

DATA SHEET

ABB Ability™ Symphony® Plus SCADA S+ Operations SCADA version 3.3



ABB Ability™ Symphony® Plus SCADA offers a true state of the art SCADA system. It is designed and built on field proven features and functions. It is an open, flexible and scalable platform which serves as a platform for all SCADA applications.

Symphony Plus SCADA offers a high performance HMI as core of its Supervisory monitoring and control mechanism. The ergonomic HMI offers graphic page, superior trending capability based on real-time and historical data, advanced alarm management system compliant with ISA 18.2/ EEMUA 191 industry standards.

Its ergonomic design provides the operator with visualization of all the integrated information, personalized workplaces ensure that the operator is presented only the information required and in the proper context, leading to greater detection of abnormal situations.

Symphony Plus SCADA provides access to real-time & historical data from mobile devices, operators can see device status, process conditions, trends, alarms & events, performance dashboards etc.

The fully web based, platform independent solution does not require any client-side software installation. Its touch based design is suitable to use from mobile devices.

Supervisory monitoring and control through Integrated Remote
Operations of geographically distributed industrial plants and remote sites is crucial to maintain efficiency and mitigate the down time of the plant. With increasing compliance and regulations, generational shift of the operator workforce, increasing use of mobile operator stations and increasing cyber security needs, it is becoming ever more challenging.

Mobile Apps are provided for live data visualization of SCADA information, Mobile app allows QR Code scanning with camera for maintenance personnel and possibility to report Hazards using SafetyAPP accessible from Smart Phones.

The open architecture design reduces life cycle costs by simplifying the task of integrating plant systems and devices. Additionally, the useful life is extended as the open architecture allows easy integration of new off-the-shelf applications and products.

Symphony Plus SCADA system architecture provides flexible and scalable configurations for small, medium and large process or SCADA applications.

Basically, Symphony Plus SCADA is a completely server-based system with every server having its own client included. Additionally, the complete system is enabled for multi system and multilevel redundancy, thus providing server-less as well as server-based architecture solutions.

Switching between different configurations is swift and simple. This flexibility makes adapting to evolving needs an easy step. All existing data remains untouched, the switch over to the extended system is easy and nearly seamless. The expenses to become accustomed to the "new" system are minimal: operator panels and well-established workflows remain the same.

Symphony Plus SCADA allows many possibilities of architecture deployments to address the SCADA applications needs. Some of key SCADA architectures supported are:

- Server-less or single node architecture
- Server-Client architecture
- Segregated architecture
- Composite architecture
- · Hierarchal/Distributed architecture

Data Acquisition

Symphony Plus SCADA provides one single point for vertical integration, seamless data presentation from various sources, one consistent and familiar operator environment regardless of underlying PLCs, RTUs, IEDs from multiple vendors. Integrated standard communication protocols connect disparate facility systems within one common operations environment.

Symphony Plus SCADA provides the following protocols without any additional gateway requirements in between:

- OPC UA Client
- · OPC DA, AE
- Modbus RTU and Modbus TCP
- IEC 61850
- IEC 870-5-101/103/104
- ComLi
- IEC 60870-6 (TASE.2/ICCP) using Gateway
- DNP 3.0 using Gateway

Following PLC/RTU Connects are available:

- AC 500
- AC800M
- S+ Control SD Series

S+ SCADA provides state of the Art SCADA Connectivity to the field devices, it can connect to 1000s of devices from one scanner node. This allows to have only one server to handle a big SCADA system such as a solar field, water network SCADA or wind farms.

Tag and atom database

The Tag Database is the primary element for almost all functions supported. Each field sensor is associated with a tag or atom. In Symphony Plus SCADA, Object is modeled as Tags and Object properties are represented as atoms. Each atom can have different source of acquisition, different alarm limits, atom level acknowledgement and atom level historization

The Tag and atom Database include specific information for each acquired or calculated digital or process variable. Attributes will change depending on the type of tag.

