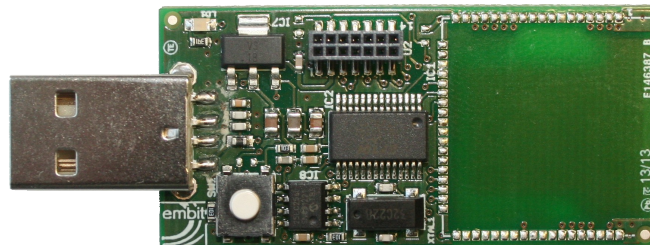




EMB-GPDONGLE-USB

Datasheet



embit s.r.l.

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1 Description

EMB-GPDONGLE-USB is a USB dongle developed by **embit** to allow customers to quickly get started with **embit** wireless modules. The **EMB-GPDONGLE-USB** is a generic USB dongle that can host any **embit** module (since they all employ the same form factor); the **embit** wireless module to use with the **EMB-GPDONGLE-USB** can be soldered on the available pads in a few minutes. Connecting the USB dongle to an host device (e.g., a notebook) allows to immediately communicate and transfer data with the **embit** wireless module soldered on the **EMB-GPDONGLE-USB**, and, through that module, over-the-air data can be transmitted and received.

EMB-GPDONGLE-USB includes one LED and a push button that connect with the **embit** wireless module and allow to create a basic user interface. The dongle also mounts (optionally) a 256Kbit SPI EEPROM memory, to allow the **embit** wireless module to store non-volatile data off-module. Regarding the connectors, the **EMB-GPDONGLE-USB** comes with an USB connector and an **embit** programmer connector. Finally, the power supply conditioning chain is integrated on the USB dongle.

1.1 Specifications

- USB 2.0 certified full speed transceiver (12 Mbps)
- USB type A connector
- **embit** programming interface (to program the module)
- 1 LED and 1 switch (to interact with the module)
- 32 kHz crystal (to allow accurate sleep modes in certain **embit** wireless modules)
- 256Kbit SPI EEPROM memory (optional)

1.2 Block diagram

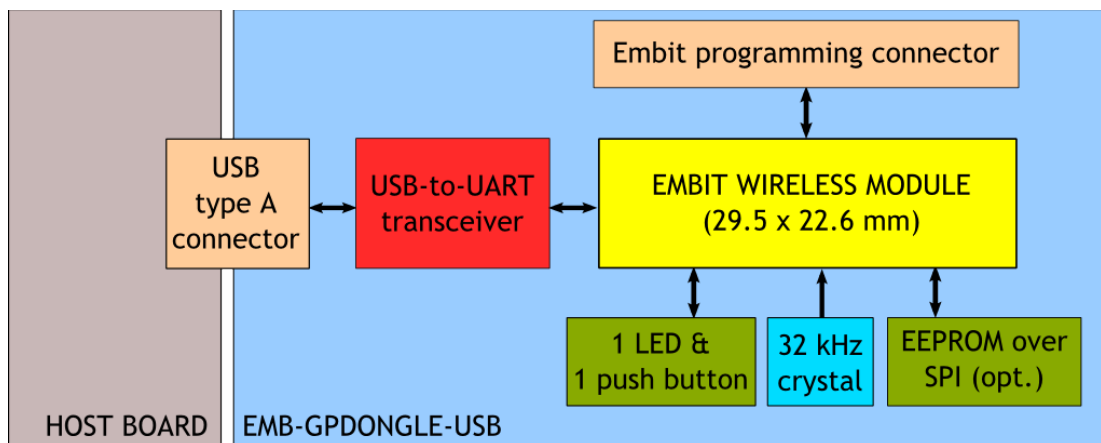


Image 1: block diagram for the EMB-GPDONGLE-USB

2 Mechanical data

2.1 Size

The mechanical dimensions of the **EMB-GPDONGLE-USB** are 52.30 x 25.50 mm. The thickness is 7.0 mm, CAN Shield, USB connector and programming interface included.

