

SmartX AS-P Server

SmartX Server



Introduction

At the core of an EcoStruxure BMS is a SmartX server, such as the SmartX AS-P server. The SmartX AS-P server performs key functionality, such as control logic, trend logging, and alarm supervision, and supports communication and connectivity to the I/O and field buses. The distributed intelligence of the EcoStruxure BMS ensures fault tolerance in the system and provides a fully featured user interface through WorkStation and WebStation.

Features

The SmartX AS-P server is a powerful device that can act as a standalone server and also control I/O modules and monitor and manage field bus devices. In a small installation, the embedded SmartX AS-P server acts as a standalone server, mounted with its I/O modules in a small footprint. In medium and large installations, functionality is distributed over multiple SmartX servers that communicate over TCP/IP.

Communications hub

Capable of coordinating traffic from above and below its location, the SmartX AS-P server can deliver data directly to you or to other servers throughout the site. The SmartX AS-P server can run multiple control programs, manage local I/O, alarms, and users, handle scheduling and logging, and communicate using a variety of protocols. Because of this, most parts of the system function autonomously and continue to run as a whole even if communication fails or individual EcoStruxure BMS servers or devices go offline.

Variety of connectivity options

A SmartX AS-P server has numerous ports that enable it to communicate with a wide range of protocols, devices, and servers.

A SmartX AS-P server has the following ports:

- Two 10/100 Ethernet ports
- Two RS-485 ports
- One LonWorks TP/FT port
- One built-in I/O bus port
- One USB host port
- One USB device port

The first Ethernet port is dedicated to the site network. The second Ethernet port is fully configurable. The second port can be configured to extend the site network so that various devices and clients can be connected. Another option is to configure the second port as a separate network, which means that the port can host a private network or act as a client to a second site network. This port configuration with dual networks requires hardware version 0.62 or higher. If the second port is not used, it can be disabled.

The USB device port allows you to upgrade and interact with the SmartX AS-P server using Device Administrator. The USB host port can be used to provide power and communications for the AD touchscreen display.

Authentication and permissions

An EcoStruxure BMS provides a powerful permission system that is easy to manage, flexible, and adapts to all kinds of system sizes. The permission system provides a security level of the highest standards. Authentication is done against the built-in user account management system or against Windows Active Directory Domains. The built-in account management system allows an administrator to establish password policies that meet stringent cybersecurity guidelines. When Windows Active Directory is used, the administration costs are lower because users do not have to be managed in multiple directories.

WorkStation/WebStation interface

Through any client, the user experience is similar regardless of which EcoStruxure BMS server the user is logged on to. The user can log directly on to a SmartX AS-P server to engineer, commission, supervise, and

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monitor the SmartX AS-P server as well as its attached I/O modules and field bus devices. See the WorkStation and WebStation specification sheets for additional information.

Open building protocol support

One of the cornerstones of the EcoStruxure BMS is support for open standards. The SmartX AS-P server can natively communicate with three of the most popular standards for buildings: BACnet, LonWorks, and Modbus.

Native BTL-listed BACnet support

A SmartX AS-P server communicates directly to BACnet/IP and BACnet MS/TP networks. The SmartX AS-P servers are BTL-listed as BACnet Building Controllers (B-BC), the most advanced BACnet Device Profile. This capability provides access to an extensive range of BACnet devices from Schneider Electric and other vendors. See the BTL Product Catalog for up-to-date details on BTL listed firmware revisions on BACnet International's home page. A SmartX AS-P server can also serve as a BACnet Broadcast Management Device (BBMD) to facilitate BACnet systems that span multiple IP networks.

Native LonWorks support

The SmartX AS-P server has a built-in FTT-10 port to communicate to the TP/FT-10 LonWorks network. Integrated LonWorks functionality enables access to LonWorks devices from Schneider Electric and other vendors. LonWorks networks can be commissioned, bound, and configured from the SmartX AS-P server using the built-in LonWorks Network Management Tool. No third-party tools are needed. A protocol analyzer with powerful debugging and network quality monitoring features can be achieved using third-party software, without additional hardware needed. To increase ease of use, LNS device plug-ins are supported. This allows for easier engineering and maintenance of LonWorks devices from Schneider Electric and other vendors. There are some limitations on how LNS device plug-ins can be used.

