

# Errata for FXOS8700

This errata sheet describes the functional problems known at the release date of this document.

## Revision History

Rev	Date	Description
0	2014-03-06	Added E1: SPI Mode Soft-reset using CTRL_REG2 (0x2B), bit 6
1	2015-1-5	Added E2: Noise from I <sup>2</sup> C/AFE Coupling

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## 1 Part Identification

The following errata affect the behavior of all production FXOS8700.

## 2 Errata

### 2.1 E1: SPI Mode Soft-reset using CTRL\_REG2 (0x2B), bit 6

#### Problem

Following a soft-reset command, issued by setting **CTRL\_REG2[rst]** = 1, certain device-specific parameters do not get updated correctly from NVM, causing inaccurate data output and incorrect WHOAMI (0x0D) register content. This behavior happens only in SPI mode. In I<sup>2</sup>C mode the device works as advertised.

#### Workaround

One workaround is associated with this erratum.

Avoid using soft-reset in SPI mode by alternately utilizing the hardware RESET pin.

### 2.2 E2: Noise from I<sup>2</sup>C/AFE Coupling

#### Problem

A timing conflict exists where signals from the I<sup>2</sup>C bus are being coupled into the magnetometer's analog front end (AFE), creating noise that exceeds the noise specification of the device.

The issue only occurs when the AFE and I<sup>2</sup>C signal are active at the same time (during polling method).

The resulting noise is transient noise of repeatable magnitude (in static environments) occurring at 20–70  $\mu$ Tesla from the nominal output samples. The effect is observed mainly on the x-axis and y-axis and negligibly on the z-axis.

#### Impact

The accuracy of the sampled data during a timing conflict is not guaranteed. The transient output during such an event is unpredictable and cannot be simply eliminated by oversampling, since the noise is random in magnitude and frequency. Such data can adversely affect use of the magnetometer output.

#### Workaround

One workaround is associated with this erratum.

Ensure there is no potential for a timing conflict between the I<sup>2</sup>C signal and the magnetometer's AFE.

- When communicating with FXOS8700 over I<sup>2</sup>C, always use the Data Ready Interrupt feature. Using data ready interrupts initiates an I<sup>2</sup>C transaction only after a sample is taken.
- Program the microcontroller unit (MCU) to service and execute the interrupt *quickly*, avoiding any situation where an I<sup>2</sup>C transaction will still be active when the magnetometer's AFE is active during the following sample period.

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