

SVScout

The Engineers' and Developers' Tool for Visualizing Sampled Values

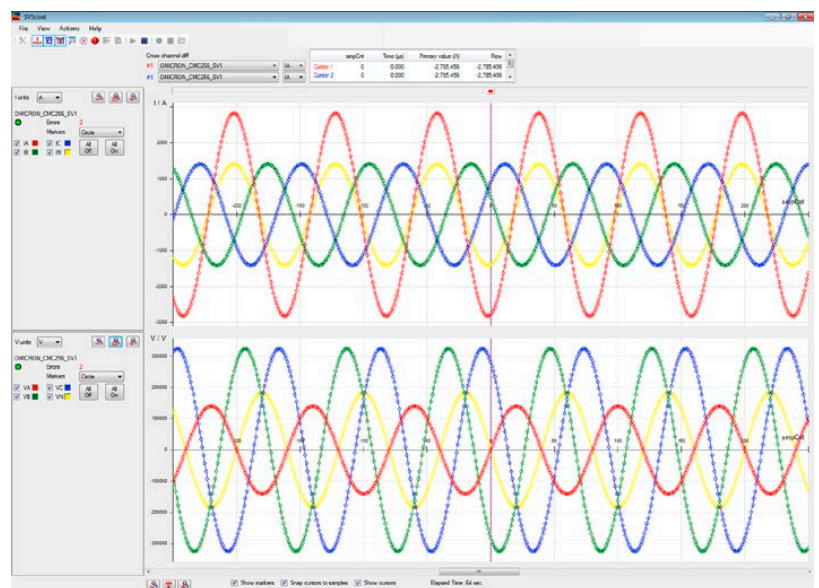
Key Features

- Support of established 9-2LE as well as new IEC 61869-9
- 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)
- Support of Windows 7, Windows 8.1 and Windows 10
- Play from capture possible
- PCAP injection
- Support of IEEE 1588 (PTP)

Visualize Sampled Values

SVScout is a measurement and testing tool for protection engineers and IED developers working with Sampled Values according to IEC 61850 and IEC 61869-9. 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.

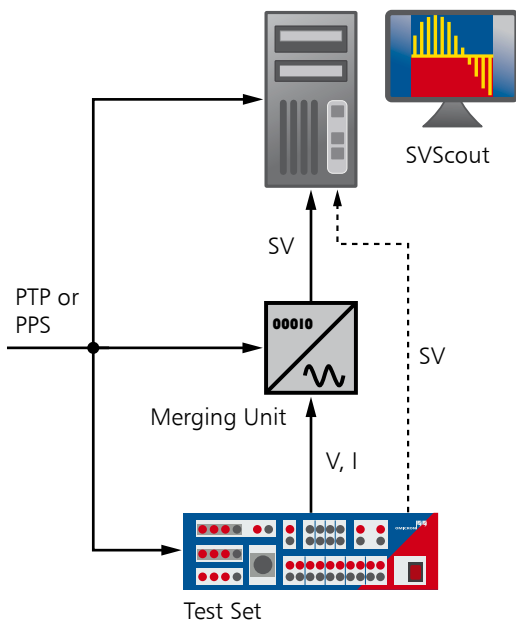
The functionality of SVScout covers many different tasks reaching from the simple display of Sampled Values streams to the detailed investigation of a merging unit's performance. For example, the software can be used for commissioning or for evaluating and developing of IEDs.



SVScout supports Sampled Values according to the implementation guideline of the UCA International Users Group with 80 or 256 samples per cycle as well as DataSet recommended in IEC 61869-9.

Application: Merging Unit Testing

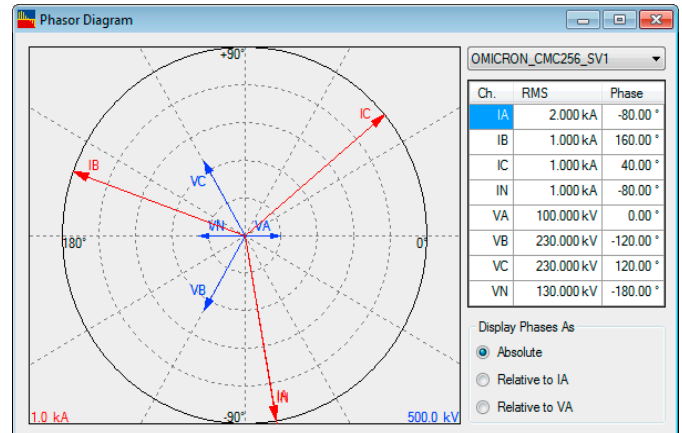
Testing of a merging unit and in particular its time synchronization is a challenging task. The CMC test set is time synchronized and generates analog voltages and currents, which are accurately defined in magnitude and phase. SVScout captures the Sampled Values from the merging unit for a detailed assessment 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

