

SAM600 1.1 Release Note

SAM600 process bus I/O system: Enabling the digital substation



SAM600 process bus I/O system make substations safer and easier to upgrade and simplify operations and maintenance through a substation's entire life cycle. SAM600 interfaces conventional instrument transformers and can integrate with non-conventional instrument transformers as well, thus bringing the advantages of digital substations to new and existing installations.

The modularity of SAM600 systems allow for a broad application coverage. Built for the harshest environments, SAM600 modules can be placed alongside primary equipment in the switchyard, collecting information directly from the source and converting it into IEC 61850-9-2 digital format.

Kind regards,

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Benefits

Discover the full range of benefits below:

Safety

- As the high-voltage termination is moved to the field, maintenance and upgrade activities on the secondary system side on the protection and control panels are safe to execute.
- Easy to maintain and replace without switching off the complete bay.

Outage time reduction during retrofit upgrades and maintenance

- Process bus systems with optical cables is placed on-site while the old system is still in service. Service interruption window can be shortened when switching from old to new.
- Safe maintenance and upgrades on protection and control panels as the electric-to-digital interface is placed in field. Higher degree of supervision allows to switch to preventive maintenance schemes.

Cost-savings

- Pre-engineered, pre-fabricated and tested building blocks of SAM600 kiosks can be easily deployed. Possibility to late project changes and reduced risk on cable engineering, as process bus communication relies on IEC 61850. Testing and verification becomes more automated, thus reducing effort and equipment.

Easy to extend, limited number of spare parts

- Modular product design optimally adapts to any application. Possible to integrate into primary switchgear

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SAM600 system

	Feature	Benefit
Housing	Closed housing if mounted horizontally	Protected against splash water
HMI	Operational LEDs at the front	Device status visible directly when opening panel door
Synchronization	<ul style="list-style-type: none"> – Synchronization via IEEE1588 (profile IEC 61850-9-3) – Synchronization via 1PPS (optional) – SAM600-TS module optional in system design 	<ul style="list-style-type: none"> – Native synchronization to IEEE1588 clocks or between SAM600 systems > No additional synchronization cabling required – Interface with existing master clocks providing 1PPS – Suitable solution to system requirements
Application	IEC 61850-9-2 stream bridging with any communication port in a SAM600 system	<ul style="list-style-type: none"> – More flexibility in communication architecture design – Reduced need for switches

SAM600-CT

	Feature	Benefit
Cabling	Cabling is terminated at feed-through terminals	Simplified device maintenance
Measurements	<ul style="list-style-type: none"> – Measurement range between 0 and 70x In – Precision measurement accuracy across measurement and operating temperature range 	<ul style="list-style-type: none"> – Coverage of transmission level applications – Applicable for sensitive applications, such as differential or transformer protection

SAM600-VT

	Feature	Benefit
Measurements	<ul style="list-style-type: none"> – 4 measurement channels available – Measurement range from 0 to 2.8x Un (400V RMS) – Precision measurement accuracy across measurement and operating temperature range 	<ul style="list-style-type: none"> – Independent measurement of neutral voltage extends the use cases to generator protection applications – Coverage of transmission level application – Applicable for sensitive applications, such as differential or transformer protection

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SAM600-TS

	Feature	Benefit
Communication	Two LC communication ports	Enables standard connectivity, e.g. to IEC 61850 station bus, with built-in LC connectors
Time synchronization	<ul style="list-style-type: none"> — Supports IEEE 1588 according to IEC 61850-9-3 profile — Time synchronization with 1PPS in and 1PPS out — SAM600-TS module is optional 	<ul style="list-style-type: none"> — Compliance to standard protocol IEC 61850 for interoperability of the components — Support of existing devices with 1PPS synchronization — Suitable solution to system requirements

SAM600 system configuration

	Feature	Benefit
Configuration	SAM600 configuration with proven PCM600 configuration tool	Easier configuration with one common tool for ABB bay level devices
System	<ul style="list-style-type: none"> — Configuration of SAM600 system — Single access to SAM600 for downloading configuration 	<ul style="list-style-type: none"> — A complete system is configured at once and common parameters are cross-checked — Downloaded configuration is distributed across SAM600 modules automatically
System size	<ul style="list-style-type: none"> — Up to 10 SAM600 modules per system — Free assignments of IEC 61850-9-2LE streams per access point 	<ul style="list-style-type: none"> — Coverage of different feeder types up to 1 ½ breaker schemes — Enables point-to-point connection to IEDs. Reduces the amount of switches required, as the content for each IED can be configured separately