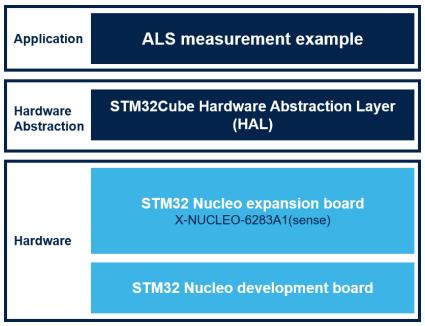
X-Cube-ALS

Data brief

Ambient light sensors (ALS) software expansion for STM32Cube



Features

- Complete software to build applications using VD6283 ambient light sensor (ALS) with light flicker extraction for X-NUCLEO-6283A1
- Several examples to show the innovative technology for the accurate light sensing capability
- Sample application to transmit real-time sensor data to a PC
- Pre-compiled binaries available on the X-NUCLEO-6283A1 board connected to a featured STM32 Nucleo development board
- Package compatible with STM32CubeMX, can be downloaded from, and installed directly into, STM32CubeMX
- Easy portability across different MCU families, thanks to STM32Cube
- Free, user-friendly license terms

Description

The X-CUBE-ALS expansion software package for STM32Cube runs on the STM32, and includes drivers and sample applications in order to perform simple ambient light sensing, or more complex tasks such as Lux or correlated color temperature (CCT) computation.

The expansion is built on STM32Cube software technology to ease portability across different STM32 microcontrollers.

The software comes with a sample implementation of the drivers running on the X-NUCLEO-6283A1 expansion boards connected to a featured STM32 Nucleo development board.

Application

The software provides sample applications:

- Simple ambient light sensing, providing light counts
- Lux and CCT computation
- Light flicker frequency extraction

Product summary	
X-CUBE-ALS	ALS software expansion for STM32Cube
X-NUCLEO-6283A1	ALS expansion boards for STM32 Nucleo
STM32 Nucleo	STM32 Nucleo development board

1 Detailed description

1.1 What is STM32Cube?

STM32Cube is a combination of a full set of PC software tools and embedded software blocks running on STM32 microcontrollers and microprocessors:

- STM32CubeMX configuration tool for any STM32 device; it generates initialization C code for Cortex-Mcores and the Linux device tree source for Cortex-A cores
- STM32CubeIDE integrated development environment based on open-source solutions like Eclipse or the GNU C/C++ toolchain, including compilation reporting features and advanced debug features
- STM32Cube Programmer programming tool that provides an easy-to-use and efficient environment for reading, writing and verifying devices and external memories via a wide variety of available communication media (JTAG, SWD, UART, USB DFU, I2C, SPI, CAN, etc.)
- STM32Cube monitor family of tools (STM32CubeMonRF, STM32CubeMonUCPD, STM32CubeMonPwr) to help developers customize their applications in real-time
- STM32Cube MCU and MPU packages specific to each STM32 series with drivers (HAL, low-layer, etc.), middleware, and lots of example code used in a wide variety of real-world use cases
- STM32Cube expansion packages for application oriented solutions

1.2 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 sensor expansion board.

The drivers abstract the hardware low-level details and allow the applications to access sensor data in a hardware-independent manner.

The package includes several sample applications that the developer can use to start experimenting with the code.

Sensor data can be logged to a file selected by the user.

The package is compatible with STM32CubeMX. It can be downloaded from, and installed directly into, STM32CubeMX, as detailed in UM1718: STM32CubeMX for STM32 configuration and initialization C code generation (freely available on www.st.com).

2 Package information

In order to meet environmental requirements, ST offers these devices in different grades of ECOPACK packages, depending on their level of environmental compliance. ECOPACK specifications, grade definitions and product status are available at: www.st.com. ECOPACK is an ST trademark.

Revision history

Table 1. **Document revision history**

Date	Version	Changes
20-May-2021	1	Initial release