

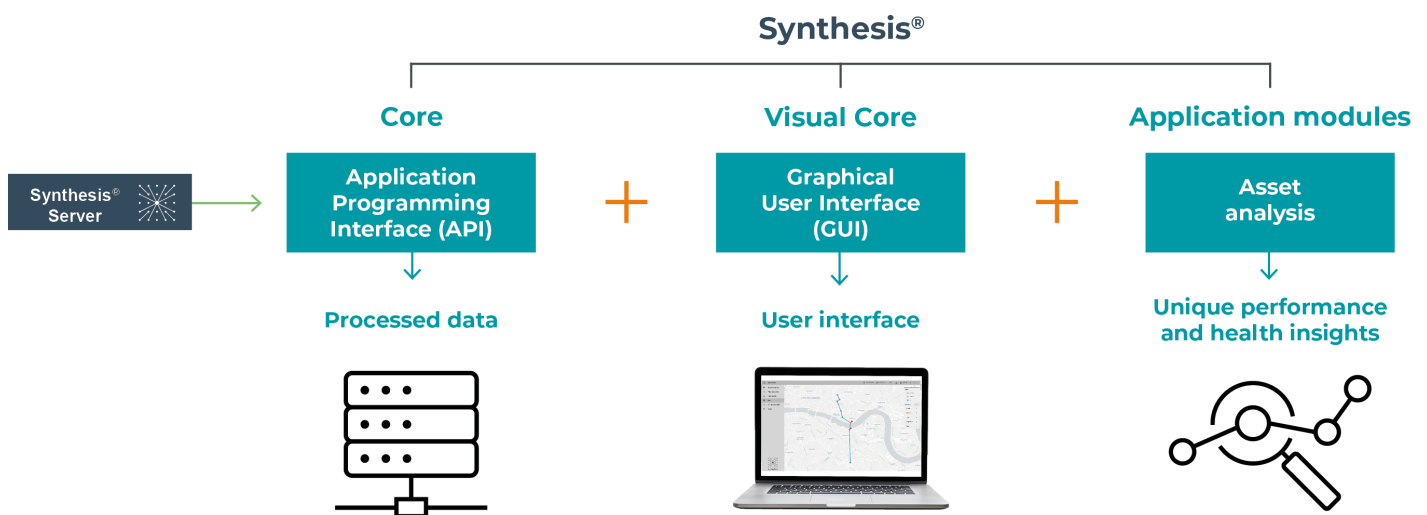
Synthesis® Server



Synthesis® Server provides convenient and secure local hosting of the Synthesis® Core and Visual Core software. It provides a one-box, turn-key solution for collecting and interpreting high-resolution data from many Interrogators, and other data sources. It is designed to be simple to deploy and maintain, while unlocking advanced visualisation and analysis features for asset condition monitoring. Extensive processing and analysis is performed on all measurement streams in real time.

Synthesis® Server is ruggedised for deployment in harsh, safety-critical environments, such as electrical substations. It offers reliable, high-performance computation in a robust, fanless, and low-maintenance form-factor. All processing is performed locally to deliver a self-contained platform for delivering data aggregation, visualisation, and analysis. The hardware is also future-proofed for updating with new analytics features and applications.

Synthesis® Server aggregates input data from multiple Interrogators and provides processed outputs, unique asset visualisation, and detailed analysis.



Key features

- ✓ Designed for electrical substation deployments – high reliability and stability
- ✓ Guarantees at least 12-months of local data storage
- ✓ Fanless design
- ✓ Certified with IEC 61850-3 and IEEE 1613 compliance for operation in challenging EMC and environmental conditions
- ✓ Dual redundant power supplies
- ✓ Redundant storage
- ✓ No user-configuration required

Specifications

Mechanical

Certification	CE, FCC, IEC-61850-3, IEEE-1613, UL
Dimensions (width x depth x height)	483 x 478 x 88 mm
Enclosure	SECC and aluminium
Weight	13.0 kg
Mounting	2U rackmount
Cooling	Fanless

Power supply

Voltage	100 - 240 VAC, 100 - 240 VDC
Frequency	50/60 Hz
Maximum power consumption	2x 150 W
Redundancy	Dual-redundant, hot-swappable

System hardware

CPU	Optimised multi-core CPU
Memory	64 GB as standard
Storage	Configured to guarantee at least 12 months of local data storage Uses solid state drives (SSDs) for improved performance and reliability Storage redundancy is included as standard for error ride-through

Communications interfaces and IO

Network ports	4x 10/100/1000 Mbps BASE-T RJ45 Ethernet ports, 500 V isolation
Serial ports	2x RS-232/422/485 (DB9 connectors, standard), 2,500 V isolation
Relay output	Relay output: Form C Contact: 5 A at 125 VAC, or 5 A at 30 VDC

Environmental

Operating temperature	0 to +70 °C (standard) -25 to +70 °C (on request)
Storage temperature	-40 to +85 °C
Humidity	5 to 95% RH (non-condensing)
Shock	IEC 60068-2-27: 20G half sine, 11 ms
Vibration	IEC 60068-2-64: Random 1 Oct./min, 1 hr/axis

Operational notes

12 month hardware warranty as standard.

Includes a perpetual license for using the Synthesis® software for the supplied system configuration.

It is strongly recommended that the Synthesis® Server is powered from two independent Uninterruptible Power Supplies (UPS) or similar battery-backed auxiliary sources, to help ride through power issues and protect against surges.

For very large deployments, more powerful Synthesis® Server hardware will be used to meet the computation and storage needs. In some cases, this system may require a fan to meet the increased cooling burden.

For simplicity, the Synthesis® Server is provided as single box. It has internal redundancy to ensure ride-through during some potential failure modes (e.g., power supply failure). However, live replication of data to a hot-standby server is not included as standard.

Optional data services

A local Synthesis® Server can be enhanced with data services to unlock:

- Unlimited data storage and backup
- Bespoke analysis of captured data
- Rapid feature and security updates
- Proactive monitoring of the server and instrumentation system health

This can be achieved with a secure data link to an offsite server, or via periodic manual data collection.

Standard dimensions (mm)

