

Ambient light sensors (ALS) software expansion for STM32Cube

Application	ALS measurement example
Hardware Abstraction	STM32Cube Hardware Abstraction Layer (HAL)
Hardware	STM32 Nucleo expansion board X-NUCLEO-6283A1(sense)
	STM32 Nucleo development board

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.



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

Application

The software provides sample applications:

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

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

IMPORTANT NOTICE – PLEASE READ CAREFULLY

STMicroelectronics NV and its subsidiaries (“ST”) reserve the right to make changes, corrections, enhancements, modifications, and improvements to ST products and/or to this document at any time without notice. Purchasers should obtain the latest relevant information on ST products before placing orders. ST products are sold pursuant to ST’s terms and conditions of sale in place at the time of order acknowledgement.

Purchasers are solely responsible for the choice, selection, and use of ST products and ST assumes no liability for application assistance or the design of Purchasers’ products.

No license, express or implied, to any intellectual property right is granted by ST herein.

Resale of ST products with provisions different from the information set forth herein shall void any warranty granted by ST for such product.

ST and the ST logo are trademarks of ST. For additional information about ST trademarks, please refer to www.st.com/trademarks. All other product or service names are the property of their respective owners.

Information in this document supersedes and replaces information previously supplied in any prior versions of this document.

© 2021 STMicroelectronics – All rights reserved