EcoStruxure™
Innovation At Every Level

AS-B

SpaceLogic™ Plant Room Controllers

EcoStruxure™ Building

Introduction

At the core of an EcoStruxure BMS is an automation server, such as the SpaceLogic* AS-B server. The AS-B server performs key functionality, such as control logic, trend logging, and alarm supervision, provides built-in I/O, and supports communication and connectivity to the field buses. The distributed intelligence of the EcoStruxure BMS helps ensure fault tolerance against detected faults and provides a fully featured user interface through WorkStation and WebStation.

* Formerly known as SmartX.

Features

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

The AS-B server has the following features:

- Communications hub
- Models with a versatile mix of I/O points
- I/O expansion option
- Manual override function
- Built-in power supply
- Variety of connectivity options

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AS-B

- Zigbee wireless network support
- Authentication and permissions through powerful systems
- WorkStation/WebStation interface
- Native BTL-listed BACnet support
- BACnet/SC node or router
- Native Modbus support
- Web Services support based open standards
- EcoStruxure Web Services support
- MQTT IoT protocol support
- External log storage option
- Reporting
- Text and graphics-based programming tools
- eMMC memory for data and backup
- IT friendly networking based on the TCP/IP suite of communication protocols
- TLS support
- Simple DIN-rail installation
- Removable terminal blocks
- Efficient terminal management
- Protection circuitry against high-voltage transients, over currents, and short-circuits
- SpaceLogic Operator Display support

Communications hub

Capable of coordinating traffic from above and below its location, the AS-B server can deliver data directly to you or to other servers throughout the site. The AS-B server can run multiple control programs, manage built-in 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 is interrupted or individual EcoStruxure BMS servers or devices go offline.

Models with a versatile mix of I/O points

The AS-B server comes in eight models that offer two different sets of I/O point count and I/O mix.

Model	I/O Points
AS-B-24	24
AS-B-24H	24
AS-B-24-P	24
AS-B-24H-P	24
AS-B-36	36
AS-B-36H	36
AS-B-36-P	36
AS-B-36H-P	36

AS-B servers with “H” in the product name are equipped with a display for output override.

AS-B servers with “P” in the product name are hardware only. An AS-B software package needs to be purchased separately. For more information, see section “Software bundles”.

AS-B servers with 36 I/O points have the same small footprint as AS-B servers with 24 I/O points.

The AS-B server offers a mix of I/O point types that match a wide variety of HVAC applications. Most of the I/O points are universal inputs/outputs, which are highly flexible and can be configured as either inputs or outputs.

AS-B servers with 24 I/O points have the following types:

- 12 Universal inputs/outputs, Ua type
- 4 Universal inputs/outputs, Ub type
- 4 Digital inputs
- 4 Relay outputs

AS-B servers with 36 I/O points have the following types:

- 20 Universal inputs/outputs, Ua type
- 8 Universal inputs/outputs, Ub type
- 4 Triac outputs
- 4 Relay outputs

Universal inputs/outputs

The universal inputs/outputs are ideal for any mix of temperature, pressure, flow, status points, and similar point types in a building control system.

The universal inputs/outputs can be configured to read several different types of inputs:

- Digital
- Counter
- Supervised
- Voltage
- Current (Ub only)
- Temperature
- Resistive

AS-B

Continued

- 2-Wire RTD temperature
- 2-Wire RTD resistive

As counter inputs, the universal inputs/outputs are commonly used in energy metering applications. As RTD inputs, they are ideal for temperature points in a building control system. As supervised inputs, they are used for security applications where it is critical to know whether or not a wire has been cut or shorted. These events provide a separate indication of alarms and events in the system.

For all analog inputs, maximum and minimum levels can be defined to automatically detect over-range and under-range values.

The universal inputs/outputs are capable of supporting analog outputs of type voltage outputs. Therefore, the universal inputs/outputs support a wide range of devices, such as actuators.

Only devices with safe extra low voltage equipment (SELV/PELV) inputs/outputs should be connected to the AS-B server universal inputs/outputs.

