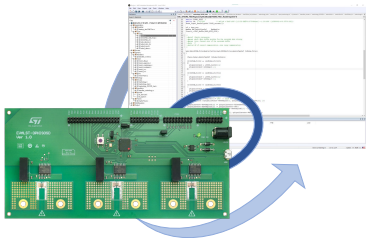
STSW-ISOSD001

Data brief

Embedded firmware for 3-phase full shunt current sensing evaluation board based on ISOSD61 and STM32F413RH



Features

- 3-phase current sensing firmware for ISOSD61 isolated sigma-delta modulator
- Implements hardware access layer to ISOSD61 devices for signal acquisition of up to three channels (three-current monitoring) @200 us
- DFSDM peripheral autonomously implementing digital filtering of signals
- 3-channel current decimated samples available
- 2.5 kHz measurement bandwidth
- USB communication available through virtual COM port mode

Product status link
STSW-ISOSD001
ISOSD61
EVALST-3PHISOSD
STM32F413RH

Description

The STSW-ISOSD001 firmware is embedded in the EVALST-3PHISOSD evaluation board to implement 3-current sensing for motor control application with low-cost shunt current sensors.

The firmware library implements:

- Signal acquisition from up to three current sensors
- A set of registers, containing current measurements and calibration/ configuration data.

The firmware exploits the DFSDM filters of the STM32F413RH to convert the three bitstreams into 24-bit current data, at 200 us rate.

The STPM3x-like registers allow the application access to the virtual device, which can be read/configured by the hardware interface layer.

The firmware also implements a virtual COM port communication to easily access the internal parameters to read measured data, to modify the internal configuration for a high flexibility of the application, and to calibrate the board.

Revision history

Table 1. **Document revision history**

Date	Version	Changes
16-Mar-2023	1	Initial release.