SPOC™ Wire Guard 12V 1 channel

Getting started with BTS800xx-SWPx-1ES

About this document

Scope and purpose

This document provides an overview of how to

- power up the device
- establish the SPI communication
- perform first switching tests

Intended audience

This document is intended for engineers, technicians, and developers of electronic systems.

Table of contents

About this document 1
Table of contents 2
1 Getting started with BTS800xx-SWPx-1ES 3
2 SPI sequence 4
2.1 Start-up 4
2.2 Fail-safe mode 4
3 Default values 5
4 Configuration and control support 6
Revision history 7
Disclaimer 8

1 Getting started with BTS800xx-SWPx-1ES

Correct supply voltages and SPI settings are important for the set-up.

Supplying the device

Supply the device with typical supply voltages. For example

- V_{DD} = 3.3 V[1)]
- V_S = 13.5 V

SPI settings

SPI mode 1 (SCLK polarity low during idle mode and data clocked on falling edge): This means that the product samples data in on line SI at the falling edge of SCLK and shifts out on line SO at the rising edge of SCLK (CPOL = 0, CPHA = 1, bit order: MSB, bit length: 24-bit)

1 If you use the SPS motherboard, the V_{DD} is already provided by the motherboard. There is no need to supply it from external

2 SPI sequence

2.1 Start-up

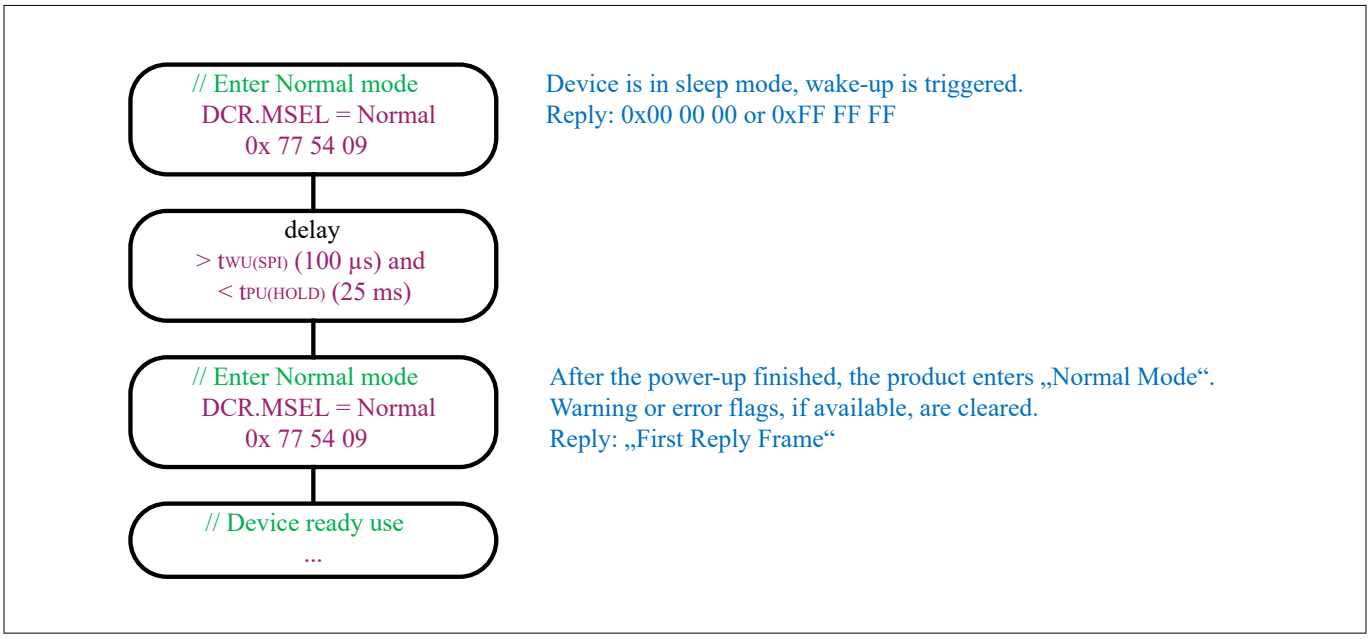

Figure 1 Start-up, sequence, triggering the transition from sleep mode to normal mode

The first SPI command generates a rising edge on the CSN pin, which triggers the wake-up sequence. As an alternative to waiting for a fixed delay, it is possible to send write-commands to the DCR register during this phase. Depending on the board's pull-up configuration or pull-down configuration, the response may be `0x 00 00 00 00` or `0x FF FF FF`.

If a command is received while the device is sill enabling the SPI logic during wake-up, a different response may occur.

For initial evaluation, the CRC can be disabled to simplify communication. Use SPI command `0x 18 4c 04` to disable the CRC.

