

Dead-reckoning GNSS expansion board based on Teseo-VIC3DA for STM32 Nucleo



Features

- Operating supply voltage: 3.3 V
- Ambient temperature: -40/+85°C
- Sensitivity: -163 dBm (tracking mode)
- Interfaces:
 - a UART port
 - an I²C port
 - configurable digital I/O time pulse
 - EXTINT input for wake-up
- NMEA protocol
- Assisted GNSS:
 - autonomous AGNSS
 - real-time, server-based
- Simultaneous multiconstellation:
 - GPS
 - Galileo
 - Glonass
 - BeiDou
 - QZSS
- Compatible with [STM32 Nucleo](#) development boards
- Compatible with the Arduino UNO R3 connector
- [Teseo-VIC3DA](#) dead-reckoning automotive firmware
- Provision of FWD and WHEELTICK signals
- Automotive GNSS and 6-axis inertial sensor
- LNA and SAW filters on the RF path
- SMA female antenna connector
- RoHS and WEEE compliant

Product summary	
Dead-reckoning GNSS expansion board based on Teseo-VIC3DA for STM32 Nucleo	X-NUCLEO-GNSS2A1
Automotive GNSS dead-reckoning module with 6-axis IMU	TESEO-VIC3DATR
Global navigation satellite system software expansion for STM32Cube	X-CUBE-GNSS1

Description

The [X-NUCLEO-GNSS2A1](#) expansion board is based on the [Teseo-VIC3DA](#) tiny GNSS module. It represents an affordable, easy-to-use, global navigation satellite system (GNSS) module, which embeds a TeseoIII single die standalone positioning receiver IC, usable in different configurations in your [STM32 Nucleo](#) project.

The [Teseo-VIC3DA](#) is a compact (16.0 x 12.2 mm) module that provides superior accuracy thanks to the on-board temperature compensated crystal oscillator (TCXO) and a reduced time-to-first fix (TTFF) with its dedicated real-time clock (RTC) oscillator.

The [Teseo-VIC3DA](#) module runs the GNSS firmware ([X-CUBE-GNSS1](#)) to perform all the GNSS operations including acquisition, tracking, navigation, and data output without any external memory support.

The [X-NUCLEO-GNSS2A1](#) expansion board is compatible with the Arduino UNO R3 connector and the ST morpho connector. It can be plugged to an [STM32 Nucleo](#) development board and stacked with additional [STM32 Nucleo](#) expansion boards.

1 Schematic diagrams

Figure 1. X-NUCLEO-GNSS2A1 circuit schematic (1 of 3)

