expansion board compatibility information.
20-Nov-2020	3	Updated all content to reflect new firmware release (v3.0).

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