

Trend API Example



The "Trend API Example" demonstrates how the `VisuTrendStorageAccess` library provides function blocks for reading trend data. This document illustrates how to use the library.

Product description

The sample project included in the CODESYS "TrendAPIExample.package" demonstrates how trend data can be read by means of the `VisuTrendStorageAccess` library. In this example, trend data is saved by the trend recording manager and then read as ST code by the `VisuTrendStorageAccess` API. In addition to querying historical data, active messaging is also possible when saving new data. The trend data can then be exported (example: CSV file) for later processing by other applications, for example by using the "CSV Utility" from the CODESYS Store.

Range of functions

In the sample project "TrendStorage API Example.project", four tasks are defined.

- The "Standard task" calls the PLC_PRG program for simulating data.
- The simulated data is saved to the database by the "TrendRecordingTask" and the Trend Recording Manager.
- The "VISU_TASK" is responsible for updating the visualization.
- The actual reading of trend data is performed by "Task200ms", the "TrendStorageAPI_TestProg" program, and the "TrendStorageReader" function block.

The `ITrendStorageWriterListener` interface is used for active messaging of new data. For this purpose, the `TrendStorageWriterListener` function block implements the `ITrendStorageWriterListener` interface and is registered for the `TrendStorageReader` function block. If new data has been saved, then the `DataWritten` method is called with the start and end time stamps and the number of saved data records.

The `TrendStorageReader` and the `Read` method is used for searching for data records.

```
eError2 := instTrendStorageReader.Read(  
    liTimestampFrom      := liTimestampFrom2,  
    liTimestampTo        := liTimestampTo2,  
    itfTrendStorageReaderConsumer := instTrendStorageReaderConsumer);
```

The `TimeStampRead` and `ValueRead` methods are then called automatically for each value. In the example, the `TrendStorageReaderConsumer` function block implements the `ITrendStorageReaderConsumer` interface and writes the values to the controller console in CSV format. If the size of the returned data would block the database too long, then `ETrendStorageReaderErrors.AdditionalReadCallRequired` is returned as error code and the read process must be continued at a later time by calling the `ContinueReading` method with the same parameters.

Description of the visualization

The simulated signals are displayed in a trend element in the upper area of the visualization.

- The minimum and maximum time stamps of the trend data are displayed in the "Min/Max Time" tab (see Figure 1).
- The current values of the `DataWritten` method are displayed in "New Data" (see Figure 2).
- Values are searched in the "Read Values" tab (see Figure 3).

The start time stamp is displayed in the upper field and the end time stamp in the lower field. The "Compute timestamps" button converts the specified data into the corresponding time stamp (reverse function: "Compute date/time"). Then the search can be started by clicking the "Read Trend Storage" button. Clicking "Stop Reading" will cancel the read process. If the "Detailed output" button is active, then the data is printed to the controller console (do not start CODESYS Control Win V3 via SysTray). Otherwise, the number of data records is displayed in the "count rows" field.

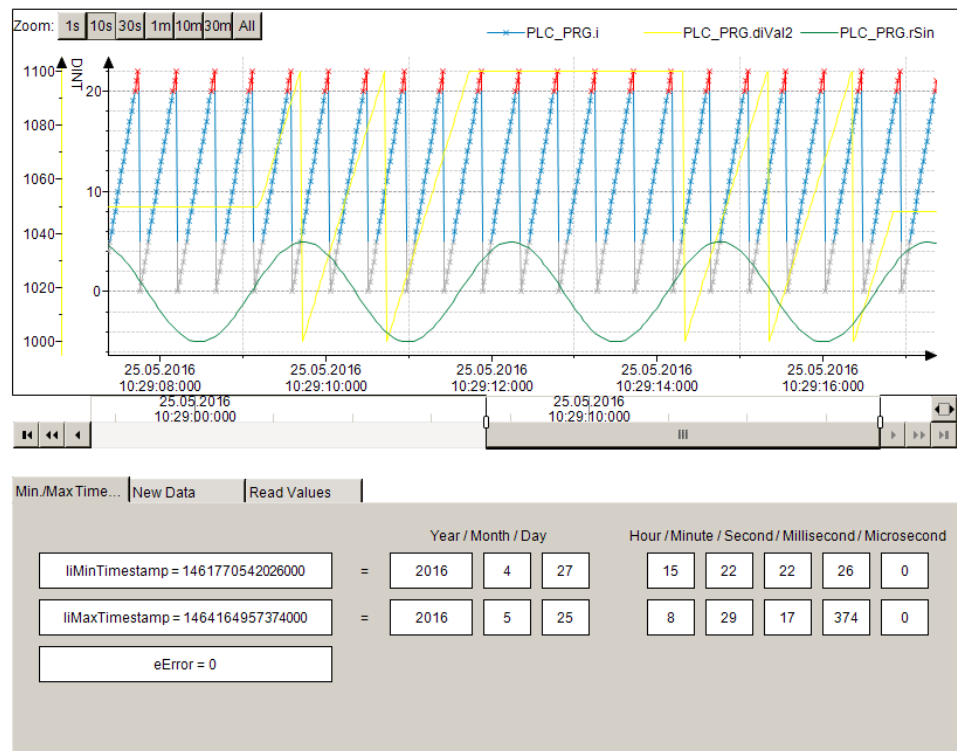


Figure 1: Tab "Min/Max Time"

