SVScout

## The Engineers' and Developers' Tool for Visualizing Sampled Values

Key Features

- Simultaneous investigation of multiple Sampled Values streams

- Calculation of RMS values and phase angles (phasors)

- Display of phasor diagram

- Recording of Sampled Values in COMTRADE format

- Printable reports summarizing the essential information from a measurement

- Detailed information about a selected SV stream (zero crossings, individual values, etc.)

- Analysis of the time distribution and jitter of data packets (SVScout Enhanced)

- Special network adapter for highly accurate and time synchronized packet capture (SVScout Enhanced)

Visualize IEC 61850 Sampled Values

SVScout is a measurement and testing tool for protection engineers and IED developers working with IEC 61850 Sampled Values. It subscribes to the Sampled Values streams from one or multiple merging units and displays the waveforms of the primary voltages and currents in an oscilloscope view. Individual values on the traces can be looked up and compared with each other.

The functionality of SVScout covers many different tasks reaching from the simple display of Sampled Values streams to the detailed investigation of a merging unit's performance. For example, the software can be used for commissioning or for evaluating and developing of IEDs.
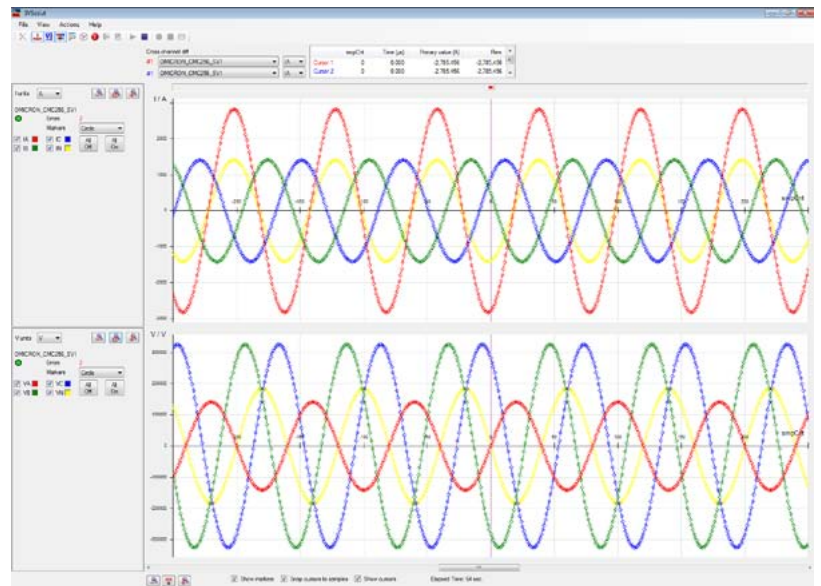
SVScout supports Sampled Values according to the implementation guideline of the UCA International Users Group with 80 samples per cycle.

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## Application: Merging Unit Testing

Testing of a merging unit and in particular it's time synchronization is a challenging task. The CMC test set is time synchronized and generates analog voltages and currents, which are accurately defined in magnitude and phase. SVScout captures the Sampled Values from the merging unit for a detailed assessment of the conversion performance. For a comparison of the generated and measured values, SVScout can also subscribe to the Sampled Values of the test set and display them as a reference.
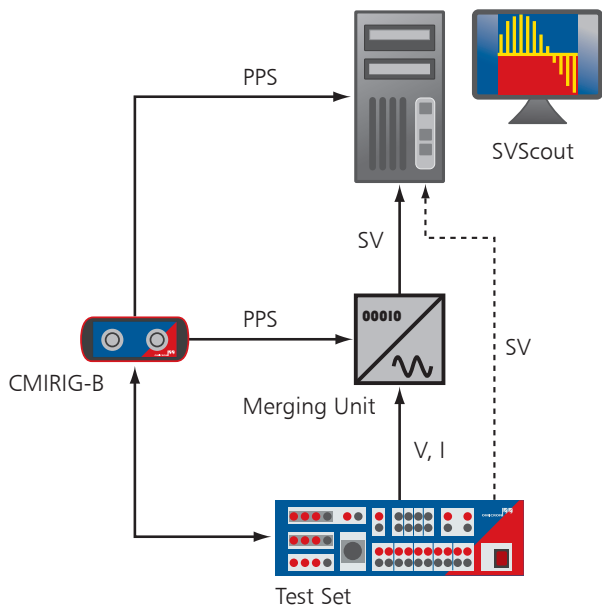
Preferred setup for testing merging units with a CMC test set serving as time master

