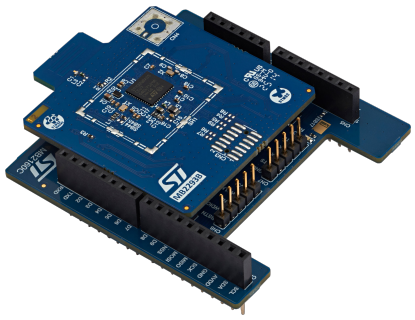
X-NUCLEO-WBA25A1

Data brief

Bluetooth® LE expansion board based on the STM32WBA25CE MCU for STM32 Nucleo boards



X-NUCLEO-WBA25A1 global view.
Picture is not contractual.

Product status
X-NUCLEO-WBA25A1

Features

- Bluetooth® v6.0 compliant expansion board based on the STM32WBA25CE MCU and featuring preloaded network coprocessor firmware with a UART interface
- Embedded MLPF-WB-04D3 impedance matching network and harmonics filter
- On-board PCB antenna
- Optional SPI through dedicated firmware
- ARDUINO® Uno V3 expansion connector
- Compatible with STM32 Nucleo boards
- Scalable solution, capable of cascading multiple boards for larger systems
- Free comprehensive development firmware library and examples, compatible with the X-CUBE-WBA expansion software package for STM32CubeWBA

Description

The X-NUCLEO-WBA25A1 ARDUINO® interface board provides Bluetooth® LE connectivity for developer applications and can be plugged into an STM32 Nucleo board, such as NUCLEO-U385RG-Q, using the ARDUINO® Uno V3 connectors.

The ARDUINO® interface board features the Bluetooth® v6.0-compliant and FCC-certified STM32WBA25CE SoC. This device manages the complete Bluetooth® LE stack and protocols using its Arm® Cortex®-M33 core and programmable flash memory.

X-NUCLEO-WBA25A1 uses the universal asynchronous receiver transmitter (UART) interface to communicate with the STM32 Nucleo board. It supports operations with or without hardware flow control. A full-duplex serial peripheral interface (SPI) with an interrupt line is also available. The firmware loaded on the module determines the host interface. To change the interface, update the firmware without modifying the hardware.

1 Ordering information

To order the X-NUCLEO-WBA25A1 expansion board, refer to Table 1. For a detailed description of the board, refer to the user manual on the product web page. Additional information is available from the datasheet and reference manual of the target STM32 MCU, available on *st.com*.

Table 1. Ordering information

Order code	Board reference	User manual	Target MCU
X-NUCLEO-WBA25A1	• MB2160(1) • MB2293(2)	UM3608	STM32WBA25CE

1. *ARDUINO® interface board*
2. *MCU RF board*

1.1 Product marking

The product and each board composing the product are identified with one or several stickers. The stickers, located on the top or bottom side of each PCB, provide product information:

- Main board featuring the target device: product order code, product identification, serial number, and board reference with revision.

  Single-sticker example:

  Product order code
  Product identification
  syywwxxxxx
  MBxxxx-Variant-yzz

  Dual-sticker example:

  Product order code
  Product identification

  and

  MBxxxx-Variant-yzz
  syywwxxxxx

- Other boards if any: board reference with revision and serial number.

  Examples:

  syywwxxxxx
  MBxxxx-Variant-yzz

  or

  MBxxxx-Variant-yzz
  syywwxxxxx

  or

  or

On the main board sticker, the first line provides the product order code, and the second line the product identification.

On all board stickers, the line formatted as *"MBxxxx-Variant-yzz"* shows the board reference *"MBxxxx"*, the mounting variant *"Variant"* when several exist (optional), the PCB revision *"y"*, and the assembly revision *"zz"*, for example B01. The other line shows the board serial number used for traceability.

Products and parts labeled as *"ES"* or *"E"* are not yet qualified or feature devices that are not yet qualified. STMicroelectronics disclaims any responsibility for consequences arising from their use. Under no circumstances will STMicroelectronics be liable for the customer's use of these engineering samples. Before deciding to use these engineering samples for qualification activities, contact STMicroelectronics' quality department.

"ES" or *"E"* marking examples of location:

- On the targeted STM32 that is soldered on the board (for an illustration of STM32 marking, refer to the STM32 datasheet *Package information* paragraph at the *www.st.com* website).
- Next to the ordering part number of the evaluation tool that is stuck, or silk-screen printed on the board.

Some boards feature a specific STM32 device version, which allows the operation of any bundled commercial stack/library available. This STM32 device shows a *"U"* marking option at the end of the standard part number and is not available for sales.

To use the same commercial stack in their applications, the developers might need to purchase a part number specific to this stack/library. The price of those part numbers includes the stack/library royalties.

1.2 Codification

The meaning of the codification is explained in Table 2.

Table 2. Codification explanation

X-NUCLEO-XXXYYZT	Description	Example: X-NUCLEO-WBA25A1
X-NUCLEO	Type of board	STM32 Nucleo expansion board
XXX	STM32 MCU series	STM32WBA series
YY	MCU product line in the series	STM32WBA25 product line
Z	Type of connector: • A for ARDUINO®	ARDUINO®
T	Index	First generation of Bluetooth® LE expansion boards based on the STM32WBA25CE MCU for STM32 Nucleo boards

1.3 General information

The X-NUCLEO-WBA25A1 runs on the STM32WBA25CE 32-bit microcontroller based on the Arm® Cortex®-M core.

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Revision history

Table 3. **Document revision history**

Date	Revision	Changes
27-Jan-2026	1	Initial release.

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