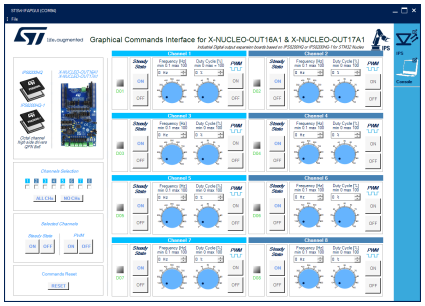
STSW-OUT16F4

Data brief

Demonstration firmware for NUCLEO-F401RE enabling STSW-IFAPGUI on X-NUCLEO-OUT16A1 and X-NUCLEO-OUT17A1 expansion boards



Product summary	
Demonstration firmware for NUCLEO-F401RE enabling STSW-IFAPGUI on X-NUCLEO-OUT16A1 and X-NUCLEO-OUT17A1 expansion boards	STSW-OUT16F4
Industrial digital output expansion board based on IPS8200HQ for STM32 Nucleo	X-NUCLEO-OUT16A1
Industrial digital output expansion board based on IPS8200HQ-1 for STM32 Nucleo	X-NUCLEO-OUT17A1
STM32 Nucleo-64 development board with STM32F401RE MCU, supports Arduino and ST morpho connectivity	NUCLEO-F401RE
Graphical user interface for the industrial IPS evaluation boards based on STM32 Nucleo	STSW-IFAPGUI
Applications	Industrial Safety Industrial Tools

Features

- Full control of the X-NUCLEO-OUT16A1 and X-NUCLEO-OUT17A1 expansion boards via the STSW-IFAPGUI graphical user interface
- Control of:
  - output channel switching frequency and duty cycle configuration
  - both SPI (8-bits w/o parity check and 16-bits with parity check) and GPIO/Parallel Control Modes management
  - both Single and Daisy Chain (only for SPI Mode) management
  - visualization of diagnostic signals
    - GPIO/Parallel Mode: case overtemperature, power good, common junction overtemperature
    - SPI Mode: case overtemperature, power good, common junction overtemperature / communication fault, per-channel overtemperature, MCU freeze

Description

The STSW-OUT16F4 firmware runs on the NUCLEO-F401RE development board and allows controlling the X-NUCLEO-OUT16A1 and X-NUCLEO-OUT17A1 expansion boards using the STSW-IFAPGUI graphical user interface.

The STSW-OUT16F4 contains the software routines that enable the USB-based communication between the NUCLEO-F401RE and the system where the STSW-IFAPGUI runs, and the control of the X-NUCLEO-OUT16A1 or X-NUCLEO-OUT17A1 expansion board.

In GPIO/Parallel Mode, the firmware can control a single expansion board. In SPI Mode, the firmware can control 8-bits or 16-bits data width and single expansion board or two stacked boards configured in daisy chaining mode.

The STSW-IFAPGUI is based on a common engine and several plug-ins designed to communicate through the USB connection with the application layer running on the NUCLEO-F401RE development board stacked with the expansion board.

Revision history

Table 1. **Document revision history**

Date	Revision	Changes
15-Oct-2024	1	Initial release.

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