Phasor Diagram

RMS values and phase angles are calculated from the Sampled Values and displayed in a phasor diagram and a table. The reference for the phase angles is selectable.
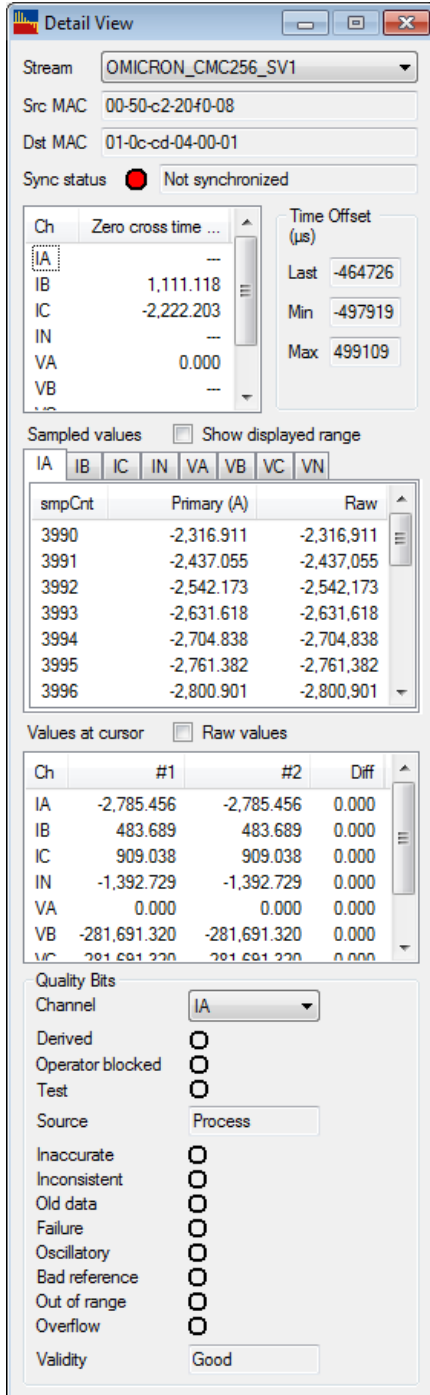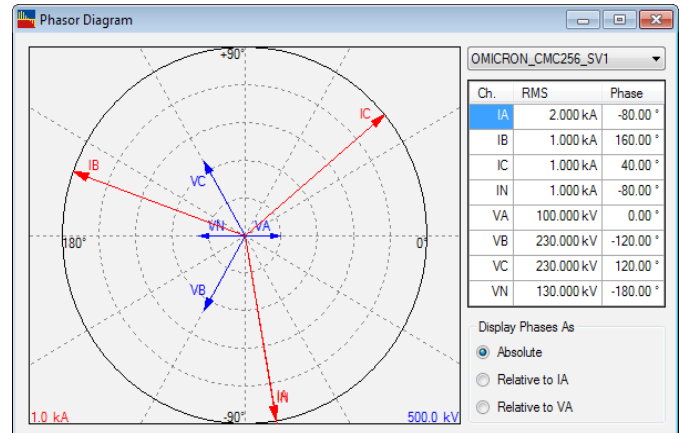

Recording

Captured Sampled Values can be saved to COMTRADE or PCAP files for in-depth offline evaluation or documentation.

Reports

Reports summarize the essential information from a measurement. They contain all information and results provided in the individual views for each captured Sampled Values stream. Additionally other data such as basic settings from the configuration and stream information are included. Printing of reports can be initiated directly from the report window.