Native Modbus support

The SmartX AS-P server natively integrates Modbus RS-485 master and slave configurations, as well as TCP client and server. This allows full access to third-party products and the range of Schneider Electric products that communicate on the Modbus protocol, such as power meters, UPS, circuit breakers, and lighting controllers.

Additional building protocol support

The SmartX AS-P server also supports integration and communication with Schneider Electric supplied BMS systems and devices that use the following standards for buildings: I/NET, MicroNet, NETWORK 8000, and Andover Continuum Infinet.

Web Services support

The SmartX AS-P server supports the use of Web Services based on open standards, such as SOAP and REST, to consume data into the EcoStruxure BMS. Use incoming third-party data (temperature forecast, energy cost) over the Web to determine site modes, scheduling, and programming.

EcoStruxure Web Services support

EcoStruxure Web Services, Schneider Electric's Web Services standard, is natively supported in the SmartX AS-P server. EcoStruxure Web Services offers extra features between compliant systems whether within Schneider Electric or other authorized systems. These features include system directory browsing, read/write of current values, alarm receipt and acknowledgement, and historical trend log data. EcoStruxure Web Services is secure. User name and password are required to log on to the system.

Scalable custom configurations

The SmartX AS-P server and its family of I/O modules were designed to meet the unique needs of each installation. Depending on the configuration, each SmartX AS-P server can control up to 464 I/O points. Because power and communications are delivered along a common bus, multiple modules can be plugged together without tools in a simple one-step process using the built-in connectors.

Two programming options

Unique to the industry, the SmartX AS-P server has both Script and Function Block programming options. This flexibility assures that the best programming method can be selected for the application.

eMMC memory for data and backup

The SmartX server has a 4 GB eMMC memory, which is used, for example, for the application, historical data, and backup storage. Users can also manually back up or restore the SmartX server to a storage location on a PC or network. Through the Enterprise Server, users have the ability to perform scheduled backups of associated SmartX servers to network storage for even greater levels of protection.

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IT friendly

The SmartX AS-P server communicates using the networking standards. This makes installations easy, management simple, and transactions secure.

TLS support

Communication between clients and the EcoStruxure BMS servers can be encrypted using Transport Layer Security (TLS 1.2). The servers are delivered with a default self-signed certificate. Commercial Certification Authority (CA) server certificates are supported to lower the risk of malicious information technology attacks. Use of encrypted communication can be enforced for both WorkStation and WebStation access.

Supported protocols

- IP addressing
- TCP communications
- DHCP for easy network configuration
- DNS for simple lookup of addresses
- HTTP/HTTPS for Internet access through firewalls, which enables remote monitoring and control
- NTP (Network Time Protocol) for time synchronization throughout the system
- SMTP or SMTPS with support for SSL/TLS based authentication, enables sending email messages triggered by schedule or alarm
- SNMP enables network supervision and reception of application alarms in designated network management tools

Specifications

Electrical

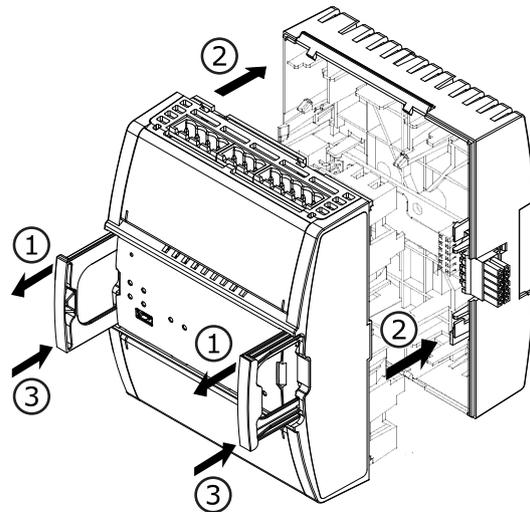
DC input supply power	10 W
DC input supply voltage	24 VDC

Environment

Ambient temperature, operating	0 to 50 °C (32 to 122 °F)
Ambient temperature, storage	-20 to +70 °C (-4 to +158 °F)
Maximum humidity.....	95 % RH non-condensing

Patented two-piece design

Each module can be separated from its terminal base to allow the site to be wired prior to the installation of the electronics. The patented locking mechanism serves as handles for removing the module from its base. All critical components have a protective cover that permits convection cooling to occur.



Two-piece design

Auto-addressing

The auto-addressing feature eliminates the need for setting DIP switches or pressing commission buttons. Each module automatically knows its order in the chain and assigns itself accordingly – significantly reducing engineering and maintenance time.