Switch the output ON with `0x D3 55 01`

Switch the output OFF with `0x CE 55 00`

2.2 Fail-safe mode

If V_S and V_{DD} are applied and V_{DD} is later disconnected, the device enters fail-safe mode. If V_{DD} drops below the $V_{DD(UV)}$ threshold for more than 100 ms, the device also enters fail-safe mode.

The device will respond to each write-command with a communication error. In the status diagnosis register (STDDIAG) the safe mode status (SMS) is set to 1.

There are two options to leave fail-safe mode:

- Send the "leave fail-safe mode"-command via SPI: `0xDE 4F C7`

or

- Power-ON reset (disconnect V_{DD} and V_S supply

3 Default values

Since the OCT resistor and the I2t resistor are mounted on the daughterboard, the default values for OCT and I2t are set according to the resistors. All other values are according to the values in the datasheet, if they were not changed via non-volatile memory (NVM).

4 Configuration and control support

For easy control and configuration refer to the following tools:

- For configuration use the Automotive Power Explorer (see Infineon Developer Center Launcher)
- For evaluation board control[2)] use the Config Wizard (see Infineon Developer Center Launcher)
- Device driver: SPOC™ Wire Guard Single Channel Software Device Driver (see Infineon Developer Center Launcher)
- For evaluation of the product by simulation check for Spice and Matlab Simulink models see myICP (SPOC_Wire_Guard_1ch/SimulationModels)

2 Smart power switches motherboard (SPS MB) and the SPOC™ WG 1Ch daughterboard (SPS DB)

Revision history

Revision	Date of release	Description of changes
Rev. 1.00	2026-09-22	Document available

Trademarks

All referenced product or service names and trademarks are the property of their respective owners.

Edition 2026-09-22

Published by

Infineon Technologies AG

81726 Munich, Germany

© 2026 Infineon Technologies AG

All Rights Reserved.

Do you have a question about any aspect of this document?

Email: erratum@infineon.com

Document reference
IFX-owf1788415409993

Important notice

Products which may also include samples and may be comprised of hardware or software or both ("Product(s)") are sold or provided and delivered by Infineon Technologies AG and its affiliates ("Infineon") subject to the terms and conditions of the frame supply contract or other written agreement(s) executed by a customer and Infineon or, in the absence of the foregoing, the applicable Sales Conditions of Infineon. General terms and conditions of a customer or deviations from applicable Sales Conditions of Infineon shall only be binding for Infineon if and to the extent Infineon has given its express written consent.

For the avoidance of doubt, Infineon disclaims all warranties of non-infringement of third-party rights and implied warranties such as warranties of fitness for a specific use/purpose or merchantability. Infineon shall not be responsible for any information with respect to samples, the application or customer's specific use of any Product or for any examples or typical values given in this document.

If this document is marked as 'Preliminary', 'Target', 'Draft' or 'Proposal', Infineon reserves the right to change all information given in this document at any time without notice. Subject to the development and release of a Product for series supply by Infineon, the technical specifications of the Product are set forth in the relevant datasheet provided by Infineon without such marking.

The data contained in this document is exclusively intended for technically qualified and skilled customer representatives. It is the responsibility of the customer to evaluate the suitability of the Product for the intended application and the customer's specific use and to verify all relevant technical data contained in this document in the intended application and the customer's specific use. The customer is responsible for properly designing, programming, and testing the functionality and safety of the intended application, as well as complying with any legal requirements related to its use.

Unless otherwise explicitly approved by Infineon, Products may not be used in any application where a failure of the Products or any consequences of the use thereof can reasonably be expected to result in personal injury.

However, the foregoing shall not prevent the customer from using any Product in such fields of use that Infineon has explicitly designed and sold it for, provided that the overall responsibility for the application lies with the customer. Infineon expressly reserves the right to use its content for commercial text and data mining (TDM) according to applicable laws, e.g. Section 44b of the German Copyright Act (UrhG). If the Product includes security features:

Because no computing device can be absolutely secure, and despite security measures implemented in the Product, Infineon does not guarantee that the Product will be free from intrusion, data theft or loss, or other breaches ("Security Breaches"), and Infineon shall have no liability arising out of any Security Breaches.

If this document includes or references software:

The software is owned by Infineon under the intellectual property laws and treaties of the United States, Germany, and other countries worldwide. All rights reserved. Therefore, you may use the software only as provided in the software license agreement accompanying the software.

If no software license agreement applies, Infineon hereby grants you a personal, non-exclusive, non-transferable license (without the right to sublicense) under its intellectual property rights in the software (a) for software provided in source code form, to modify and reproduce the software solely for use with Infineon hardware products, only internally within your organization, and (b) to distribute the software in binary code form externally to end users, solely for use on Infineon hardware products. Any other use, reproduction, modification, translation, or compilation of the software is prohibited.

For further information on the Product, technology, delivery terms and conditions, and prices, please contact your nearest Infineon office or visit www.infineon.com.