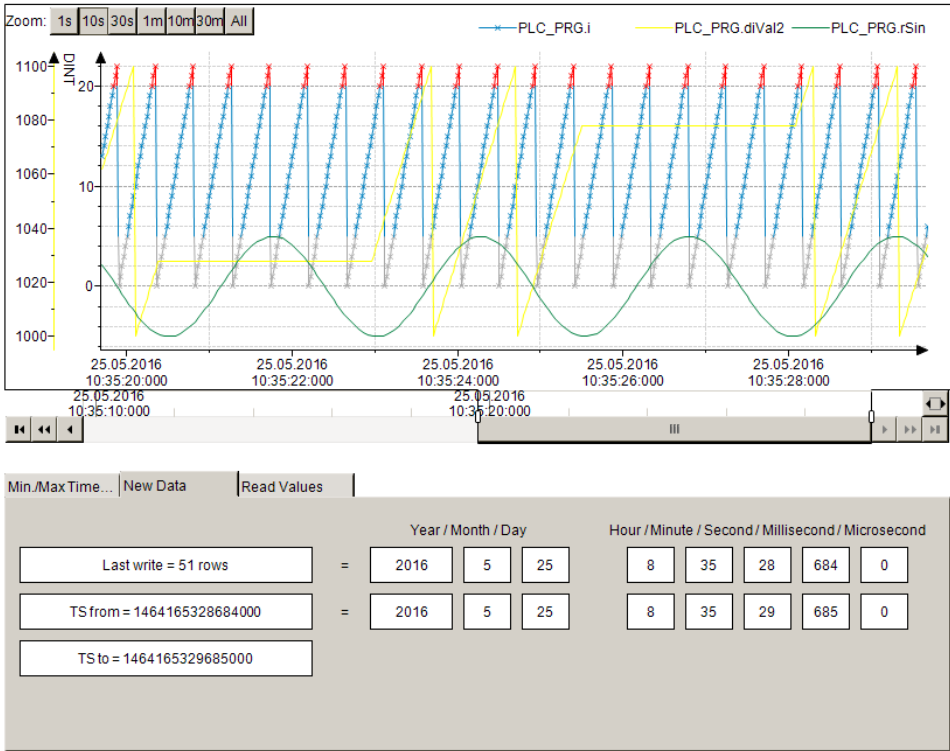
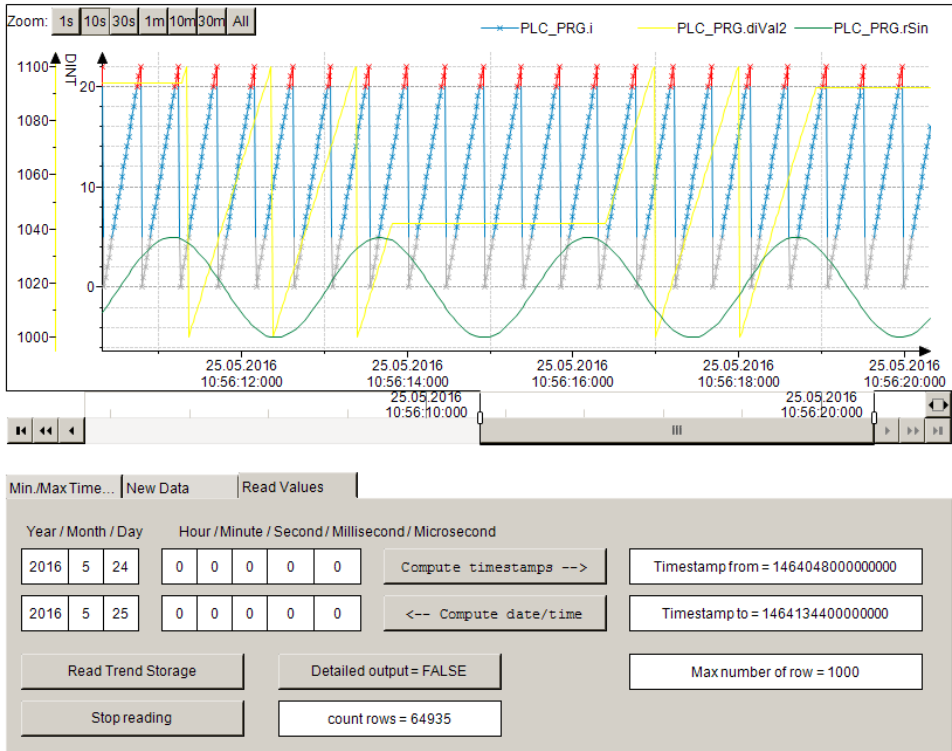


Figure 2: Tab "New Data"



Tab 3: Tab "Read Values"

General information



Manufacturer	3S-Smart Software Solutions GmbH Memminger Strasse 151 87439 Kempten Germany
Support	Tel: +49 831 54031 66 support@codesys.com
Item	Trend API Example
Item number	000078
Sales	CODESYS Store store.codesys.com
Included in delivery	CODESYS package with sample project

System requirements and restrictions

Programming system	CODESYS Development System V3.5.8.0 or later
Runtime system	CODESYS Control V3.5.8.0 or later
Supported platforms and devices	All Note: Use the "Device Reader" project for locating the functions supported by the PLC. The "Device Reader" project is available in the CODESYS Store free of charge.
Additional requirements	-
Restrictions	-
Licensing	-
Required accessories	-