Simple DIN-rail installation

Fasteners easily snap into a locked position for panel installation. The fastener has a quick-release feature for easy DIN-rail removal.

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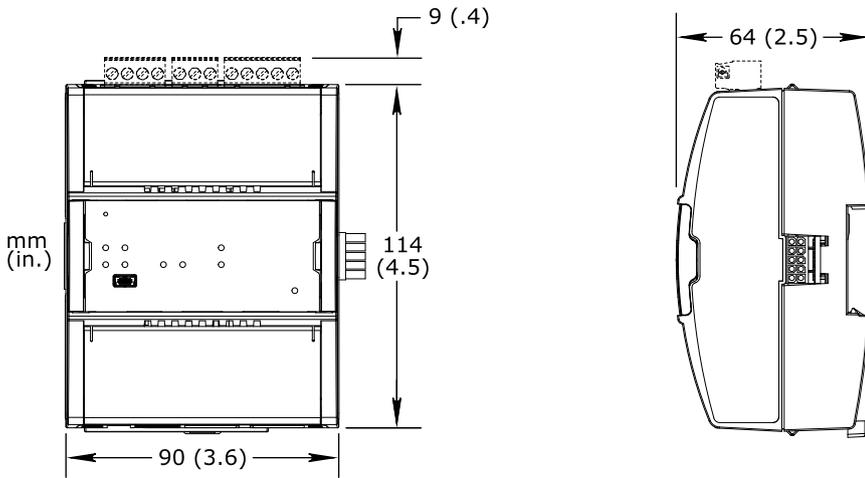
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Material

Plastic flame rating	UL94-5VB
Enclosure	PC/ABS
Ingress protection rating	IP 20

Mechanical

Dimensions including terminal base90 W x 114 H x 64 D mm (3.6 W x 4.5 H x 2.5 D in.)



Weight including terminal base	0.321 kg (0.71 lb)
Weight excluding terminal base	0.245 kg (0.54 lb)

Agency compliances

Emission.....	RCM; EN 61000-6-3; EN 50491-5-2; FCC Part 15, Sub-part B, Class B
Immunity	EN 61000-6-2; EN 50491-5-3
Safety	EN 60730-1; EN 60730-2-11; EN 50491-3; UL 916 C-UL US Listed
Product	EN 50491-1

Smoke control product safety^{a, b}UL 864

a) Applies to AS-P for Smoke Control (AS-P-SMK) and AS-P Terminal Base (TB-ASP-W1).

b) AS-P for Smoke Control (AS-P-SMK) is shipped with a validated UL 864 software version, which can differ from the latest released software. For more information, see Smoke Control Design Guide for UL 864.

Real-time clock

Accuracy, at 25 °C (77 °F)	+/-52 seconds per month
Backup time, at 25 °C (77 °F).....	10 days

Communication ports

Ethernet	Dual 10/100BASE-TX (RJ45)
USB	USB 2.0, 5 VDC, 2.5 W, 1 device port (mini-B) and 1 host port (type-A)
RS-485.....	Dual 2-wire ports, bias 5.0 VDC
LonWorks	TP/FT-10

Communications

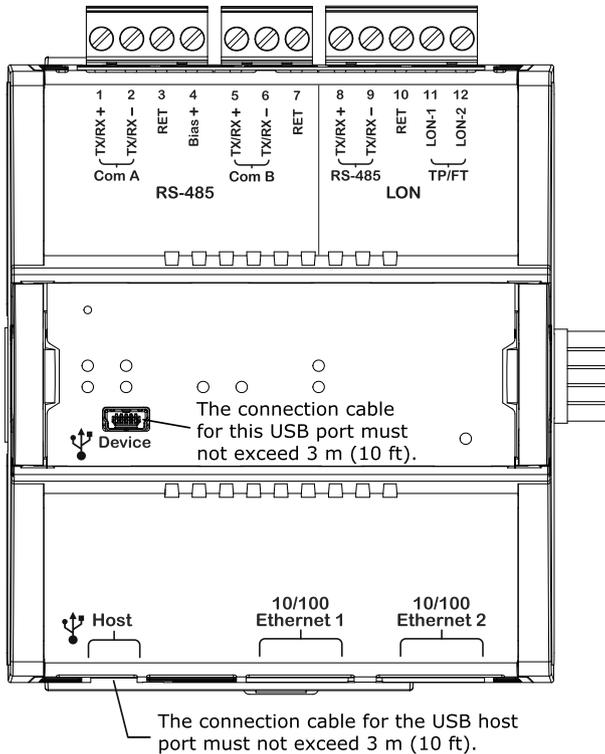
BACnet.....BACnet/IP and MS/TP, port configurable, default 47808

