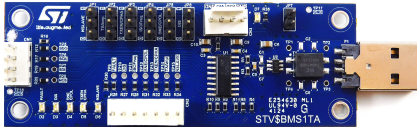


## SPI to isolated SPI dongle based on the L99BM1T transceiver



### Features

- Hosts the L99BM1T general purpose SPI to isolated SPI bi-directional transceiver
- Master/slave configuration through GPIOs or jumpers
- 4 configurable pins for the SPI protocol
- 2 configurable pins for amplitude and frequency of the converted signal (ISOSPI)
- Dimensions: 85mm x 30mm

### Description

Product summary	
SPI to isolated SPI dongle based on the L99BM1T transceiver	STEVAL-BMS1T
General purpose SPI to isolated SPI transceiver	L99BM1T-TR
Applications	Battery Management System

The **STEVAL-BMS1T** is a SPI to isolated SPI dongle, which allows converting SPI signals into isolated SPI signals, thus reducing the number of necessary wires from 4 to 2.

The ISOSPI protocol features differential communication to ensure higher noise immunity and robustness for long-distance communications.

The **STEVAL-BMS1T** is based on the **L99BM1T** general-purpose SPI to isolated SPI bidirectional transceiver, which can transfer communication data incoming from a classical 4-wire based SPI interface to a 2-wire isolated interface (and vice versa).

The **L99BM1T** hosted on the **STEVAL-BMS1T** can be configured either as a slave or as a master of the SPI bus and supports any protocol of 8-to-64-bit SPI frames.

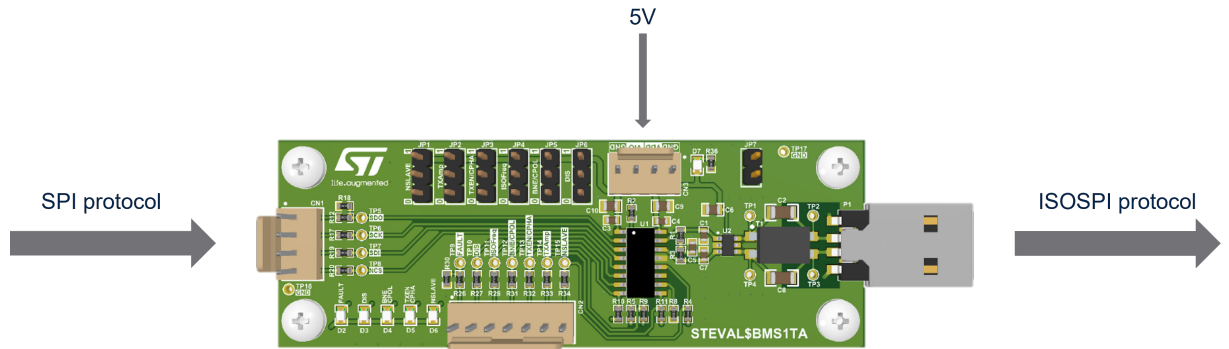
The SPI peripheral can work up to 10 MHz when configured as a slave. The SPI clock frequency can be programmed (250 kHz, 1 MHz, 4 MHz, or 8 MHz) when the device is configured as a master.

The transceiver is natively compatible with the **L99BM114** isolated SPI, allowing its usage in battery management system (BMS) applications. The basic BMS analog front-end node board is the **STEVAL-BMS114**.

From the microcontroller side, the **STEVAL-BMS1T** board can be connected via SPI with SPI enabled microcontrollers and in particular with STM32 microcontroller families.

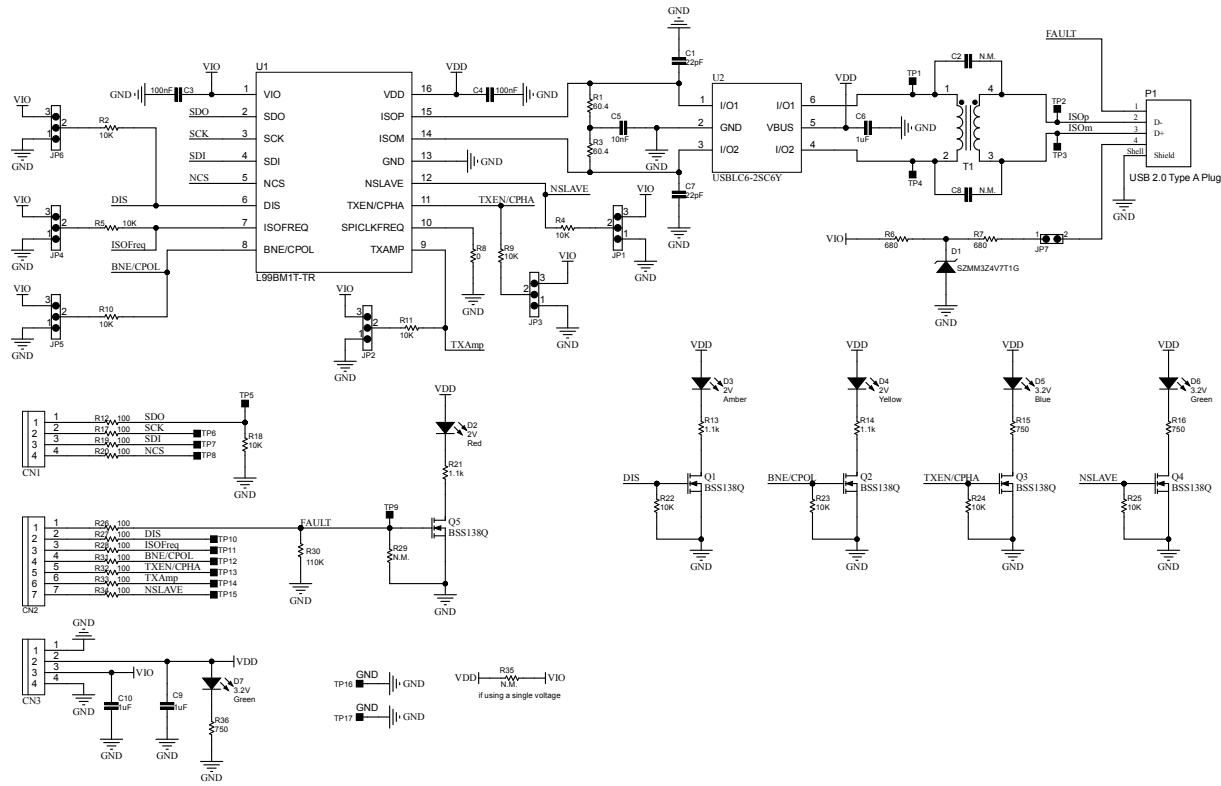
# 1 Block diagram

Figure 1. Functional block diagram



## 2 Schematic diagram

Figure 2. STEVAL-BMS1T circuit schematic



### 3 Board versions

**Table 1. STEVAL-BMS1T versions**

Finished good	Schematic diagrams	Bill of materials
STV\$BMS1TA <sup>(1)</sup>	STV\$BMS1TA schematic diagrams	STV\$BMS1TA bill of materials

1. This code identifies the STEVAL-BMS1T evaluation board first version.

## Revision history

**Table 2. Document revision history**

Date	Revision	Changes
10-Jan-2025	1	Initial release.

**IMPORTANT NOTICE – READ CAREFULLY**

STMicroelectronics NV and its subsidiaries (“ST”) reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST’s terms and conditions of sale in place at the time of order acknowledgment.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of purchasers’ products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. For additional information about ST trademarks, refer to [www.st.com/trademarks](http://www.st.com/trademarks). All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2025 STMicroelectronics – All rights reserved