Features:

- · Supports very small to very large systems
- Up to 512,000 tags per server
- up to 30 atoms per Tag

Tag types include:

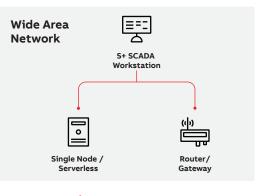
- Analog
- Digital
- Calculated
- Others
- · User configurable
- Bit arrays
- Text
- LAB (manual entry)

 $General\ hardware\ and\ software\ requirements\ for\ a\ variety\ of\ S+\ Operations\ configurations\ are\ summarized\ in\ Table\ 1.$

Table 1. HW and SW requirements

	HSI Server	History Server	Serverless Client	Operator Client	Full Office Client	Application Server
CPU	Small: Intel® Xeon® E3-1270 v6, 3.8GHz Large: Intel® Xeon® Silver 4114 2.2GHz or Intel® Xeon® Gold 5118, 2.3GHz	Small: Intel® Xeon® E3-1270 v6, 3.8GHz, Intel® Xeon® Silver 4114 2.2GHz or Intel® Xeon® Gold 5118, 2.3GHz	Intel® Xeon® Silver 4112, 2.6GHz or Intel Xeon E3-1225 v5, 3.3Ghz	Intel® Xeon® Silver 4112, 2.6GHz or Intel Xeon E3-1225 v5, 3.3Ghz	13 processor	Small: Intel® Xeon® E3-1270 v6, 3.8GHz, Intel® Xeon® Silver 4114 2.2GHz or Intel® Xeon® Gold 5118, 2.3GHz
RAM	Small: 8 GB Large: 16 GB	Small: 8 GB Large: 16 GB	Small: 8 GB Large: 16 GB	8 GB	8 GB	8 GB
OS	Windows 10 LTSC 2019: up to 5 computers Server 2019	Windows 10 LTSC 2019: up to 5 users Server 2019	Windows 10 LTSC 2019 Server 2019	Windows 10 LTSC 2019 Server 2019	Windows 10 LTSC 2019 Server 2019	Windows 10 LTSC 2019 Server 2019
Hard disk	As required by applications	Min. 3x 100 GB, As required by capacity	As required by applications	As required by applications	As required by applications	As required by applications
Video	Recommendation 1920x1200 or 1920x1080 per screen	Recommendation 1920x1200 or 1920x1080 per screen	Recommendation 1920x1200 or 1920x1080 per screen	Recommendation 1920x1200 or 1920x1080 per screen	Recommendation 1920x1200 or 1920x1080 per screen	Recommendation 1920x1200 or 1920x1080 per screen

Figure 01 Serverless or Single Node Architecture



System Limits Serverless or Single node architecture

Serverless clients are always stand-alone. No interaction may occur between clients for HMI server functions.

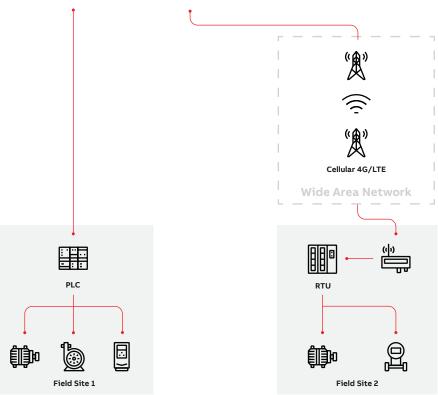


Table 02 Serverless or Single Node architecture

Category	Parameter or Feature	Min.	Default	Max.
Clients	Number of Desktop Clients	1	1	1
	Number of Mobile Clients (Pocket Portal)	0	0	40
Tags	Tag Type	Single		
	Number of Analog Tags		5,000	256,000
	Number of Digital Tags	100	5,000	256,000
	Number of Database Tags per Server	200	10,000	512,000
	Number of Atoms per Tag	0	N/A	50
	Number of Atoms	0	N/A	1,000,000
Long Term History Process Data	Number of History Logs	0	N/A	100,000
Data Acquisition	Number of parallel drivers	0	N/A	200

Server-Client architecture

For architectures following the server-based architecture, the below general limits apply.

Server based architecture limits are summarized in Table 3.

