

AS-P



Introduction

At the core of a SmartStruxure solution is a SmartStruxure server device, such as AS-P. AS-P 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 SmartStruxure solution ensures fault tolerance in the system and provides a fully featured user interface through WorkStation and WebStation.

Features

AS-P 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 AS-P device 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 SmartStruxure server devices that communicate over TCP/IP.

Communications hub

Capable of coordinating traffic from above and below its location, AS-P can deliver data directly to you or to other servers throughout the site. AS-P 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 SmartStruxure servers or devices go offline.

Variety of connectivity options

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

AS-P 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 USB device port allows you to upgrade and interact with AS-P using Device Administrator. The USB host port can be used to provide power and communications for Advanced Display.

The two Ethernet ports are connected to a built-in Ethernet switch. One port should be connected to the site network. The other port can be used to connect a single WorkStation or WebStation, a Modbus TCP unit, or a BACnet/IP device, but not another SmartStruxure server.

Authentication and permissions

A SmartStruxure solution 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 to 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 provides password policies that meet the toughest requirements. 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 SmartStruxure server the user is logged on to. The user can log directly on to AS-P to engineer, commission, supervise, and monitor AS-P as well as its attached I/O modules and field bus devices. See the WorkStation and WebStation datasheets for additional information.

Open building protocol support

One of the cornerstones of SmartStruxure solution is support for open standards. AS-P can natively communicate with three of the most popular standards for buildings: BACnet, LonWorks, and Modbus.

Native BACnet support

AS-P communicates directly to BACnet/IP and BACnet MS/TP networks. AS-P provides access to an extensive range of BACnet devices from Schneider Electric and other vendors.

Native LonWorks support

AS-P 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 AS-P 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

AS-P 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

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

Web Services support

AS-P supports the use of Web Services based on open standards, such as SOAP and REST, to consume data into the SmartStruxure solution. 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 AS-P. 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

AS-P and its family of I/O modules were designed to meet the unique needs of each installation. Depending on the configuration, each AS-P 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, AS-P has both Script and Function Block programming options. This flexibility assures that the best programming method can be selected for the application.

4 GB of eMMC memory for data and backup

AS-P has an available capacity of 4 GB of eMMC memory. This represents 2 GB for application and historical data and 2 GB dedicated for backup storage. This ensures that all data is safe from damage, loss, or unintended edits. Users can also manually back up or restore AS-P to a storage location on a PC or network. Through the Enterprise Server, users have the ability to perform scheduled backups of associated AS-P devices to network storage for even greater levels of protection.

IT friendly

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

SSL Certificates

Communication between clients and the SmartStruxure servers can be encrypted using Secure Socket Layer (SSL 1.0, 2.0, 3.0, and TLS 1.0). The servers ship 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 (IPv6 ready)
- TCP communications
- DHCP/DNS for rapid deployment and 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 enables sending email messages
- SNMP enables network supervision and reception of application alarms in designated network management tools

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.

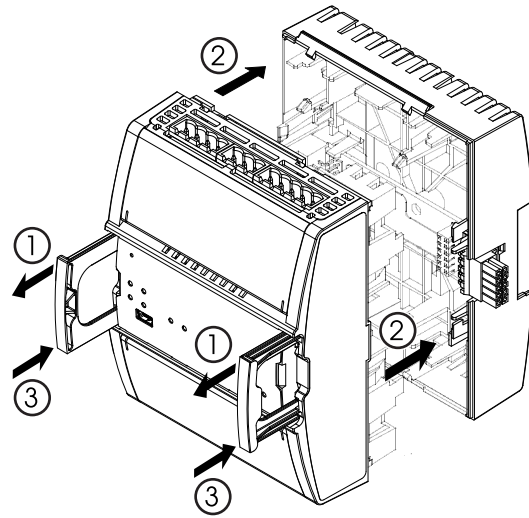


Figure: Two-piece design

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.

Specifications

Electrical

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

Environment

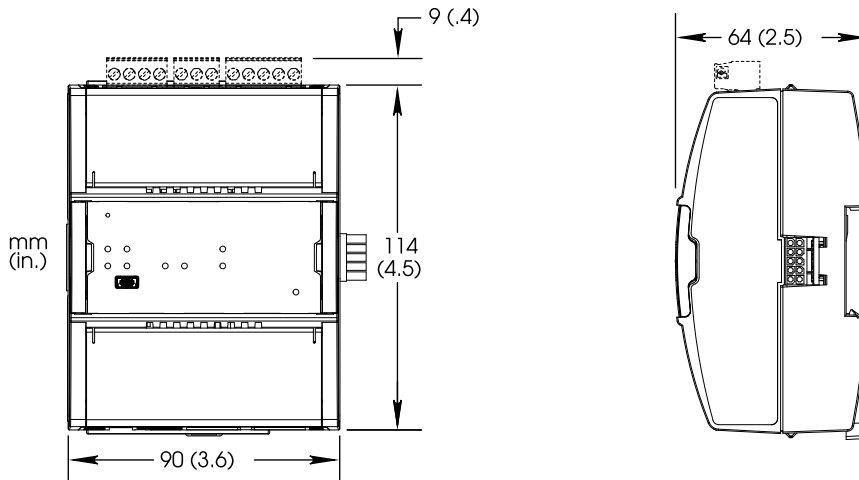
Ambient temperature, operating	0 to 50 °C (32 to 122 °F)
Ambient temperature, storage	-20 to +70 °C (-4 to +158 °F)
Maximum humidity.....	95 % RH non-condensing

Material

Plastic rating.....	UL94-5VB
Enclosure.....	Eco Friendly ABS/PC
Enclosure 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

