

Firmware package for the STEVAL-SILPLC01, featuring EtherCAT and X-CUBE-STL safety library package for STM32

Applications & demonstrations	Microcontroller configuration		STL library API
	EtherCAT top layer API	OVIUV detection	Serial communication VCOM RS485
Middleware	EtherCAT protocol stack		X-CUBE-STL library for STM32H723
Drivers	STM32Cube Hardware Abstraction Layer (HAL)	Board Support Package (BSP)	
Hardware	STM32H723VG IPS160HF CLT03-2Q3 STM802T ISOSD61 STTS751		
	STEVAL-SILPLC01		

Features

- Digital output supply voltage interruption mechanism
- Diagnostic coverage supported by a dedicated API
- Safety function management
- X-CUBE-STL self-test library certified by TÜV Rheinland according to IEC61508 (this is the only firmware component with the official certification)
- Ethernet real-time communication with the EtherCAT slave stack, which supports daisy chain node connection
- Fieldbus communication with the RS485 serial interface
- BSP libraries for the on-board IC management
- STM32 framework compliance

Product summary	
Firmware for the STEVAL-SILPLC01	STSW-SILPLC
Safety-ready industrial PLC evaluation board	STEVAL-SILPLC01
High-performance and DSP with DP-FPU	STM32H723ZGT6
Self-powered digital input current limiter	CLT03-2Q3
Single channel high-side switches	IPS160HF
61 V 2 A asynchronous step-down switching regulator	L7987L
100 V, 3 A SOD128Flat Power Schottky rectifier	STPS3H100AF
16-bit isolated Sigma-Delta modulator, single-ended and LVDS interfaces	ISOSD61
Applications	Programmable Logic Controllers (PLC)

Description

The **STSW-SILPLC** is a firmware package (not included in the TÜV Italia (TÜV SUD Group) assessment) that implements the basic functions to meet the standard requirements for a SIL2 application.

The API supports the output driving in operating mode as well as the diagnostic and the out safe state condition in case a fault event occurs, as required by the IEC61508, to guarantee the SIL2 level.

The firmware also implements undervoltage/overvoltage detection, IPS supply voltage interruption, and output disablement in case of a fault with protection activation.

Three different communication channels manage all the commands and diagnostic: the Ethernet real-time that supports the EtherCAT slave stack protocol, the RS485 with a customized serial communication, and the VCOM that uses the **ST-LINK** programmer (suggested for debug).

The application firmware supports the usage of the self-test library included in the **X-CUBE-STL** package certified by TÜV Rheinland. To access the full **X-CUBE-STL** package, contact your ST representative and sign an NDA.

Revision history

Table 1. Document revision history

Date	Revision	Changes
19-Oct-2022	1	Initial release.

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