Digital inputs

The digital inputs can be used for cost effective sensing of multiple dry contact digital inputs in applications, such as equipment status monitoring or alarm point monitoring. As counter inputs, digital inputs are commonly used in energy metering applications.

Relay outputs

The relay outputs support digital Form A point types. The Form A relays are designed for direct load applications.

Triac outputs

The triac outputs can be used in many applications to switch 24 VAC on or off for external loads such as actuators, relays, or indicators. Triacs are silent and do not suffer from relay contact wear.

I/O expansion

For applications that require more I/O resources, the SpaceLogic IP-IO modules provide a versatile mix of I/O points for any application. For more information, see the SpaceLogic IP-IO Specification Sheet.

Manual override function

AS-B servers with “H” in the product name are equipped with an LCD display and keys to support manual override control of analog and digital outputs. This function allows you to manually override the outputs for testing, commissioning, and maintenance of equipment.

The override status is readable through EcoStruxure Building Operation WorkStation and WebStation, enabling precise monitoring and more reliable control.

Built-in power supply

The device has a built-in power supply designed to accommodate 24 VAC or 24 VDC input power. The main AC/DC input (L/+ and N/-) is galvanically isolated from the electronics. This removes the risk of damage due to earth currents and permits the input power to be wired without concern for polarity matching.

Variety of connectivity options

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

An AS-B server has the following ports:

- Two 10/100 Ethernet ports
- One RS-485 port
- One USB device port
- One USB host 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. If the second port is not used, it can be disabled.

The USB device port allows you to upgrade and interact with the AS-B server using Device Administrator.

Using a USB Ethernet adapter, you can connect a laptop PC to the USB host port and run Device Administrator, WorkStation, and WebStation to upgrade, configure, and access the AS-B server. The USB host port can also be used to provide power and communications for the SpaceLogic Zigbee Adapter.

Zigbee wireless network support

Through the SpaceLogic Zigbee Adapter connected to the host USB port, Zigbee™ wireless connectivity can be enabled for the automation server. The automation server can extend its point count through the Zigbee wireless network and bring flexibility in your applications. The automation server equipped with the Zigbee Adapter together is a Zigbee Certified Product that is compliant with Zigbee 3.0. For more information on the Zigbee Adapter and supported wireless devices, see the SpaceLogic Zigbee Adapter Specification Sheet.

Authentication and permissions

An EcoStruxure BMS provides a powerful permission system that is easy to manage, flexible, and adapts to all kinds of system

AS-B

Continued

sizes. The permission system provides a high standard of authentication. 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 an AS-B server to engineer, commission, supervise, and monitor the AS-B server and its built-in I/O as well as its attached 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 AS-B server can natively communicate with two of the most popular standards for buildings: BACnet and Modbus.

Native BTL-listed BACnet support

An AS-B server communicates directly to BACnet/IP and BACnet MS/TP networks. The AS-B 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. An AS-B server can also serve as a BACnet Broadcast Management Device (BBMD) to facilitate BACnet systems that span multiple IP subnets.

BACnet/SC (Secure Connect) support

The Enterprise Server and automation servers support BACnet/SC applications as a BACnet/SC node or BACnet/SC router. This allows the Enterprise Server and automation servers to be in BACnet/SC networks and support applications that connect BACnet/IP or MS/TP networks with BACnet/SC networks. A major benefit of BACnet/SC is that it allows more secure transport of BACnet traffic and information between BACnet/SC devices over private and public networks without the need for BBMDs, VLANs, and VPNs, because the BACnet/SC protocol uses WebSocket technology and TLS 1.3 encryption. In addition, BACnet/SC uses certificate management to help ensure only those devices authorized to be on a BACnet/SC network can operate on that network.

Native Modbus support

The AS-B server natively integrates Modbus RS-485 master and slave configurations, as well as Modbus 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 AS-B 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 EcoStruxure BMS servers. 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 requires user name and password to log on to the system.