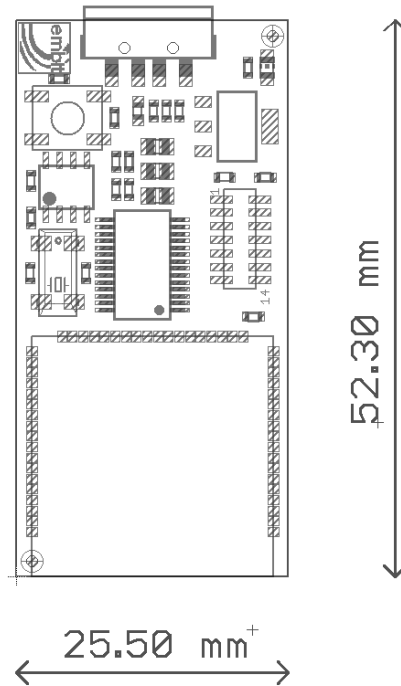


Image 8: Outline

3 On board devices

The **USB connector** of the EMB-GPDONGLE-USB is connected via a USB-to-UART transceiver to the pins #22-#25 of the embit wireless module; in the embit standard pinout, this corresponds to the UART #1 (besides the UART RX and TX lines, also RTS and CTS lines are connected).

The **LED** of the EMB-GPDONGLE-USB is connected to the pin #48 of the embit wireless module; in the embit standard pinout, this corresponds to a GPIO pin which can be driven high (LED on) or low (LED off).

The **push button** of the EMB-GPDONGLE-USB is connected to the pin #44 of the embit wireless module; in the embit standard pinout, this corresponds to a GPIO pin which can be employed as input; when the push button is released (rest condition), the pin #44 will be driven high by a pull-up resistor; when the push button is pressed, the pin #44 will be driven low.

The **32kHz crystal** of the EMB-GPDONGLE-USB is connected to the pins #49 and #50 of the embit wireless module and can be used to ensure higher clock stability of the microcontroller of the embit wireless module, both in deep sleep mode and in normal run mode.

The **optional non-volatile memory** of the EMB-GPDONGLE-USB is a Microchip® 25AA256 256Kbit EEPROM SPI. If the EMB-GPDONGLE-USB is ordered with this option, such memory will be connected as “slave device” to the pins #32-#35 of the embit wireless module.

Finally, the **embit programming interface** can be used to program the microcontroller of the embit wireless module soldered on the EMB-GPDONGLE-USB. For details please refer to the “embit-programming-interface.pdf” guide.

4 Electrical characteristics

4.1 Absolute Maximum Ratings

	Value	Unit
Power Supply Voltage	6	Vdc
Voltage on any pin (beside USB pins)	3,6	Vdc
Storage Temp. Range	-45 ~ +125	°C

4.2 Operating Conditions

Parameter	Min	Typ	Max	Unit
Power Supply Voltage (Vcc)	4		6	Vdc
Operating Temperature Range	-40		85	°C

4.3 Power Consumption

Mode	Typ. value	Unit
Normal operation	15*	mA
USB suspend	0.07*	mA

* The consumption does not take into account the power needed for the LED

4.4 Limitations

Every operation involving a modification on the internal components of the device will void the warranty.

5 Ordering informations

5.1 Types

Part No.	Description
EMB-GPDONGLE-USB	General-purpose USB dongle for embit wireless modules

Related products:

Part No.	Description
EMB-Z2531PA-USB	USB dongle specific for the EMB-Z2530PA wireless module

6 Disclaimer

The user must read carefully all the documentation available before using the product. In particular, care must be taken in order to comply with the regulations (i.e. power limits, duty cycle limits, etc.).

6.1 Handling precautions



This product is an ESD sensitive device. Handling precautions should be carefully observed.

6.2 Limitations

Every operation involving a modification on the internal components of the module will void the warranty.

6.3 Disclaimer of liability

The information provided in this and other documents associated to the product might contain technical inaccuracies as well as typing errors. Regulations might also vary in time. Updates to these documents are performed periodically and the information provided in these manuals might change without notice. The user is required to ensure that the documentation is updated and the information contained is valid. Embit reserves the right to change any of the technical/functional specifications as well as to discontinue manufacture or support of any of its products without any written announcement.

6.4 Trademarks

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