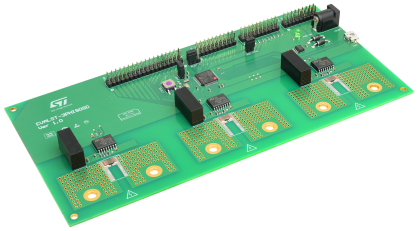
EVALST-3PHISOSD

Data brief

3-phase full shunt current meter evaluation board based on ISOSD61 and STM32F413RH



Product status link
EVALST-3PHISOSD

Features

- 3 channels current decimated samples available
- Sampling frequency and measurement bandwidth selectable
- Communication through USB in virtual COM port mode with shell commands
- 6 kV galvanic isolation between the phases with 8 mm creepage and clearance

Description

The EVALST-3PHISOSD evaluation board implements a complete 3-phase current meter with low-cost shunt current sensors.

The solution is based on the ISOSD61 device, a single channel, galvanically isolated, second order sigma-delta modulator, measuring current for each phase through a shunt current sensor. Sensing circuitry and PCB layout are optimized to maximize signal-to-noise ratio for optimal accuracy.

The ISOSD61 oversamples the signal using a clock (up to 15 MHz) distributed in a synchronized way by the microcontroller and outputs the current sigma-delta bitstreams.

The firmware embedded in the solution exploits the DFSDM filters of the STM32F413RH to convert the three bitstreams into 24-bit current data, at a selectable sampling rate.

The firmware also implements a virtual COM port communication to easily access the internal parameters to read data and to calibrate the board.

Revision history

Table 1. **Document revision history**

Date	Version	Changes
17-Oct-2022	1	Initial release.

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