MQTT IoT protocol support

The Enterprise Server and automation servers support MQTT as an option for publishing information to other systems, and for subscribing to data that other systems have published. MQTT is a messaging transport protocol that with its small footprint, light bandwidth utilization, and simplicity, is ideal for M2M and IoT communication. Use MQTT to enable the Enterprise Server and automation servers to publish to, and subscribe from other systems through any MQTT broker or server, for example, Amazon, Microsoft, or IBM.

External log storage option

EcoStruxure BMS servers can be configured to automatically store all historical data, trend log data, event log and audit trail data, in a high-capacity, open, and well-proven database. If data needs to be available for longer periods of time, an external log storage can be incorporated into the EcoStruxure BMS without the need for extensive engineering work. The database supported is TimescaleDB, which is built on PostgreSQL. The capacity is limited only by the size of the selected storage media.

The data in the external log storage is available natively to the viewers built into the EcoStruxure Building Operation clients and to the built-in reporting functionality. No other software is required to access the data throughout the full retention period. The data is readily available for any analytics software that you already use, due to the open nature of PostgreSQL. Most reporting tools have native support for PostgreSQL.

The TimescaleDB extension to PostgreSQL optimizes the solution for time-stamped data and is well-suited for the EcoStruxure Building Operation historical data.

The system architecture is very flexible. All EcoStruxure BMS servers in an EcoStruxure BMS can write to and read from the

AS-B

Continued

same TimescaleDB database, or multiple databases can be used.

You can use the powerful Log Processor functionality for custom processing of trend data for viewing in charts, dashboards and for inclusion in reports. The Log Processor enables advanced calculations on one or multiple trend logs and point values.

Examples of advanced calculations:

- Energy usage normalization
- Virtual submeters and summaries
- Calculation of Mean Kinetic Temperature
- Unit conversions
- Average, maximum, and minimum over custom periods

The output of the Log Processor can be saved in the database, including the External Log Storage or calculated automatically on demand.

Reporting

The EcoStruxure BMS servers provide built-in functionality for basic reporting that can deliver reports in any text format and XLSX, without any dependencies to other external software. Reports for XLSX can be enriched by using advanced functionality such as formulas, conditional formatting, charts and sparklines.

Reports can be generated on schedule, on an alarm event or other custom conditions, and you can get the output delivered via email or written to file.

Text and graphics-based programming tools

Unique to the industry, the EcoStruxure BMS servers have both Script and Function Block programming options. This flexibility helps assure that a suitable programming method can be selected for the application.

eMMC memory for data and backup

The automation 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 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 EcoStruxure BMS servers communicate using the networking standards. This makes installations easy, management simple, and transactions more secure.

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

TLS support

Communication between clients and the EcoStruxure BMS servers, and between EcoStruxure BMS servers, can be encrypted using Transport Layer Security (TLS). 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.

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.

Removable terminal blocks

AS-B servers use pluggable terminal blocks, which are easy to install and remove from the device. The terminal blocks are delivered with the device.

Efficient terminal management

The input and output terminals are clearly labeled. EcoStruxure Building Operation WorkStation can generate custom as-built labels for an AS-B server.

Protection

Protection components on the universal inputs/outputs, digital inputs, and triac outputs helps protect against high-voltage short-duration transient events. Universal inputs/outputs configured as current inputs (Ub only) have protection against over current. Universal inputs/outputs configured as voltage outputs have current limits to help protect against permanent short-circuit to ground.

