

# ST High Speed Datalog: a comprehensive multi-sensor data capture and visualization toolkit



## High Speed Datalog



### Features

- High-rate (up to 6 Mbit/s) data capture software suite:
  - Python and C++ real-time control and data analysis
  - Dedicated Python SDK, ready-to-use for integration into any data science design flow
  - Compatible with [STBLESensor](#) app for system setup and real-time control
  - Able to configure and enable [ISM330DHCX](#) and [LSM6DSV16X](#) machine learning core unit and [ISM330IS](#) intelligent sensor processing unit (ISPU)
  - Synchronized timestamping and labeling mechanisms common to all sensors
- Generic FFT library middleware to enable frequency domain analysis for any kind of sensor through fast Fourier transform (with programmable size, overlapping, and windowing)
- AzureRTOS: ThreadX, FileX, USBX
- Easy portability across different MCU families, thanks to STM32Cube
- Firmware modular examples based on eLoom (embedded light object oriented framework for STM32) to enable code reusability at application level
- Free, user-friendly license terms

### Description

The ST High Speed Datalog ([FP-SNS-DATALOG2](#)) is a comprehensive multisensor data capture and visualization toolkit, engineered to facilitate the development of embedded data science applications.

The tool has been designed as an open and modular instrument, tailored for data scientists and embedded designers, that streamlines the capture of wideband and heterogeneous digital data streams from a variety of sensing and actuation platforms.

It organizes the data into structured datasets that are readily compatible with mainstream data science toolchains, fostering reusability across multiple projects.

ST High Speed Datalog, by virtue of its data-centric design and user-friendly Python SDK, may run with hardware boards that supply real-time data streams empowering users with full control of the data acquisition process.

The included firmware is compatible with the [STBLESensor](#) app, which also lets you manage the board and sensor configurations, start/stop data acquisition on SD card, and control data labeling. Sensor data can also be streamed using a C++-based companion host software or can be stored onto a microSD™ card.

Via the host PC and Bluetooth® Low Energy app, it is possible to configure the [ISM330DHCX](#) and the [LSM6DSV16X](#) machine learning core unit (MLC) and the [ISM330IS](#) intelligent sensor processing unit (ISPU) to read the output of the selected algorithm.

The [FP-SNS-DATALOG2](#) firmware can run on [STEWAL-STWINBX1](#), [STEWAL-STWINKT1B](#), [STEWAL-MKBOXPRO](#), [B-U585I-IOT02A](#), and [X-NUCLEO-IKS02A1](#) with [NUCLEO-U575ZI-Q](#) or with [NUCLEO-H7A3ZI-Q](#).

#### Product summary

ST High Speed Datalog	<a href="#">FP-SNS-DATALOG2</a>
STWIN.box	<a href="#">STEWAL-STWINBX1</a>
STWIN	<a href="#">STEWAL-STWINKT1B</a>
SensorTile.box PRO	<a href="#">STEWAL-MKBOXPRO</a>
Presence detection add-on for STWIN.box	<a href="#">STEWAL-PDETECT1</a>
Firmware runs on:	<a href="#">STM32U585AII6Q</a> , <a href="#">STM32U575ZIT6Q</a> , <a href="#">STM32H7A3ZI</a>
FW development environments	- Keil - IAR Embedded Workbench - <a href="#">STM32CubeIDE</a>
Other utilities	<a href="#">STBLESensor</a> mobile Android/iOS app
Applications	<a href="#">Condition Monitoring / Predictive Maintenance</a> <a href="#">Sensing</a>

ST high Speed datalog also natively supports [STEVAL-PDETECT1](#), [STEVAL-C34KAT1](#), [STEVAL-C34KAT2](#), [STEVAL-C34KPM1](#), [STEVAL-C34DIL24](#) and [STEVAL-MKI230KA](#) add-ons for the [STEVAL-STWINBX1](#).

The ST High Speed Datalog is part of the ST Edge AI suite, which is an integrated collection of software tools, designed to facilitate the development and deployment of embedded AI applications.

This comprehensive suite supports both optimization and deployment of machine learning algorithms and neural network models, starting from data collection to final deployment on hardware, streamlining the workflow for professionals across various disciplines.

The ST Edge AI suite supports various ST products: STM32 microcontrollers and microprocessors, Stellar microcontrollers and MEMS smart sensors.

The ST Edge AI suite represents a strategic move to democratize edge AI technology, making it a pivotal resource for developers looking to harness the power of AI in embedded systems efficiently and effectively.

The software is also available on [GitHub](#), where the users can signal bugs and propose new ideas through [\[Issues\]](#) and [\[Pull Requests\]](#) tabs.

## Revision history

**Table 1. Document revision history**

Date	Revision	Changes
24-Jan-2023	1	Initial release.
01-Mar-2023	2	Updated Description.
03-Apr-2023	3	Updated Title, Features and Description in cover page. Updated Product summary.
19-Jun-2023	4	Updated cover image, description and product summary.
20-Sep-2023	5	Updated cover image, product summary and description in cover page.
07-Mar-2024	6	Updated Product summary in cover page and Description.
01-Jul-2024	7	Updated Title, Cover image, Product summary and Description.

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