

STM32 ODE function pack for building a PLC controlled via Wi-Fi

Data brief

Application	Function Pack application
Middleware	Ladder Library Wi-Fi
Hardware Abstraction	STM32Cube Hardware Abstraction Layer (HAL)
Hardware	STM32 Nucleo expansion boards X-NUCLEO-IDW01M1 (Connect) X-NUCLEO-OUT01A1 (Move/Actuate) X-NUCLEO-PLC01A1 (Move/Actuate) STM32 Nucleo development board

Description

FP-IND-PLCWIFI1 is an STM32 ODE function pack which lets you build a mini PLC and interact with it using the ST-PLC App for mobile devices or desktops.

Thanks to the provided APIs and the app available for different operating systems, the package allows managing the system and implementing several ladder logic circuits with different hardware setup.

The software runs on the STM32 microcontroller and includes drivers for the SPWF01SA Wi-Fi module, the VNI8200XP and ISO8200BQ digital output ICs, and the CTL01-38SQ7 digital input IC.

It also includes middleware layers for Wi-Fi communication and ladder logic programming.

Features

- Software package to build an industrial PLC with Wi-Fi connectivity based on industrial digital input/output ICs and Wi-Fi IC
- Middleware libraries for Wi-Fi management and ladder logic programming
- User friendly app for Android and iOS mobile devices
- Windows desktop version
- Sample implementation for X-NUCLEO-PLC01A1, X-NUCLEO-OUT01A1 (connected to a NUCLEO-F401RE board) and X-NUCLEO-IDW01M1
- Easy portability across different MCU families, thanks to STM32Cube
- Free, user-friendly license terms



Detailed description

What can you do with STM32 ODE function packs?

The STM32 ODE function packs leverage the modularity and interoperability of STM32 Nucleo and X-NUCLEO boards with STM32Cube and X-CUBE software, to create functional examples representing some of the most common use cases in each sphere of application.

These software function packs are designed to fully exploit the underlying STM32 ODE hardware and software components to best satisfy the final user application requirements.

Function packs may also include additional libraries and frameworks not present in the original X-CUBE packages, thus enabling new functions and creating more pertinent and usable systems for developers.

What is STM32Cube?

STM32Cube™ is designed by STMicroelectronics to reduce development effort, time and cost across the entire STM32 portfolio.

STM32Cube version 1.x includes:

- STM32CubeMX, a graphical software configuration tool that allows the generation of C initialization code using graphical wizards.
- A comprehensive embedded software platform specific to each series (such as the STM32CubeF4 for the STM32F4 series), which includes:
 - the STM32Cube HAL embedded abstraction-layer software, ensuring maximized portability across the STM32 portfolio
 - a consistent set of middleware components such as RTOS, USB, TCP/IP and graphics
 - all embedded software utilities with a full set of examples

How does this software complement STM32Cube?

This software is based on the STM32CubeHAL hardware abstraction layer for the STM32 microcontroller. The package extends STM32Cube by providing a board support package (BSP) for the X-NUCLEO-IDW01M1, X-NUCLEO-PLC01A1 and X-NUCLEO-OUT01A1 expansion boards.

The drivers abstract low-level hardware information to manage the expansion boards as well as the connectivity and the driving.

The package includes sample implementations that the developer can use to start experimenting with the code, a middleware library for Wi-Fi communication based on the SPWF01SA module and a middleware library for ladder logic programming.

Revision history

Table 1: Document revision history

Date	Version	Changes
15-Sep-2017	1	Initial release.

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