STEVAL-MKI030V1

Vibration analysis demonstration board based on the STM8S207R6 MCU and LIS331DLH MEMS

Data brief

Features

- Detects and provides visual/audio representation of:
  - board vibration
  - circular motion of the board
  - tilt of the board
- Displays motion information using multi-colored LEDs or music/rhythm patterns
- Provides six different operating modes
- Offers a standby function for low power consumption
- Monitors the 3 AAA batteries and displays their status on the LEDs
- Provides additional MCU I/Os for future extensions
- Equipped with a SWIM connector for debugging capability
- Compliant with RoHS directives

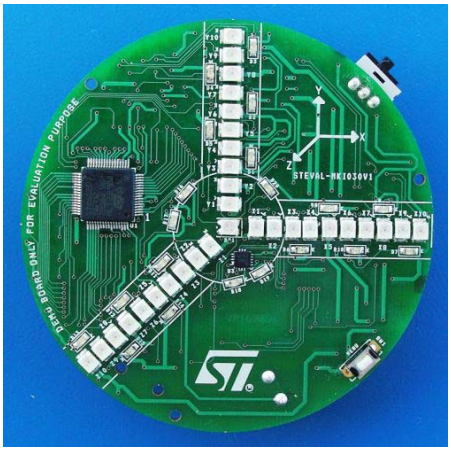
Description

The STEVAL-MKI030V1 vibration analysis board is a hand held demonstration board which detects the vibration of the board and measures acceleration on all three axes (X, Y and Z) caused by this vibration.

The system can detect the tilt of the board and display this information using the bi-color LED at the center of the board.

The system can also be configured to detect the circular motion of the board, in which LED patterns are generated depending on board movement.

The STEVAL-MKI030V1 also features a demonstration mode. In this mode, different LED patterns are displayed irrespective of the position/motion of the board, making the system suitable for exhibitions and seminars.



STEVAL-MKI030V1

There are three musical modes in which music/rhythm is played based on the mode/motion of the board. There are also three silent modes, for a total of six different modes of operation.

The STEVAL-MKI030V1 can be switched from one mode to another by pressing the on-board MODE button. To reduce power consumption, the system automatically enters standby mode when there is no motion for more than 10 seconds. The system “wakes up” from standby when a vibration/motion is detected. The STEVAL-MKI030V1 also monitors the batteries, and allows the user to check their status at any time. When low battery is detecetd, the system alerts the user to change the batteries and enters in no operation condition to avoid system malfunction.

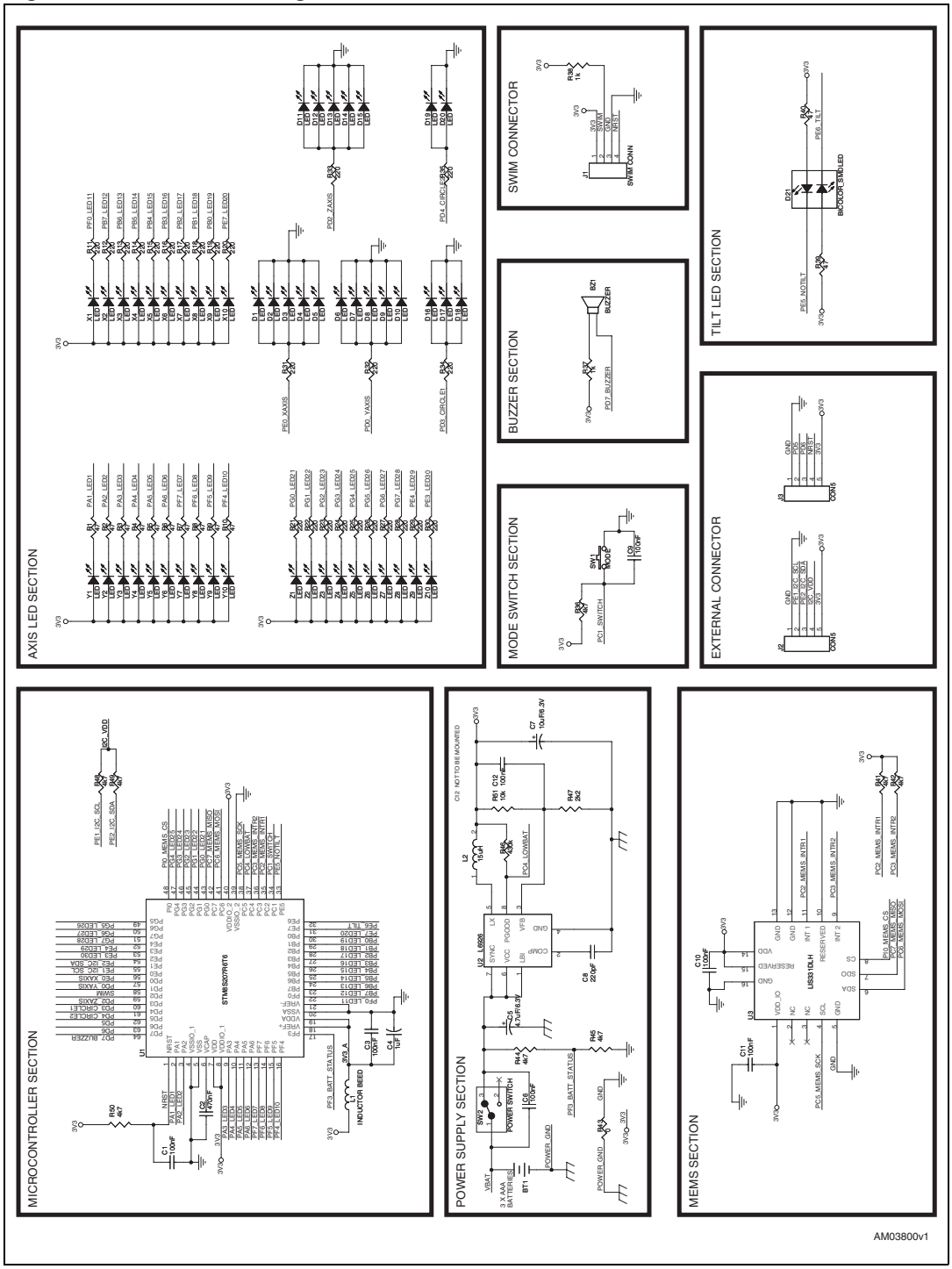
The board is equipped with free MCU I/Os for the external interface, and a SWIM connector is included to provide in-circuit debugging capability.

The system can be powered using 3 AAA batteries of 1.5 V each. The board is of circular shape, with a diameter of 84 mm and a height of 26 mm.

The board is RoHS compliant.

1 Circuit schematics

Figure 1. Schematic diagrams



2 Revision history

Table 1. Document revision history

Date	Revision	Changes
24-Apr-2009	1	Initial release.
15-Jun-2009	2	Content reworked to improve readability Updated *Figure 1: Schematic diagrams*

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