

# Automation Server



## Introduction

A SmartStruxure solution server is the core of the system and performs key functionality, such as control logic, trend logging, and alarm supervision. The Automation Server software is pre-loaded on Schneider Electric supplied hardware that supports communication and connectivity to the I/O and field busses. The distributed intelligence of the Automation Servers ensures fault tolerance in the system and provides a fully featured user interface through WorkStation and WebStation.

## Features

The Automation 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 Automation Server acts as a stand-alone server, mounted with its I/O modules in a small footprint. In medium and large installations, functionality is distributed over multiple Automation Servers that communicate over TCP/IP.

### Communications hub

Capable of coordinating traffic from above and below its location, the Automation Server can deliver data directly to you or to other servers throughout the site. The Automation 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 servers or devices go offline.

### Variety of connectivity options

The Automation Server has numerous ports that enable it to communicate with a wide range of protocols, devices, and servers.

The Automation Server has the following ports:

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

The USB device port allows you to upgrade and interact with the Automation Server using the Device Administrator.

### WorkStation/WebStation interface

Through any client, the user experience is similar regardless of which SmartStruxure solution server the user is logged on to. The user can log directly on to an Automation Server to engineer, commission, supervise, and monitor the Automation Server 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. The Automation Server can natively communicate with three of the most popular standards for buildings: BACnet, LonWorks, and Modbus.

### Native BTL-listed BACnet support

The Automation Server communicates directly to BACnet/IP and BACnet MS/TP networks. It is compliant with ASHRAE 135-2004, the Automation Server is BTL-listed as a BACnet Building Controller (B-BC), the most advanced BACnet Device Profile, and as a BACnet Operator Workstation (B-OWS). This capability provides access to the full 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. The Automation Server can also serve as a BACnet Broadcast Management Device (BBMD) to facilitate BACnet systems that span multiple IP networks.

### Native LonWorks support

The Automation 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 Automation 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 Automation 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.

### Web Services support

The Automation Server 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 the Automation 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 Automation Server and its family of I/O modules were designed to meet the unique needs of each installation. Depending on the configuration, each Automation 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 Automation Server 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 memory for data and backup

The Automation Server has an available capacity of 4 GB of 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 the Automation Server to a storage location on a PC or network. Through the Enterprise Server, users have the ability to perform scheduled backups of associated Automation Servers to network storage for even greater levels of protection.

### IT friendly

The Automation Server communicates using the networking standards. This makes installations easy, management simple, and transactions secure.

### 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

**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.

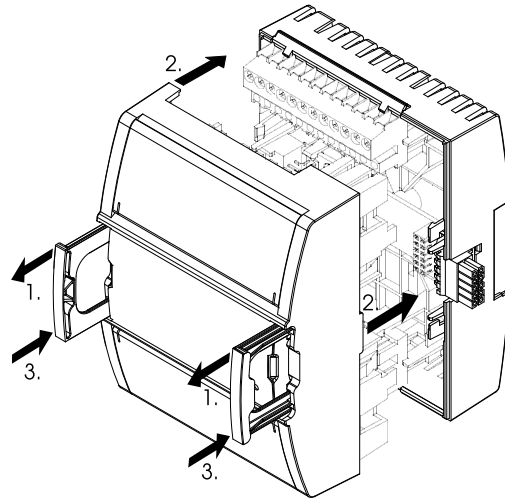


Figure: Two-piece design

**Auto-addressing**

The auto-addressing feature eliminates the need for setting DIP switches or pressing commission buttons. With the Automation Server family, 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 .....7 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**

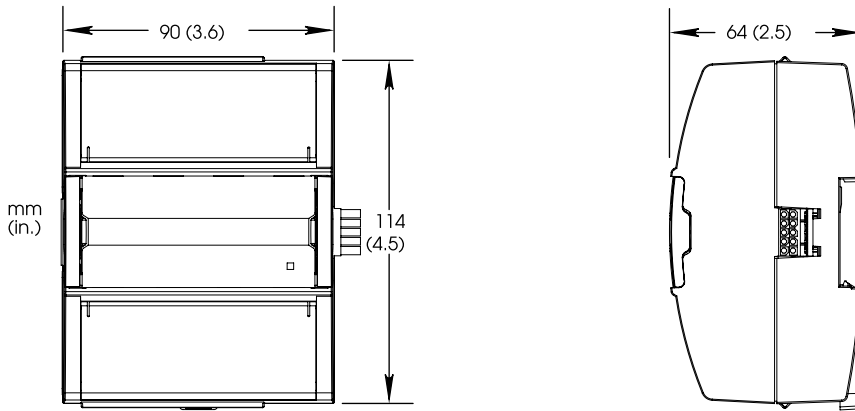
Plastic rating.....UL94-5VB

Enclosure.....Eco Friendly ABS/PC

Enclosure rating.....IP 20

Mechanical

Dimensions including terminal base .....90 W x 114 H x 64 D mm (3.6 W x 4.5 H x 2.5 D in.)



Weight including terminal base .....0.294 kg (0.65 lb)

Weight excluding terminal base .....0.194 kg (0.43 lb)

Agency compliances

Emission .....C-Tick; EN 61000-6-3; FCC Part 15, Sub-part B, Class B

Immunity .....EN 61000-6-2

Safety .....UL 916 C-UL US Listed

Real-time clock backup

.....30 days

Communications

Ethernet LAN interface .....10/100 Mbit/s; twisted pair cable with RJ-45 connector

USB .....1 device and 2 host ports

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

.....BTL B-BC (BACnet Building Controller)<sup>a</sup>

.....BTL B-OWS (BACnet Operator Workstation)<sup>a</sup>

a) See the BTL Product Catalog for up-to-date details on BTL listed firmware revisions on BACnet International's home page.