Figure 02 Serverless or Single Node Architecture

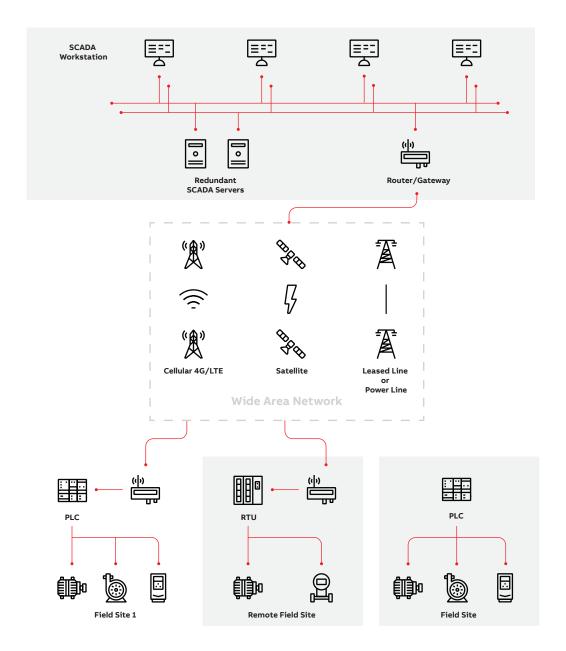


Table 03 Server-Client based architecture

Category	Parameter or Feature	Min.	Default	Max.
Redundancy	RT Server	1	1002	1004
	History Server	0	1	1002
	Web Server	0	1	Parallel
Clients	Number of Desktop Clients per Server	1	1	32
	Number of Mobile Clients (Pocket Portal)	0	0	40
Servers	Number of Servers in One System	1	N/A	256
Tags	Tag Type	Single	Single	Multi- Redundant
		100	5.000	255.000
	Number of Analog Tags per Server	100	5,000	256,000
	Number of Digital Tags per Server	100	5,000	256,000
	Number of Database Tags per Server	200	10,000	512,000
	Number of Atoms per Tag	0	N/A	50
	Number of Atoms per Server	0	N/A	1,000,000
Long Term History Process Data	Number of History Logs	0	N/A	Unlimited, 100,000 per History server
Data Acquisition	Number of parallel drivers	0	N/A	200

Segregated architecture

For architectures following the segregated architecture, the below general limits apply.

Segregated architecture limits are summarized in Table 4.

Figure 03
Segregated Architecture

S+ SCADA Clients

PLC

RTU

PLC

Table 04 Segregated architecture

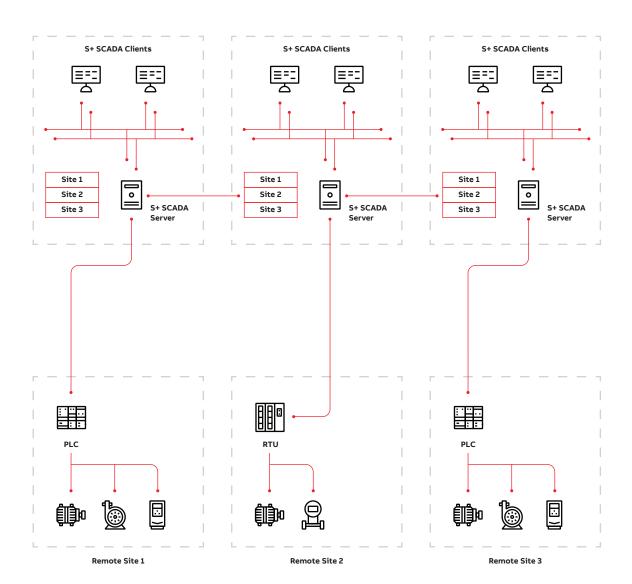
Parameter or Feature	Min.	Default	Max.
RT Server	1	1002	1004
History Server	0	1	1002
Web Server	0	1	Parallel
Number of Desktop Clients per Server	1	1	32
Number of Mobile Clients (Pocket Portal)	0	0	40
Number of Servers in One System	2	2	256
	RT Server History Server Web Server Number of Desktop Clients per Server Number of Mobile Clients (Pocket Portal)	RT Server 1 History Server 0 Web Server 0 Number of Desktop Clients per Server 1 Number of Mobile Clients (Pocket Portal) 0	RT Server 1 1002 History Server 0 1 Web Server 0 1 Number of Desktop Clients per Server 1 1 Number of Mobile Clients (Pocket Portal) 0 0

Composite architecture

For architectures following the composite architecture, the below general limits apply.

Composite architecture limits are summarized in Table 5.