Detail View

The Detail View provides additional information about a selected Samples Values stream and its individual channels. This includes the zero crossings of specific channels, values for individual samples, and the decoded quality information.


Timing Analysis

SVScout accurately measures the time distribution and the jitter of the data packets on the network. The Timing Analysis consists of a set of histograms for the selected Sampled Values stream. The Packet Delay histogram shows the distribution of the times between the Sampled Values packages. In the Time Offset histogram the time from the theoretical sampling time to the reception of the corresponding package is displayed.
(The Timing Analysis functions are available in SVScout Enhanced)
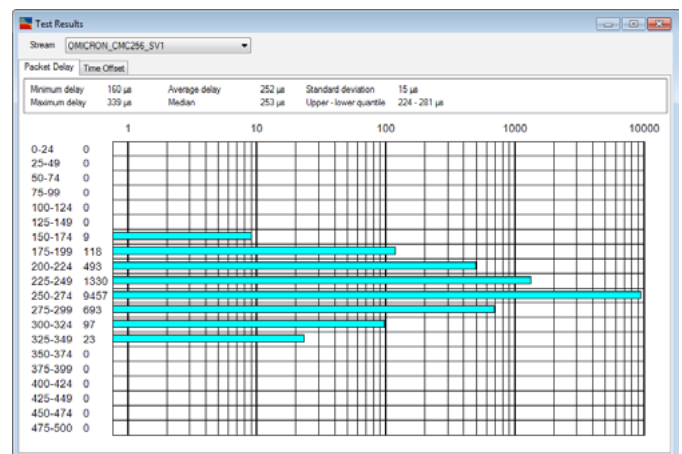
Configuration

The comprehensive and flexible features of SVScout can be configured in detail with the following settings:

Network	Sources of the Sampled Values to be processed by SVScout.
Application	General parameters for the interpretation and scaling of the Sampled Values.
Recording	Data format, file name, and file location of recordings.
Report	Headings, fonts and logo image for customizable test reports.
Histograms	Parameters for displaying and calculating the timing statistics.
Expert	Settings for the Detail View and the determination of zero crossings.

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Enhanced Version

In addition to the standard version of SVScout OMICRON alternatively offers SVScout Enhanced. This version works in combination with a special PCI-Express network adapter which assigns highly accurate time stamps to the captured packets. With this adapter statistical evaluations of the packet timing can be performed. When used with a normal network adapter, the time tags are not accurate enough for such evaluations, therefore these functions are disabled.

The special network adapter can also be synchronized with the same pulse per second signal (PPS) that is used for synchronizing the merging unit. So not only the relative timing of the packets, but also the absolute delay from the theoretical sampling time can be measured.

The included network adapter is equipped with SFP modules to provide physical interfaces for different media (10/100/1000BASE-T, 1000BASE-LX, 1000BASE-SX). Two of these SFP modules are included in the Enhanced Version, their specific type is selectable. If no type is specified, 10/100/1000BASE-T will be delivered by default. Additional SFP modules can be ordered separately.

Special network adapter included in SVScout Enhanced

Ordering Information

SVScout Packages	
VESC1510	SVScout Standard
VESC1511	SVScout Enhanced (with special network adapter)

Accessories	
VEHZ1110	SFP module 10/100/1000BASE-T
VEHZ1111	SFP module 1000BASE-LX
VEHZ1112	SFP module 1000BASE-SX
VEHK0659	Coaxial cable MCX-BNC with integrated attenuator

Free Evaluation Version

A free evaluation version of SVScout can be downloaded from the OMICRON website:

http://www.omicron.at/svscout

The evaluation version has no time limit and can be installed on as many PCs as desired. Compared to the full version, the following features are restricted or disabled:
• Display of Sampled Values (one Sampled Values stream)
• Detail View
• Saving of COMTRADE/PCAP files
• Timing Analysis
• Test Reports
• Saving / loading of configuration