UM11168

FS65/FS45 software driver

Rev. 1 — 6 December 2018 User manual

Document information

Information	Content
Keywords	system basis chip software driver SPI
Abstract	This documentation describes how to install and use the FS65/FS45 software driver.

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2 Overview

This user guide describes how to install and use the FS65/FS45 software driver.

This driver supports and provides a high-level software (SW) solution for these analog parts:

- MC33FS45xxxxx: All variants
- MC33FS65xxxxx: All variants

3 MCU compatibility

The driver implementation is generic—there is no dependency on a specific MCU. Any MCU with the required peripherals should be able to use this driver.

3.1 Peripheral requirements

Peripherals and resource requirements critical to the MCU's ability to handle a given part are as follows:

SPI communication mode

- **SPI Module** is required for communication (MOSI, MISO, SCLK).
- **GPIOs** are required for software controlled SPI chip select (CSB) and (optionally) for the device reset (RESET) pin.
- **Interrupt** pin is optionally required for use with the FAULT pin – interrupt implementation is up to the user.

4 FS65/FS45 software driver

The driver implements basic functionality for:

- FS65/FS45 interfacing as a SPI communication abstraction
- Watchdog settings
- Refresh/initialization procedure

The driver also provides a runtime register map.

For additional information, see the API Programmer's Guide [1] and the comments embedded in the code. You are advised to see the code and related commentary to get a better insight into this driver.

4.1 Configuring the driver

This driver is static with only one entry point.

4.2 Driver API

This FS65/FS45 software driver provides an API that can be used for dynamic real-time configuration of the device in user code. For a summary of available functions, refer to *API Programmer's Guide* [1], Section 4.1, *Driver API*.

4.3 Low-level drivers

Low-level MCU peripheral drivers are utilized by the driver. Functionality of the driver depends on these low-level drivers in terms of communication, control, etc.

Because this SW driver is generic, it is just required to implement functions specific for SPI and for wait function with microsecond resolution. Other functionalities, such as

watchdog refresh timing and ADC, must be implemented by the application. For a list of MCU-specific functions, refer to the *API Programmer's Guide* [1], Section 4.5, *MCU specific functions*.

5 References

[1] **FS65 Programmers guide** — included in the software driver zip file

[2] **FS6500-FS4500 data sheet** — FS6500-FS4500 - Safety Power System Basis Chip with CAN FD and LIN Transceivers

[3] **MC33FS45xxxxx product summary page** — MC33FS45xxxxx

[4] **MC33FS65xxxxx product summary page** — MC33FS65xxxxx

Revision history

Revision history

Rev	Date	Description
v.1	20181206	Initial version

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