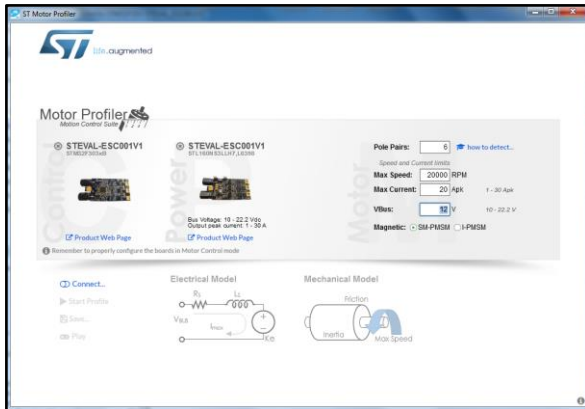


Sensorless FOC reference design firmware for STEVAL-ESC001V1

Data brief



Features

- Complete firmware package to implement sensorless field oriented control (FOC) for drone electronic speed controller (ESC), designed to work seamlessly with STEVAL-ESC001V1 board
- Algorithm embedding speed control, full active braking control and 3 shunt current reading
- ESC arming and disarming control for safety
- Auto-restart function when motor stalls
- Embedding routine to accept commands from most common flight control units through PWM signals
- Plug-in for STM32 PMSM FOC Software Development Kit - MC library for ST Motor Profiler

Description

This firmware package for the STEVAL-ESC001V1 board implements sensorless field oriented control (FOC) for drone electronic speed controller (ESC). It includes auto restart functionality when the motor stalls (e.g., blocked propeller) and the ESC arming/disarming safety measure.

The STSW-ESC001V1 firmware package is composed of three parts (see User manual UM2200): the Motor Control firmware for the STEVAL-ESC001V1, the PC software plug-in to manipulate STEVAL-ESC001V1 parameters with the ST Motor Profiler, and the project file suited for the ST Motor Control Workbench (STSW-STM32100).

A sensorless FOC algorithm drives the motor, and the firmware accepts commands from most common flight control units through PWM signals; developers can also exploit CAN, UART or I²C communication through the relative connectors on the STEVAL-ESC001V1 board.

The plug-in for the ST Motor Profiler offers real time motor parameter information to help you quickly get your drone flying.

Revision history

Table 1: Document revision history

Date	Version	Changes
13-Mar-2017	1	Initial release.
11-Aug-2017	2	Updated cover page Title, Features and Description.

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