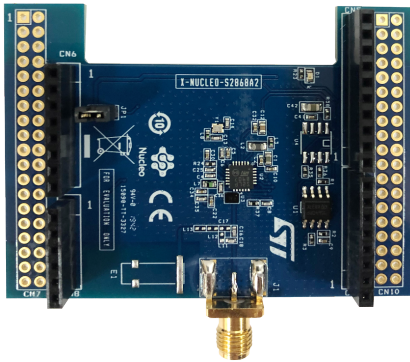


## Sub-1 GHz 868 MHz RF expansion board based on S2-LP radio for STM32 Nucleo



### Features

- Based on [S2-LP](#) radio
- S2-LP narrow band ultra-low power sub-1 GHz transceiver tuned for 860 - 940 MHz frequency band
- Programmable RF output power up to +16 dBm
- Modulation schemes: 2-FSK, 2-GFSK, 4-FSK, 4-GFSK, OOK and ASK
- Air data rate from 0.1 to 500 kbps
- Ultra-low power consumption: 7 mA RX and 10 mA TX at +10 dBm
- IEEE 802.15.4g hardware packet support with whitening, FEC, CRC and dual SYNC word detection
- RX and TX 128 byte FIFO buffers
- Support to wireless M-Bus
- Excellent performance of receiver sensitivity (up to -130 dBm)
- Automatic acknowledgement, retransmission and timeout protocol engine
- Compatible with [STM32 Nucleo](#) boards
- Compatible with Arduino UNO R3 connectors
- [BALF-SPI2-01D3](#) IPD balun for matching network and harmonics filter
- Sigfox compatible
- Sample firmware for P2P communication
- 6LoWPAN compatible thanks to [STM32Cube](#)
- RoHS and WEEE compliant

Product summary	
Sub-1 GHz RF expansion board based on S2-LP radio for STM32 Nucleo	<a href="#">X-NUCLEO-S2868A2</a>
Ultra-low power, high performance, sub-1 GHz transceiver	<a href="#">S2-LP</a>
50 $\Omega$ nominal input/ conjugate match balun to S2-LP, 868-930 MHz with integrated harmonic filter	<a href="#">BALF-SPI2-01D3</a>
Applications	ISM Radio SubGHz Sigfox

### Description

The [X-NUCLEO-S2868A2](#) expansion board is based on the [S2-LP](#) ultra-low power RF transceiver and operates in the 868 MHz ISM frequency band.

The [X-NUCLEO-S2868A2](#) interfaces with the [STM32 Nucleo](#) microcontroller via SPI connections and GPIO pins. You can change some of the GPIOs by mounting or removing the resistors.

The expansion board is compatible with ST morpho and Arduino UNO R3 connectors.

