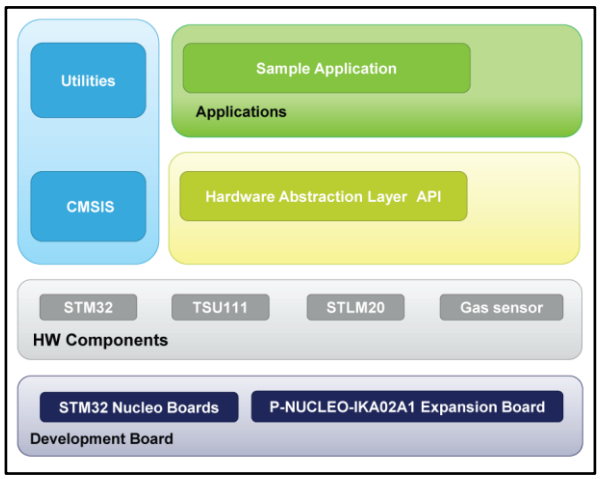
X-CUBE-IKA02A1

Electrochemical gas sensor software expansion for STM32Cube

Data brief



Features

- Complete middleware to build applications using electrochemical gas sensors with signal conditioning performed by TSU111
- Transmit real-time gas concentration readings (ppm) to a PC using serial communication
- Library uses STLM20 temperature sensor for compensation of readings over temperature range
- Easy portability across different MCU families, thanks to STM32Cube
- Low power optimization (suitable for the STM32L0 MCU family)
- Free, user-friendly license terms
- Sample implementation for the P-NUCLEO-IKA02A1 development kit

Description

The X-CUBE-IKA02A1 expansion software package for STM32Cube runs on the STM32 microcontrollers to read the analog value of gas concentration, reference voltage and the temperature from the STLM20 temperature sensor.

The software library can be used to set the appropriate sensor sensitivity and perform compensation over the temperature range.

The expansion is built on STM32Cube software technology to ease portability across different STM32 microcontrollers. It is compatible with the P-NUCLEO-IKA02A1 expansion board plugged to a NUCLEO-F401RE or NUCLEO-L053R8 development board.

The software comes with a sample project to help you get started.

1 Detailed description

What is STM32Cube

STMCube™ represents and original initiative by STMicroelectronics to help developers by reducing development effort, time and cost. STM32Cube covers the STM32 portfolio.

Version 1.x of STM32Cube includes:

- The STM32CubeMX, a graphical software configuration tool that allows the generation of C initialization code using graphical wizards
- A comprehensive embedded software platform, delivered per series (such as STM32CubeF4 for the STM32F4 series)
  - The STM32Cube HAL, an STM32 abstraction layer embedded software, ensuring maximized portability across the STM32 portfolio
  - A consistent set of middleware components such as RTOS, USB, TCP/IP, graphics
  - All embedded software utilities, including a full set of examples

How does this software complement STM32Cube?

The proposed 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 analog expansion board.

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

The package includes a sample application that developers can use to start experimenting with the code. The sample application enables analog data logging on a PC through the serial communication driver.

2 Revision history

Table 1: Document revision history

Date	Version	Changes
19-Jul-2017	1	Initial release.

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