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.....	BTL B-BC (BACnet Building Controller) ^a
a) See the BTL Product Catalog for up-to-date details on BTL listed firmware revisions on BACnet International's home page.	
Modbus	Modbus TCP, client and server
.....	Serial, RS-485, master or slave
TCP	Binary, port fixed, 4444
HTTP	Non-binary, port configurable, default 80
HTTPS.....	Encrypted supporting TLS 1.2, 1.1, and 1.0, port configurable default 443
SMTP	Email sending, port configurable, default 25
SMTPS	Email sending, port configurable, default 587
SNMPversion 3
..... Network supervision using poll and trap
.....Application alarm distribution using trap

Terminals



LNS	
LNS version.....	OpenLNS
.....	Installed on WorkStation PC
LonMark	
Resource files version.....	14.00
CPU	
Frequency	500 MHz

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Type	SPEAr1380, ARM Cortex-A9 dual-core
DDR3 SDRAM	512 MB
eMMC memory	4 GB
Memory backup.....	Yes, battery-free, no maintenance

Part numbers

SmartX Controller – AS-P	SXWASPXXX10001
SmartX Controller – AS-P-SMK ^a	SXWASPXXX1S001
a) AS-P for Smoke Control (AS-P-SMK) is shipped with a validated UL 864 software version, which can differ from the latest released software. For more information, see Smoke Control Design Guide for UL 864.	
TB-ASP-W1, Terminal Base for SmartX Controller – AS-P (Required for each SmartX Controller – AS-P)	SXWTBASW110002

Add-on options

SW-EWS-1, EcoStruxure Web Services (run-time) option Consume only for one EcoStruxure BMS server, no maintenance.....	SXWSWEWSX00001
SW-EWS-2, EcoStruxure Web Services (run-time) option Serve & Consume for one EcoStruxure BMS server, no maintenance.....	SXWSWEWSX00002
SW-EWS-3, EcoStruxure Web Services (run-time) option Serve & Consume, plus Historical trend log data for one EcoStruxure BMS server, no maintenance	SXWSWEWSX00003
SW-GWS-1, Web Services (Generic Consume) option For one EcoStruxure BMS server, no maintenance.....	SXWSWGWSX00001
SW-SNMP-1, Alarm notifications via SNMP option For one EcoStruxure BMS server, no maintenance	SXWSWSNMP00001
SW-SMARTDRIVER-1, Communication to external devices via SmartDriver For one SmartDriver license	SXWSWSDRV00001

Regulatory Notices

Federal Communications Commission

FCC Rules and Regulations CFR 47, Part 15, Class B
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference. (2) This device must accept any interference received, including interference that may cause undesired operation.

Industry Canada

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Regulatory Compliance Mark (RCM) - Australian Communications and Media Authority (ACMA)

This equipment complies with the requirements of the relevant ACMA standards made under the Radiocommunications Act 1992 and the Telecommunications Act 1997. These standards are referenced in notices made under section 182 of the Radiocommunications Act and 407 of the Telecommunications Act.

CE - Compliance to European Union (EU)

2014/30/EU Electromagnetic Compatibility Directive
2011/65/EU Restriction of Hazardous Substances (RoHS) Directive
This equipment complies with the rules, of the Official Journal of the European Union, for governing the Self Declaration of the CE Marking for the European Union as specified in the above directive(s) per the provisions of the following standards: EN 50491-1 Product Standard; EN 60730-1, EN 60730-2-11, and EN 50491-3 Safety Standards.



WEEE - Directive of the European Union (EU)

This equipment and its packaging carry the waste of electrical and electronic equipment (WEEE) label, in compliance with European Union (EU) Directive 2012/19/EU, governing the disposal and recycling of electrical and electronic equipment in the European community.



UL 916 Listed products for the United States and Canada, Open Class Energy Management Equipment. UL file E80146.



UL 864 Listed products for the United States. 10th Edition Smoke Control System. UL file S5527.

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