SpaceLogic Operator Display support

SpaceLogic Operator Display is an easy HMI based on the BACnet B-OD profile. It can interface and interact with

AS-B

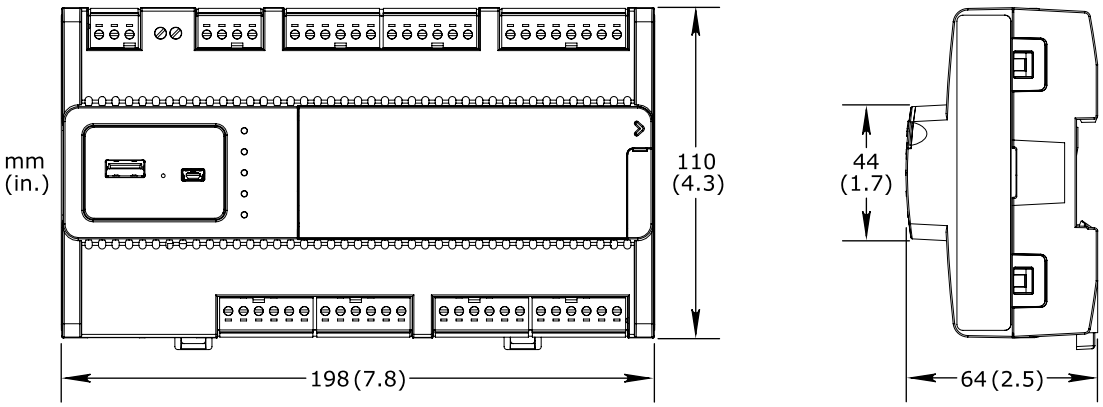
Continued

automation servers in a small BMS that require a simple HMI. It features a large 7-inch color touch screen and a preloaded application. It is easy to install and use and does not require any programming. Built for the equipment room, the panel-mounted SpaceLogic Operator Display offers an ingress protection rating of IP65, which makes it both dust-tight and protected from low-pressure water jets. For more information, see the SpaceLogic Operator Display Specification Sheet.

Specifications

AS-B	
AC input	
Nominal voltage	24 VAC
Operating voltage range	+/- 20 %
Frequency	50/60 Hz
Maximum current	0.5 A rms
Recommended transformer rating	≥15 VA
DC input	
Nominal voltage	24 to 30 VDC
Operating voltage range	21 to 33 VDC
Maximum power consumption	10 W
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 flame rating	UL94-5VB
Enclosure	PC/ABS
Ingress protection rating	IP 20
Mechanical	
Dimensions	198 W x 110 H x 64 D mm (7.8 W x 4.3 H x 2.5 D in.)

AS-B



Weight, including terminal blocks a) The weight includes the display and keys, which are 0.022 kg (0.049 lb).	0.504 kg (1.111 lb)[a]
Weight, excluding terminal blocks a) The weight includes the display and keys, which are 0.022 kg (0.049 lb).	0.420 kg (0.926 lb)[a]
Agency compliances	
Emission	RCM; BS/EN 61000-6-3; BS/EN 50491-5-2; FCC Part 15, Sub-part B, Class B
Immunity	BS/EN 61000-6-2; BS/EN 50491-5-3
Safety standards	BS/EN 60730-1; BS/EN 60730-2-11; BS/EN 50491-3; UL 916 C-UL US Listed
Product	BS/EN 50491-1
Real-time clock	
Accuracy in runtime mode	NTP server
Accuracy in backup mode, 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	1 USB 2.0 device port (mini-B) 1 USB 2.0 host port (type-A), 5 VDC, 2.5 W
RS-485	2-wire port, bias 5.0 VDC
Communications	
BACnet	BACnet/IP, port configurable, default 47808 BACnet/SC, port configurable, no default port
BACnet profile	BACnet Building Controller (B-BC), AMEV AS-B
BACnet certification a) See the BTL Product Catalog for up-to-date details on BTL listed firmware revisions on BACnet International's homepage.	BTL Certification (BTL Listing[a], WSPCert)
Modbus	Modbus TCP, client and server Serial, RS-485, master or slave
TCP	Binary, port fixed, 4444
HTTP	Non-binary, port configurable, default 80

