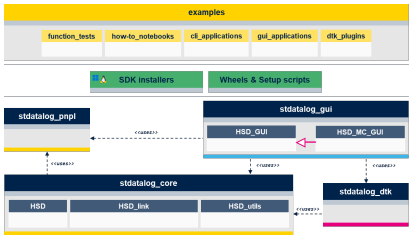
STDATALOG-PYSDK

Data brief

Python software development kit (SDK) for data logging: complete toolkit with extensive examples for developers



Product summary	
Python software development kit (SDK) for data logging: complete toolkit with extensive examples for developers	STDATALOG-PYSDK
ST High Speed Datalog: a comprehensive multi-sensor data capture and visualization toolkit	FP-SNS-DATALOG2
STM32Cube Function Pack for high-speed datalogging of sensors data and motor control telemetries	FP-IND-DATALOGMC
STM32Cube High Speed Datalog function pack	FP-SNS-DATALOG1
Applications	IoT for smart industry/Sensing/ Industrial motor control

Features

- Compatible with FP-SNS-DATALOG2, FP-IND-DATALOGMC, and FP-SNS-DATALOG1 (no GUI)
- Datasets creation:
  - GUI: Intuitive visual interface tool
  - TUI: text-based user interface tool for automation and integration in other software
- Datasets management:
  - Datasets validation utility
  - Set of data format conversion examples (txt, csv, tsv, parquet, HDF5)
  - Data visualization examples for better insights
  - Interactive data segmentation and labeling example
- Creation of customized data collection software:
  - Configurable sensors and firmware parameters
  - Customizable live-data display
  - Data acquisition and tagging control
- Customizable data processing pipeline:
  - Flexible plugin-based architecture
  - Tutorials and example plugins are provided
- Tutorials and documentation
  - Detailed guides to help users master the SDK
  - Example code templates for a quick start and reference

Description

The STDATALOG-PYSDK is a comprehensive Python framework designed to facilitate the capture, processing, and visualization of data from a wide range of sources, including sensors, algorithms, simulated signals, and telemetries from actuators.

This software development kit is designed with an open and modular architecture, making it an excellent resource for data scientists and embedded designers.

It provides a range of tools and utilities designed to simplify the development of applications that use data from ST system solutions.

It includes Python scripts to create, elaborate, and organize data into structured datasets. These datasets are compatible with mainstream data science toolchains, promoting reusability across multiple projects. Additionally, the scripts can be easily integrated into any data science design workflow.

The STDATALOG-PYSDK is structured into four distinct Python packages, each serving a specialized purpose: the stdatalog-core, stdatalog-dtk, stdatalog-gui, and the stdatalog-pnpl.

Central to the STDATALOG-PYSDK is the stdatalog-core package which handles crucial tasks such as datasets creation, conversion, and visualization. It also manages USB communication to retrieve connected board information and data, set target properties, and control the data acquisition process. Additionally, it oversees error management and application log messages, ensuring smooth and reliable operation.

The stdatalog-gui package provides a set of graphical widgets useful to display live data streams, configure, and show connected device parameters and manage data collection.

These widgets are the basic building blocks for creating interactive graphical user interfaces (GUIs) to manage datalog applications and devices configurations.

The stdatalog-pnpl package is used to manage device template models, which are high-level descriptors of the (board + firmware) system. It facilitates the creation and dynamic management of the commands-set that can be exchanged between target devices and the SDK.

This feature is particularly useful for developers who need to customize and integrate various devices into their projects, ensuring seamless communication between the devices and the SDK.

The stdatalog-dtk package provides a Python framework called DataToolkit. It is designed to simplify the development of applications using data from ST sensors, providing complete hardware abstraction, making it easier to handle real-time data from connected ST system solutions or stored datasets.

It complements and is natively compatible with FP-SNS-DATALOG2, FP-IND-DATALOGMC, and FP-SNS-DATALOG1 (no GUI).

Revision history

Table 1. **Document revision history**

Date	Revision	Changes
07-Jan-2025	1	Initial release.