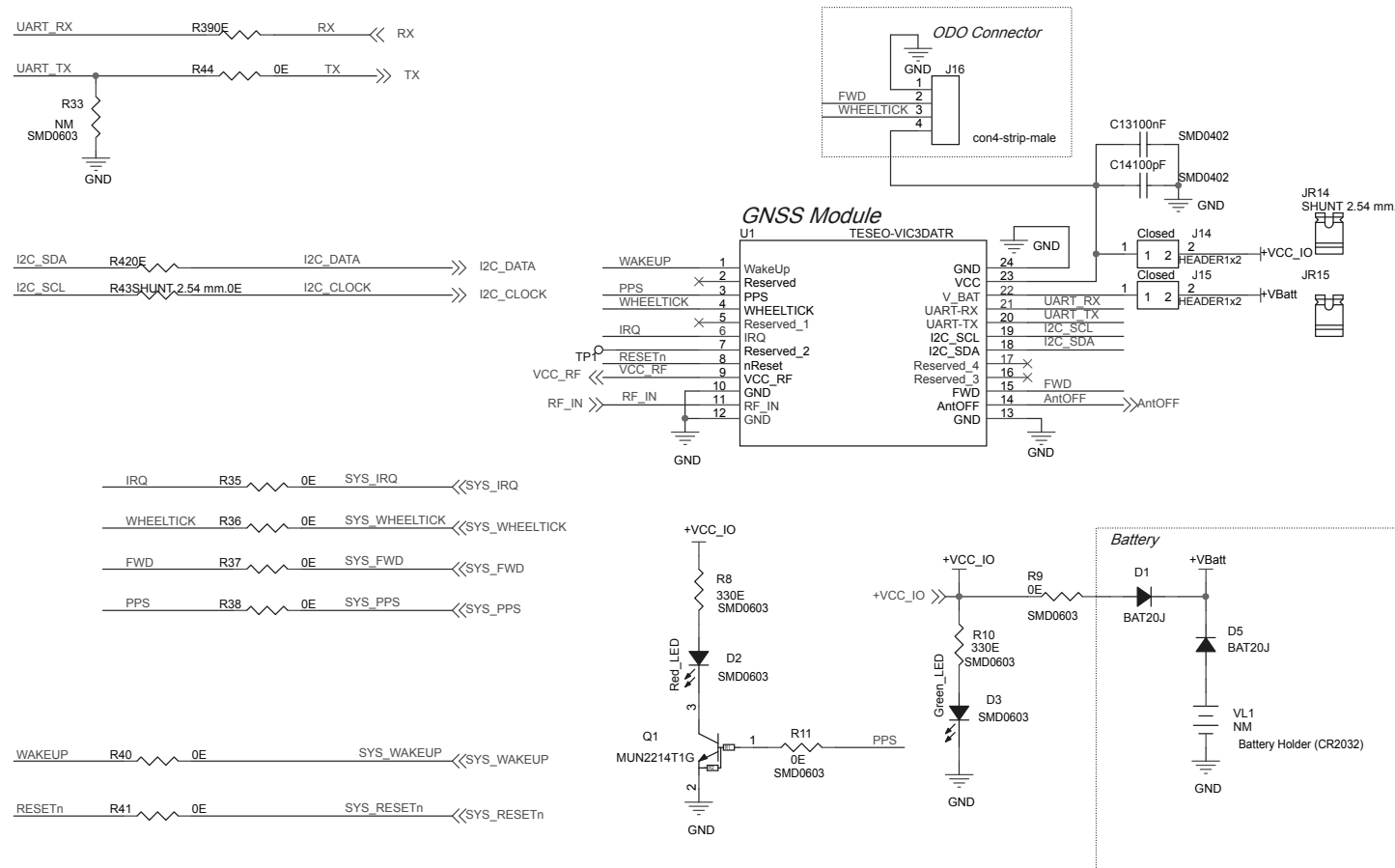


Figure 2. X-NUCLEO-GNSS2A1 circuit schematic (2 of 3)

