

Process Bus Experience Pack

Productsheet

A complete process bus test bench in a flight case. Digitize real analogue signals or simulate them in software, publish multiple IEC 61850 Sampled Values streams, run a PTP grandmaster, and derive synchro phasor data from the same measurements. **Everything you need to work with process bus, without building a substation or touching a live installation.**

WHAT'S INSIDE

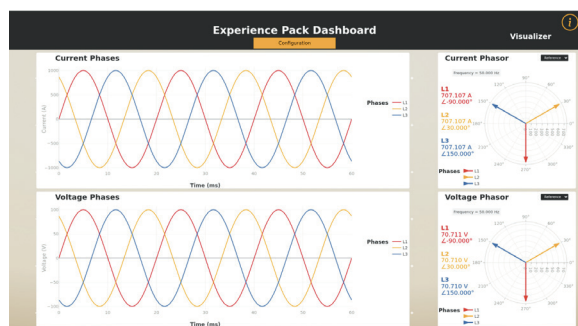
- Rugged flight case, pre-configured and ready to use: industrial PC (IPC), LCD touch display, keyboard and mouse.
- CMS and VMS merging sensors for digitizing analogue current and voltage signals. Both IEC 61850 certified by DNV and designed to IEC 61869-13.
- Virtual Merging Application to publish Sampled Value streams, either from the CMS and VMS digitized values or from fully simulated sources
- PMU function that derives synchro phasors from the Sampled Value streams and publishes them over IEEE C37.118.2

INCLUDED SOFTWARE & INTERFACES

- Software PTP clock for the Experience Pack itself or as grandmaster for connected IEDs and lab equipment
- Dashboard on the IPC showing RMS values, phase angles, phasor diagrams and stream status for quick validation
- Ethernet ports for process bus output and Experience Pack management

SEE WHAT THE PACK IS DOING

Live visualisation



Sampled Value Stream Simulator

The Sampled Value Stream Simulator configuration screen shows three columns for different stream configurations (Stream 1, Stream 2, Stream 3). Each column contains a table of parameters for the stream, including Sd, ApId, Van, Frequency, and 3-Phase current/voltage values.

Stream 1 Configuration		Stream 2 Configuration		Stream 3 Configuration	
Format	F60007604	Format	F60007604	Format	F60007604
Sd	EP_masm1	Sd	EP_masm2	Sd	EP_masm3
ApId (Decimal)	16384	ApId (Decimal)	16384	ApId (Decimal)	16384
Van (Decimal)	0	Van (Decimal)	0	Van (Decimal)	0
Van Priority	4	Van Priority	4	Van Priority	4
Frequency [Hz]	50	Frequency [Hz]	50	Frequency [Hz]	50
3-Phase current [A]	1000	3-Phase current [A]	1000	3-Phase current [A]	1000
Neutral current [A]	1	Neutral current [A]	1	Neutral current [A]	1
3-Phase voltage [V]	100	3-Phase voltage [V]	100	3-Phase voltage [V]	100
Neutral voltage [V]	0.1	Neutral voltage [V]	0.1	Neutral voltage [V]	0.1

HOW ENGINEERS USE IT

Process bus knowledge is hard to build on a live grid. Test windows are short, mistakes are expensive, and the equipment you need to learn is the equipment you are not allowed to experiment with. The Experience Pack removes those constraints: it behaves like a real process bus segment, on a desk, with every parameter under your control.

01. Training and skill building

Sampled Values, PTP and stream configuration become visible and clear. Engineers can set a parameter wrong, see the consequences, and correct it. Nothing is at risk.

02. Interoperability testing

Subscribe your own IED to the Experience Pack's SV streams, or take the Experience Pack's clock as the time source. Verify SV profile, SvID, AppID, VLAN ID and priority, sample rate and PTP profile combinations before you commit them to a site design.

03. Troubleshooting and root cause work

Reproduce a field problem in a controlled setting. Change stream parameters, break the time synchronization, shift phase angles, and observe exactly how the subscribing device responds.

04. Evaluating what comes next

Assess synchro phasor output and centralized processing of Sampled Values on your own terms, before committing to a rollout.

SIGNALS, STREAMS AND TIME

Sampled Values

9-2 LE and IEC 61869-9 profile variants, from digitized analogue inputs or from simulated sources. Connect a process simulator such as Omicron or Doble to the CMS and VMS or work entirely without physical sources. IEC 61850-9-2 LE | IEC 61869-9

Time synchronisation

The integrated software PTP clock supports the IEEE 1588-2008 default, IEEE C37.238-2017 power and IEC 61850-9-3 utility profiles. It participates in the Best Master Clock Algorithm (BMCA), so you can observe grandmaster election and failover - not just consume a time signal. IEEE 1588-2008 | IEEE C37.238-2017 | IEC 61850-9-3

Synchrophasors

The PMU function derives synchro phasors, frequency and ROCOF from the same Sampled Value data and publishes them over IEEE C37.118.2. Measurement definitions follow IEC/IEEE 60255-118-1. This lets you test a PMU data path end to end, from analogue input through the process bus to a synchro phasor client. IEEE C37.118.2 | IEC/IEEE 60255-118-1

Build to be updated

The Experience Pack is software-upgradeable. New functions, profile support and improvements are installed as updates, without new hardware, so the pack keeps pace with our development instead of ageing on a shelf.

Your feedback shapes it

Owners are close to what we build next. What you run into on the bench feeds directly into our backlog, and we would rather hear that a function is awkward than find out later onsite.

Request a proposal

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