EmissionRCM; EN 61000-6-3; FCC Part 15, Sub-part B, Class A
 ImmunityEN 61000-6-2
 Safety.....EN 61010-1; UL 916 C-UL US Listed
 ProductEN 61326-1

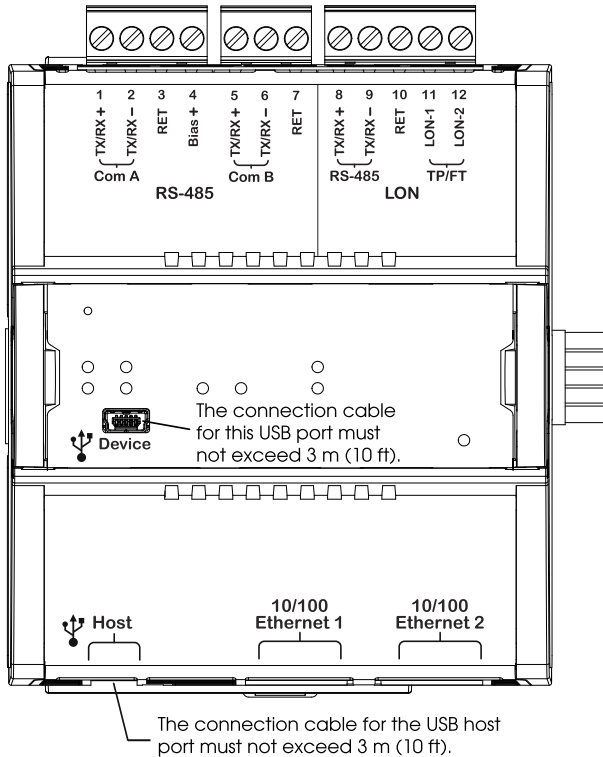
Real-time clock backup

Backup time 10 days

Communications

Ethernet interface Dual 10/100 Mbit/s Ethernet ports; twisted pair cable with RJ-45 connector
 USB USB 2.0 High Speed (480 Mbps), 1 device port (mini-B) and 1 host port (type-A)
 BACnet.....BACnet/IP and MS/TP, port configurable, default 47808
 LonWorksTP/FT-10
 COM A 2-wire RS-485 and 5.0 VDC
 COM B.....2-wire RS-485
 I/O Modules.....RS-485
 TCPBinary, port fixed, 4444
 HTTP.....Non-binary, port configurable, default 80
 HTTPSEncrypted supporting SSL 1.0, 2.0, 3.0 and TLS 1.0, port configurable default 443
 SMTP.....Email sending, port configurable, default 25
 SNMP.....version 3
 Network supervision using poll and trap
 Application alarm distribution using trap

Terminals



LNS

LNS version OpenLNS
Installed on WorkStation PC

LonMark

Resource files version14.00

CPU

Frequency 500 MHz
 Type Dual-core
 DDR3 SDRAM 512 MB
 eMMC memory 4 GB
 Memory backup Yes, battery-free, no maintenance

Part numbers

SmartX Controller – AS-P SXWASPXXX10001
 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 SmartStruxure server, no maintenanceSXSWWEWSX00001
 SW-EWS-2, EcoStruxure Web Services (run-time) option
 Serve & Consume for one SmartStruxure server, no maintenanceSXSWWEWSX00002

- SW-EWS-3, EcoStruxure Web Services (run-time) option
Serve & Consume, plus Historical trend log data for one SmartStruxure server, no maintenance.....SXWSWEWSX00003
- SW-GWS-1, Web Services (Generic Consume) option
For one SmartStruxure server, no maintenanceSXWSWGWSX00001
- SW-SNMP-1, Alarm notifications via SNMP option
For one SmartStruxure server, no maintenance.....SXWSWSNMP00001

Internal configuration

All serial communication ports of the AS-P module refer to signal ground as shown in the figure below.

The I/O bus in the terminal base provides the AS-P module with power and an address.

The address value in the I/O bus is increased by one for each terminal base. The I/O bus also enables RS-485 communication between the I/O module and the SmartStruxure server device.

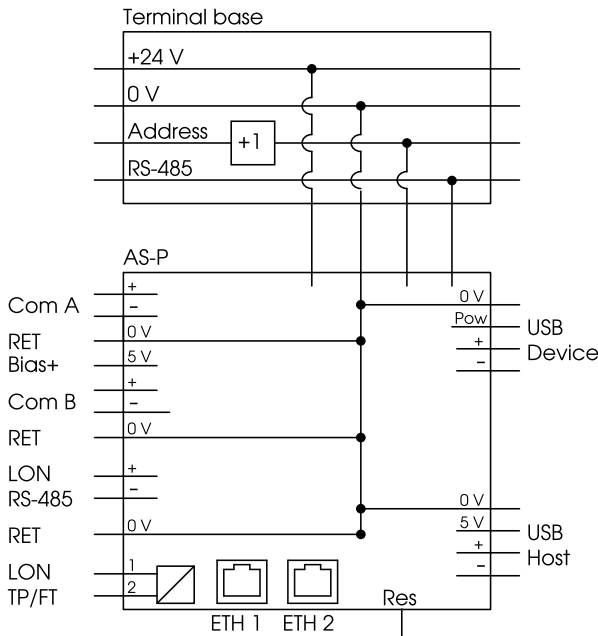


Figure: AS-P internal configuration

Regulatory Notices

FC Federal Communications Commission
FCC Rules and Regulations CFR 47, Part 15, Class A
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
ICES-003
This is a Class A digital device that meets all requirements of the Canadian Interference Causing Equipment Regulations.

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)
2004/108/EC Electromagnetic Compatibility 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: IEC/EN 61326-1 Product Standard, IEC/EN 61010-1 Safety Standard.

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.