AS-B

HTTPS a) Disabled by default.	Encrypted supporting TLS 1.3, 1.2, 1.1[a], and 1.0[a], port configurable default 443
SMTP	Email sending, port configurable, default 25
SMTPS	Email sending, port configurable, default 587
SNMP	version 3 Network supervision using poll and trap Application alarm distribution using trap
CPU	
Frequency	333 MHz
Type	SPEAr320S, ARM926 core
DDR2 SDRAM	256 MB
eMMC memory	4 GB
Memory backup	Yes, battery-free, no maintenance
Display	
Display resolution	128 x 64 pixels
Display size	36 W x 17 H mm (1.4 W x 0.7 H in.)
Display type	FSTN monochrome LCD, white color transflective backlight
Part numbers	
SpaceLogic AS-B-24	SXWASB24X10001
SpaceLogic AS-B-24H Includes display	SXWASB24H10001
SpaceLogic AS-B-24-P Hardware only, software not included.	SXWASB24PX10001
SpaceLogic AS-B-24H-P Hardware only, software not included. Includes display.	SXWASB24HP10001
SpaceLogic AS-B-36	SXWASB36X10001
SpaceLogic AS-B-36H Includes display	SXWASB36H10001
SpaceLogic AS-B-36-P Hardware only, software not included.	SXWASB36PX10001
SpaceLogic AS-B-36H-P Hardware only, software not included. Includes display.	SXWASB36HP10001
AS-B connector kit (includes terminal blocks)	SXWASBCON10001
AS-B installer kit	SXWASBINS10001
Software bundles	

In the following description, a Connected Product is a communicating device directly connected to a BACnet, Modbus, or Zigbee network driven by the AS-B server. A device connected to an RP or MP controller or a non-communicating sensor, valve, or actuator is not a Connected Product.

AS-B

AS-B Bundle – Standard Supports up to 10 Connected Products.	SXWSWXBBU010SD
AS-B Upgrade SmartX Server – Full Supports up to 50 Connected Products.	SXWSWXBBU050FU
Add-on options	
SW-EWS-1, EcoStruxure Web Services (run-time) option Consume only for one automation server	SXWSWEWSXX0001
SW-EWS-2, EcoStruxure Web Services (run-time) option Serve & Consume for one automation server	SXWSWEWSXX0002
SW-EWS-3, EcoStruxure Web Services (run-time) option Serve & Consume, plus Historical trend log data for one automation server	SXWSWEWSXX0003
SW-GWS-1, Web Services (Generic Consume) option For one automation server	SXWSWGWSXX0001
SW-SNMP-1, Alarm notifications via SNMP option For one automation server	SXWSWSNMPX0001
SW-ASDBTS-1, TimescaleDB connection option For one automation server	SXWSWASDBXS001
SW-ASMQTT-1, MQTT option For one automation server (not required if the parent Enterprise Server has a license)	SXWSWMQTTXRW01
SAML Authentication option For one SpaceLogic automation server	SXWSWASSAML001

Software requirements	
External log storage option	TimescaleDB 1.2 and later PostgreSQL version compatible with the TimescaleDB version
Quality assurance testing has been performed by Schneider Electric with TimescaleDB and PostgreSQL installed natively in Windows 10, Windows Server 2012, 2016, and 2019. Other deployment scenarios have not been tested by Schneider Electric.	

Universal inputs/outputs, Ua and Ub	
Channels, AS-B servers with 24 I/O points	12 Ua, Ua1 to Ua12 4 Ub, Ub1 to Ub4
Channels, AS-B servers with 36 I/O points	20 Ua, Ua1 to Ua20, 8 Ub, Ub1 to Ub8
Absolute maximum ratings	-0.5 to +24 VDC
A/D converter resolution	16 bits

Digital inputs	
Range	Dry contact switch closure or open collector/open drain, 24 VDC, typical wetting current 2.4 mA
Minimum pulse width	120 ms

Counter inputs	
Range	Dry contact switch closure or open collector/open drain, 24 VDC, typical wetting current 2.4 mA
Minimum pulse width	20 ms
Maximum frequency	25 Hz