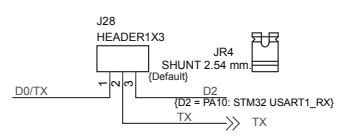
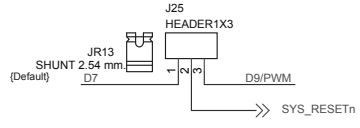
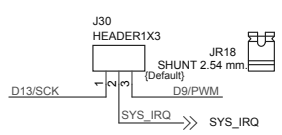
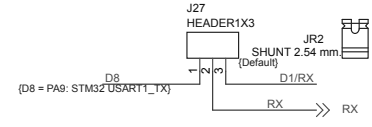
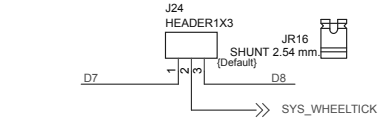
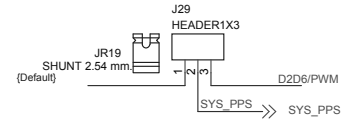
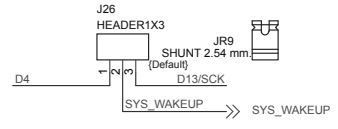
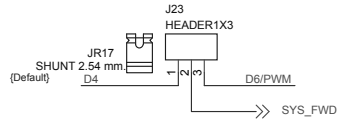
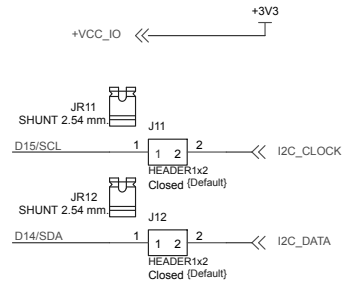
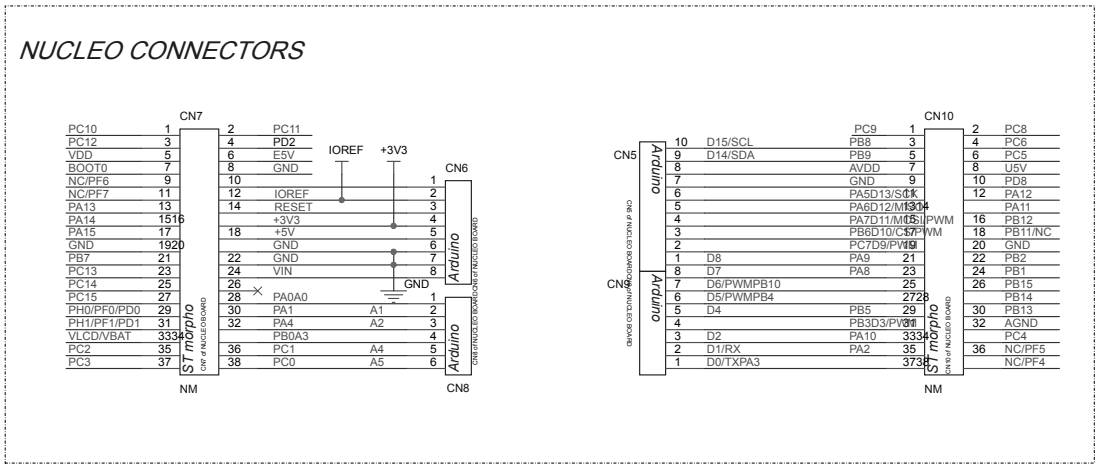
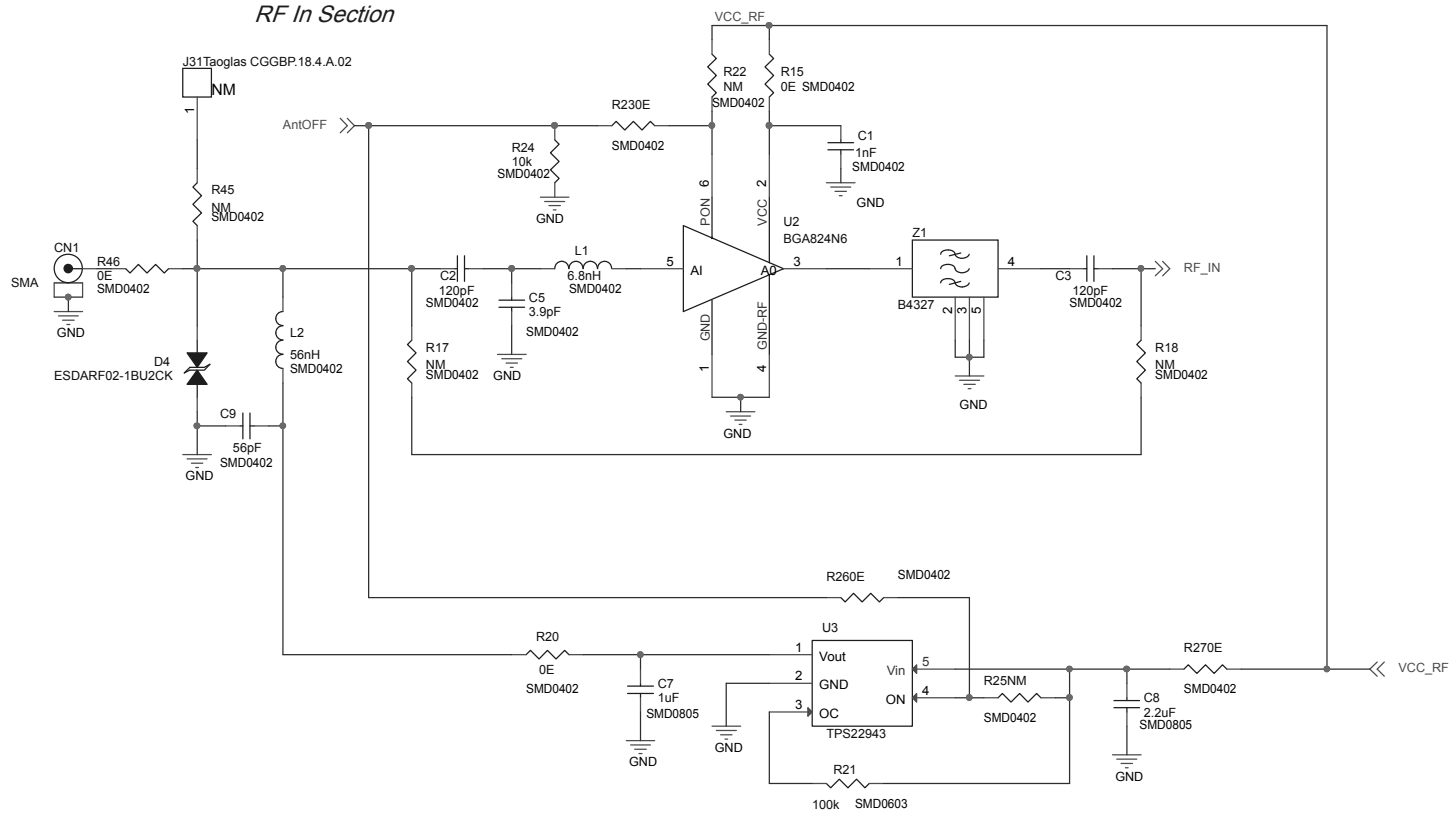


Figure 3. X-NUCLEO-GNSS2A1 circuit schematic (3 of 3)



2 Board versions

Table 1. X-NUCLEO-GNSS2A1 versions

PCB version	Schematic diagrams	Bill of materials
X\$NUCLEO-GNSS2A1 ⁽¹⁾	X\$NUCLEO-GNSS2A1 schematic diagrams	X\$NUCLEO-GNSS2A1 bill of materials

1. This code identifies the X-NUCLEO-GNSS2A1 expansion board first version. It is printed on the board PCB.

Revision history

Table 2. Document revision history

Date	Revision	Changes
25-Jul-2022	1	Initial release.

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