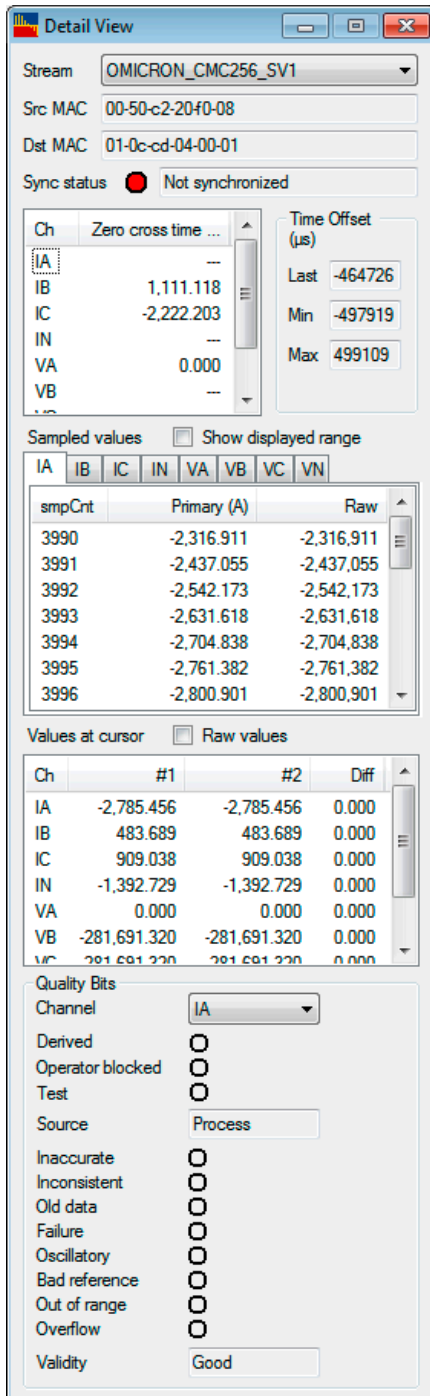
Captured Sampled Values can be saved to COMTRADE or PCAP files for in-depth offline evaluation or documentation.

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. The simulation indication as defined in IEC 61850 Ed. 2 is also visualized.



Stream: OMICRON_CMC256_SV1

Src MAC: 00-50-c2-20-f0-08

Dst MAC: 01-0c-cd-04-00-01

Sync status: Not synchronized

Ch	Zero cross time ...	Time Offset (us)
IA	---	Last -464726
IB	1,111.118	Min -497919
IC	-2,222.203	Max 499109
IN	---	
VA	0.000	
VB	---	

Sampled values Show displayed range

IA	IB	IC	IN	VA	VB	VC	VN
smpCnt							
	Primary (A)		Raw				
3990	-2,316.911		-2,316.911				
3991	-2,437.055		-2,437.055				
3992	-2,542.173		-2,542.173				
3993	-2,631.618		-2,631.618				
3994	-2,704.838		-2,704.838				
3995	-2,761.382		-2,761.382				
3996	-2,800.901		-2,800.901				

Values at cursor Raw values

Ch	#1	#2	Diff
IA	-2,785.456	-2,785.456	0.000
IB	483.689	483.689	0.000
IC	909.038	909.038	0.000
IN	-1,392.729	-1,392.729	0.000
VA	0.000	0.000	0.000
VB	-281,691.320	-281,691.320	0.000
VC	281,691.320	281,691.320	0.000

Quality Bits

Channel: IA

Derived:

Operator blocked:

Test:

Source: Process

Inaccurate:

Inconsistent:

Old data:

Failure:

Oscillatory:

Bad reference:

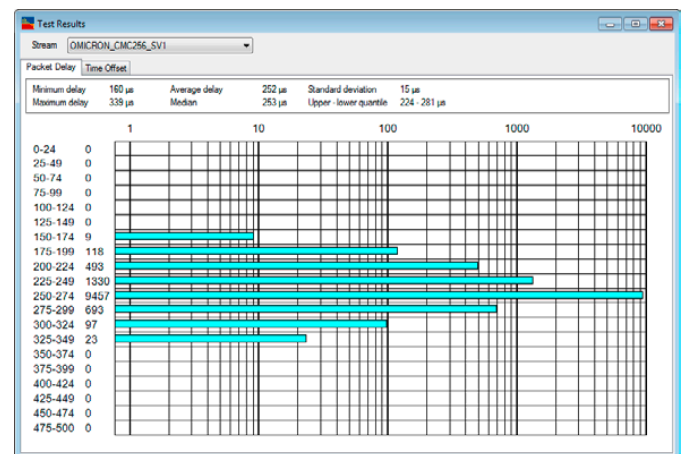
Out of range:

Overflow:

Validity: Good

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.

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	
VEESC1510	SVScout Standard
VEESC1511	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

For more information, additional literature, and detailed contact information of our worldwide offices please visit our website.