Figure 04 Composite (Multi-Master) Architecture



— Table 05 Composite architecture

Category	Parameter or Feature	Min.	Default	Max.
Composite	Clusters	1	2	4
	Data exchange exceptions/second among Servers	300	1000	2000
Redundancy	RT Server	1	1002	1004
	History Server	0	1	1002
	Web Server	0	1	Parallel
Clients	Number of Desktop Clients per Server	1	1	32
	Number of Mobile Clients (Pocket Portal)	0	0	40
Servers	Number of Servers in One System	1	N/A	256
Tags	Tag Type	Single	Single	Multi- Redundant
	Number of Analog Tags per System	100	5,000	256,000
	Number of Digital Tags per System	100	5,000	256,000
	Number of Database Tags per System	200	10,000	512,000
	Number of Atoms per Tag	0	N/A	50
	Number of Atoms per System	0	N/A	1,000,000
Long Term History Process Data	Number of History Logs	0	N/A	100,000
Data Acquisition	Number of parallel drivers per Server	0	N/A	200

Hierarchical (Multi-System)/Distributed architecture

For architectures following the Hierarchical architecture, the below general limits apply.

Hierarchical architecture limits are summarized in Table 6. Minimum, default and maximum values of sized features of the package are summarized in Table 5. Most of unlimited maximum values are only limited by disk capacity or memory.

Figure 05 Hierarchical (Multi-System) Architecture

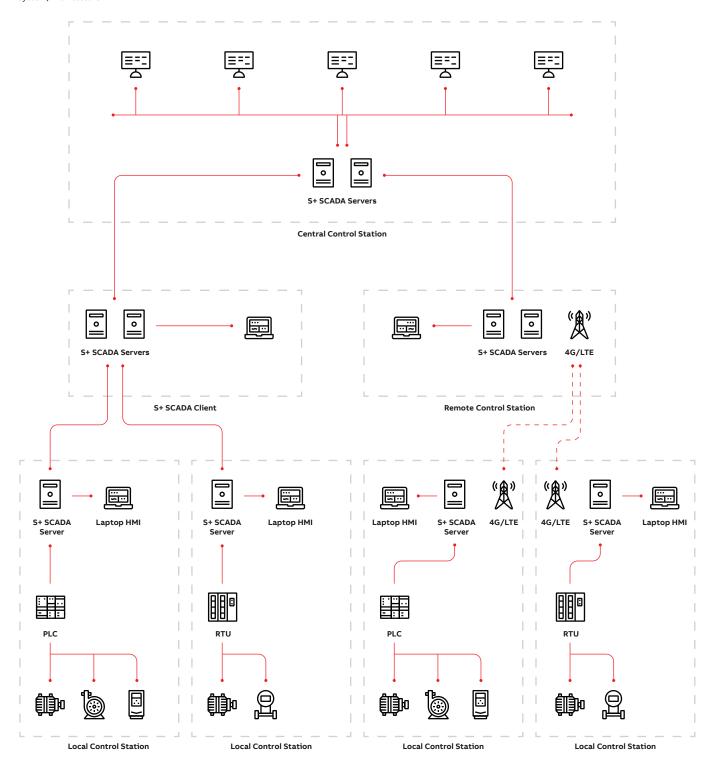


Table 06 Hierarchical architecture

Category	Parameter or Feature	Min.	Default	Max.
Hierarchical	Clusters	1	2	4
	Data exchange exceptions/second among Servers	300	1000	2000
Redundancy	RT Server	1	1002	1004
	History Server	0	1	1002
	Web Server	0	1	Parallel
Clients	Number of Desktop Clients per Server	1	1	32
	Number of Mobile Clients (Pocket Portal)	0	0	40
Servers	Number of Servers in One System	1	N/A	256
Tags	Tag Type	Single	Single	Multi- Redundant
	Number of Analog Tags per System	100	5,000	256,000
	Number of Digital Tags per System	100	5,000	256,000
	Number of Database Tags per System	200	10,000	512,000
	Number of Atoms per Tag	0	N/A	50
	Number of Atoms per System	0	N/A	1,000,000
Long Term History Process Data	Number of History Logs	0	N/A	100,000
Data Acquisition	Number of parallel drivers per Server	0	N/A	200

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