LonWorks .....TP/FT-10

COM A .....2-wire RS-485

COM B .....2-wire RS-485 and 3.3 VDC

I/O Modules .....RS-485

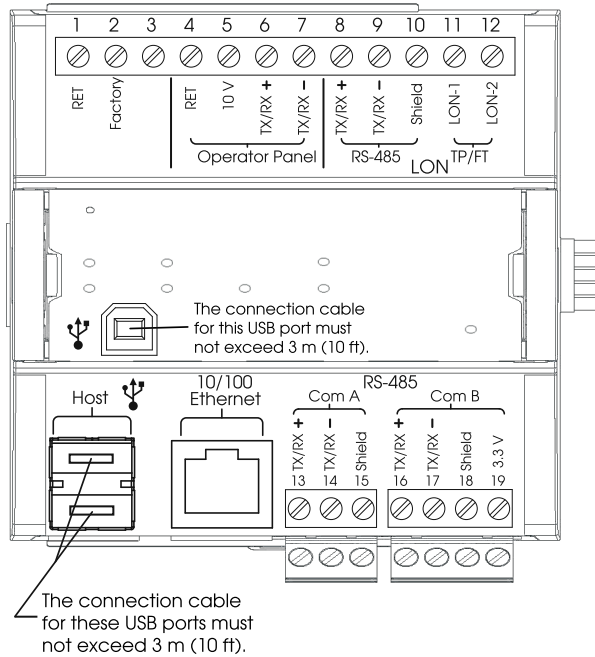
TCP .....Binary, port configurable, default 4444

HTTP .....Non-binary, port configurable, default 80

HTTPS .....Encrypted supporting SSL 1.0, 2.0, 3.0 and TSL 1.0, port configurable default 443

SMTP .....Email sending, port configurable, default 25

Terminals



LNS

LNS version .....OpenLNS  
 Installed on WorkStation PC

CPU

Frequency .....160 MHz  
 SDRAM .....128 MB  
 Flash memory .....4 GB

Part numbers

Automation Server .....SXWAUTSVR10001  
 TB-AS-W1, Terminal Base for Automation Server  
 (Required for each Automation Server) .....SXWTBASW110001

Add-on options

SW-EWS-1, EcoStruxure Web Services (run-time) option  
 Consume only for one Automation Server, no maintenance .....SXWSWEWSX00001  
 SW-EWS-2, EcoStruxure Web Services (run-time) option  
 Serve & Consume for one Automation Server, no maintenance .....SXWSWEWSX00002  
 SW-EWS-3, EcoStruxure Web Services (run-time) option  
 Serve & Consume, plus Historical trend log data for one Automation Server, no maintenance  
 .....SXWSWEWSX00003  
 SW-GWS-1, Web Services (Generic Consume) option  
 For one Automation Server, no maintenance .....SXWSWGWSX00001

### Internal configuration

All connectors of the Automation Server except for the Ethernet connector refers to signal ground as shown in the figure below.

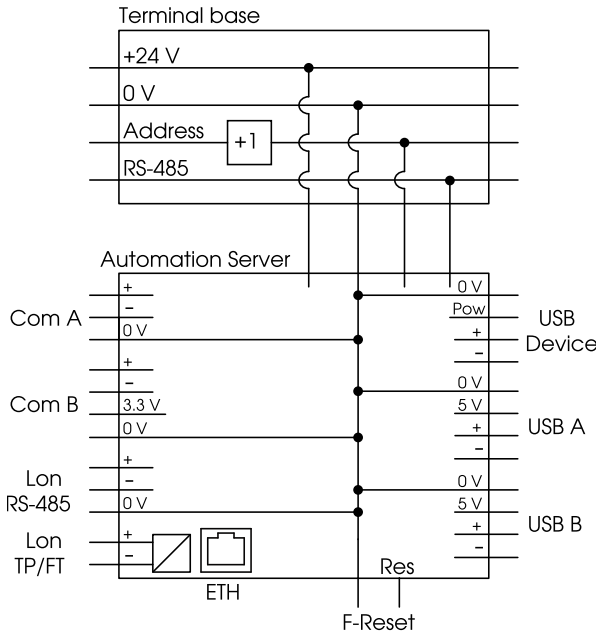


Figure: Automation Server internal configuration

The I/O bus in the terminal base provides the Automation Server 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 Automation Server.

### Regulatory Notices

**FC 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**  
 ICES-003  
 This is a Class B digital device that meets all requirements of the Canadian Interference Causing Equipment Regulations.

**C N1831 C-Tick (Australian Communications Authority (ACA))**  
 AS/NZS 3548  
 This equipment carries the C-Tick label and complies with EMC and radio communications regulations of the Australian Communications Authority (ACA), governing the Australian and New Zealand (AS/NZS) communities.

**CE 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 2002/96/EC, governing the disposal and recycling of electrical and electronic equipment in the European community.

**UL LISTED 916**  
 UL 916 Listed products for the Unites States and Canada, Open Class Energy Management Equipment.