# 1 Schematic diagrams

Figure 1. X-NUCLEO-S2868A2 circuit schematic

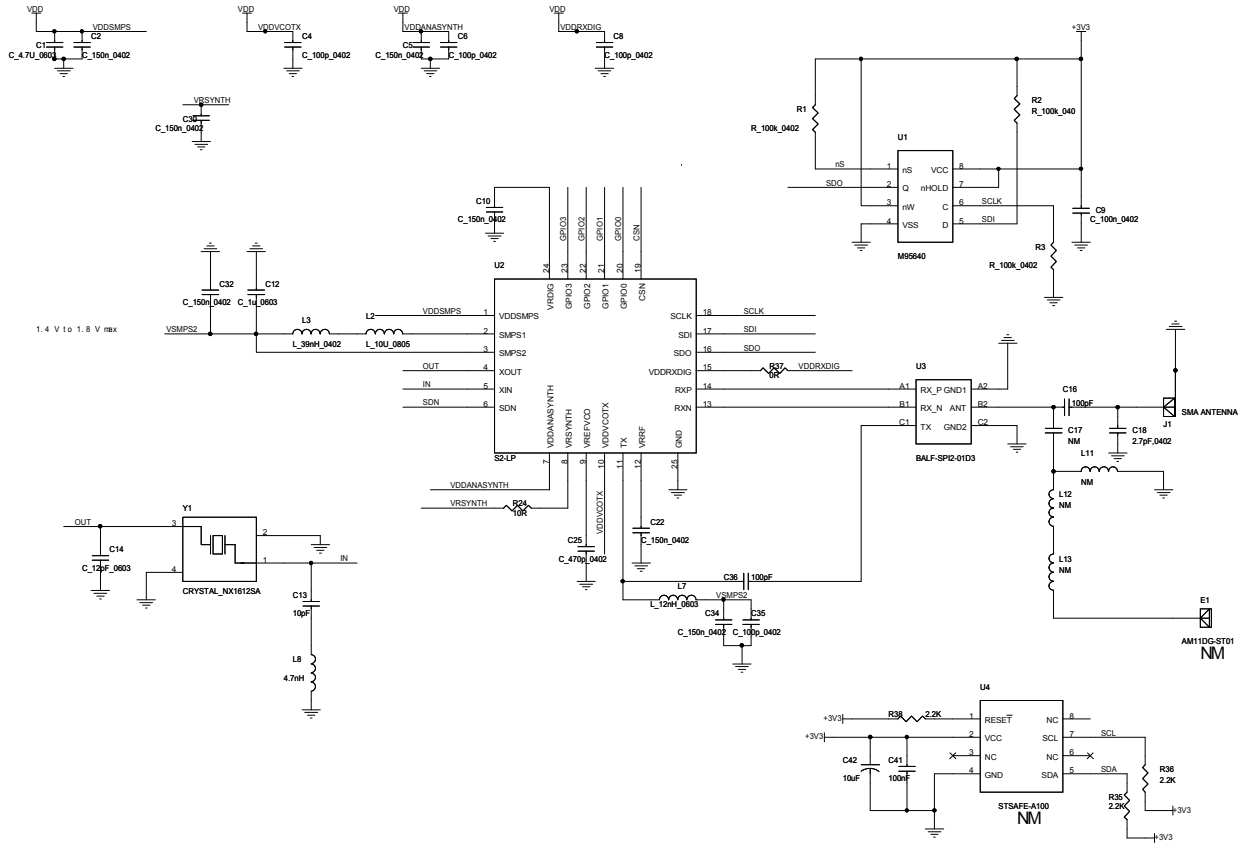
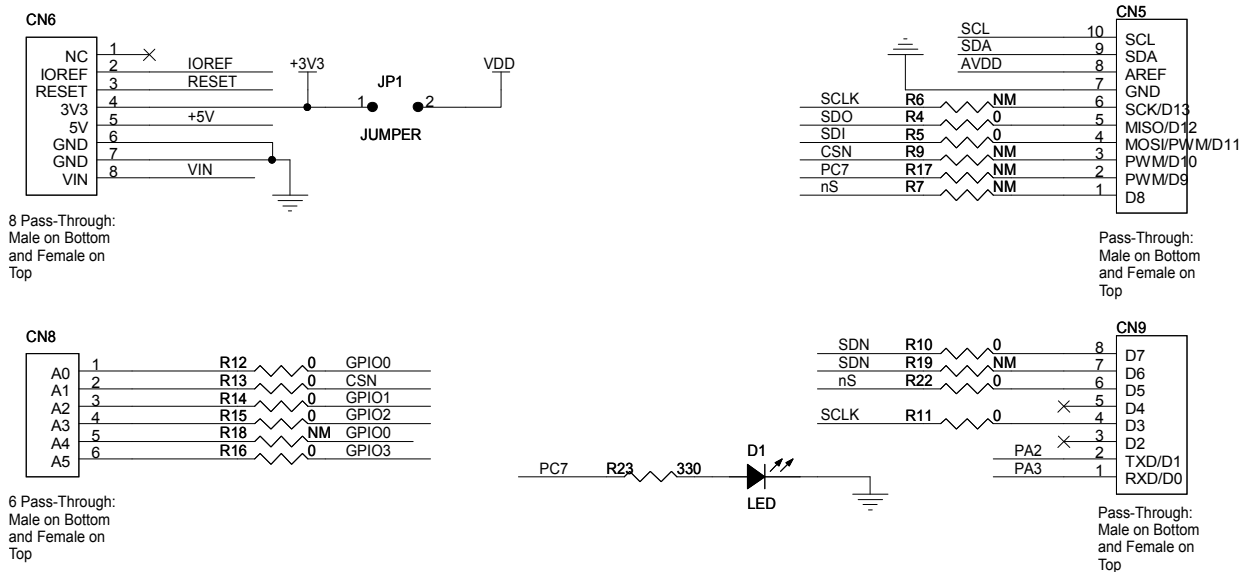
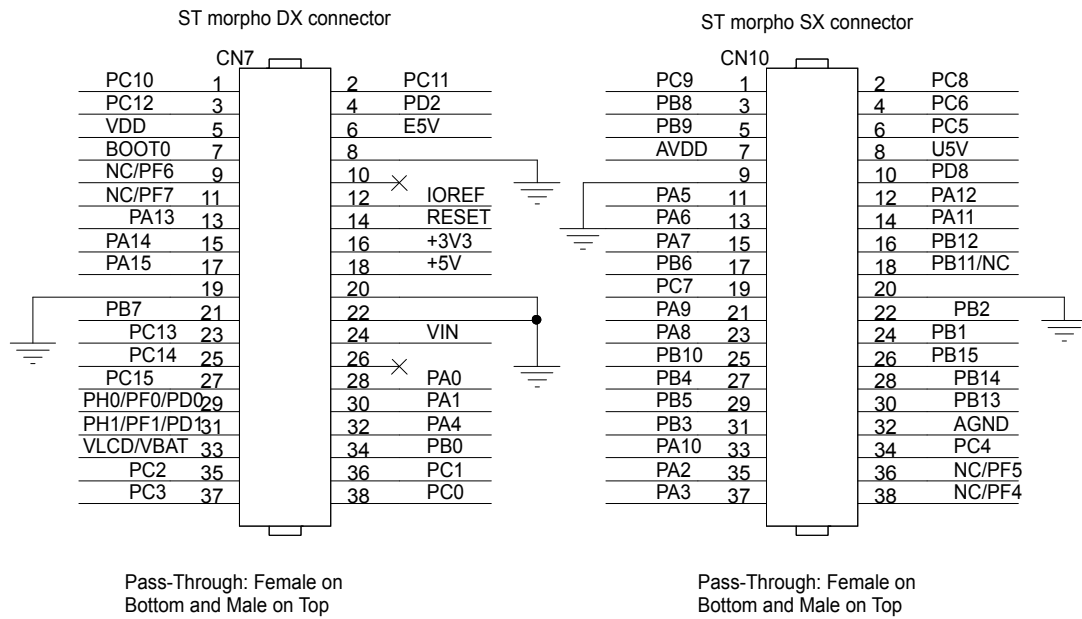


Figure 2. X-NUCLEO-S2868A2 circuit schematic - Arduino connectors



**Figure 3. X-NUCLEO-S2868A2 circuit schematic - ST morpho connectors**


## Revision history

**Table 1. Document revision history**

Date	Version	Changes
12-Dec-2019	1	Initial release.

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