AS-B

Supervised inputs	
5 V circuit, 1 or 2 resistors Monitored switch combinations	Series only, parallel only, and series and parallel
Resistor range For a 2-resistor configuration, each resistor must have the same value +/- 5 %	1 to 10 kohm
Voltage inputs	
Range	0 to 10 VDC
Accuracy	+/-(7 mV + 0.2 % of reading)
Resolution	0.5 mV
Impedance	100 kohm
Current inputs	
Range	0 to 20 mA
Accuracy	+/-(0.01 mA + 0.4 % of reading)
Resolution	1 µA
Impedance	47 ohm
Resistive inputs	
10 ohm to 10 kohm accuracy R = Resistance in ohm	$+/-(7 + 4 \times 10^{-3} \times R)$ ohm
10 kohm to 60 kohm accuracy R = Resistance in ohm	$+/-(4 \times 10^{-3} \times R + 7 \times 10^{-8} \times R^2)$ ohm
Temperature inputs (thermistors)	
Range	-50 to +150 °C (-58 to +302 °F)
Supported thermistors	
Honeywell	20 kohm
Type I (Continuum)	10 kohm
Type II (I/NET)	10 kohm
Type III (Satchwell)	10 kohm
Type IV (FD)	10 kohm
Type V (FD w/ 11k shunt)	Linearized 10 kohm
Satchwell D?T	Linearized 10 kohm
Johnson Controls	2.2 kohm
Xenta	1.8 kohm
Balco	1 kohm

AS-B

Measurement accuracy	
20 kohm	-50 to -30 °C: +/-1.5 °C (-58 to -22 °F: +/-2.7 °F) -30 to 0 °C: +/-0.5 °C (-22 to +32 °F: +/-0.9 °F) 0 to 100 °C: +/-0.2 °C (32 to 212 °F: +/-0.4 °F) 100 to 150 °C: +/-0.5 °C (212 to 302 °F: +/-0.9 °F)
10 kohm, 2.2 kohm, and 1.8 kohm	-50 to -30 °C: +/-0.75 °C (-58 to -22 °F: +/-1.35 °F) -30 to +100 °C: +/-0.2 °C (-22 to +212 °F: +/-0.4 °F) 100 to 150 °C: +/-0.5 °C (212 to 302 °F: +/-0.9 °F)
Linearized 10 kohm	-50 to -30 °C: +/-2.0 °C (-58 to -22 °F: +/-3.6 °F) -30 to 0 °C: +/-0.75 °C (-22 to +32 °F: +/-1.35 °F) 0 to 100 °C: +/-0.2 °C (32 to 212 °F: +/-0.4 °F) 100 to 150 °C: +/-0.5 °C (212 to 302 °F: +/-0.9 °F)
1 kohm	-50 to +150 °C: +/-1.0 °C (-58 to +302° F: +/-1.8 °F)
RTD temperature	
Supported RTDs	Pt1000, Ni1000, LG-Ni1000, and JCI-Ni1000
Pt1000	
Range	-50 to +150 °C (-58 to +302 °F)
Measurement accuracy	-50 to +70 °C: +/-0.5 °C (-58 to +158 °F: +/-0.9 °F) 70 to 150 °C: +/-0.7 °C (158 to 302 °F: +/-1.3 °F)
Ni1000	
Range	-50 to +150 °C (-58 to +302 °F)
Measurement accuracy	+/-0.5 °C (+/-0.9 °F)
LG-Ni1000	
Range	-50 to +150 °C (-58 to +302 °F)
Measurement accuracy	+/-0.5 °C (+/-0.9 °F)
JCI-Ni1000	
Range	-50 to +150 °C (-58 to +302 °F)
Measurement accuracy	+/- 0.5 °C (+/- 0.9 °F)
RTD temperature wiring	
Maximum wire resistance	20 ohm/wire (40 ohm total)
Maximum wire capacitance The wire resistance and capacitance typically corresponds to a 200 m wire.	60 nF
RTD resistive	
1,000 ohm	
Range	500 to 2,200 ohm Including wiring resistance
Measurement accuracy R = resistance in ohm	+/-(0.2 + 1.5 x 10^{-3} x R) ohm
Resolution	0.1 ohm

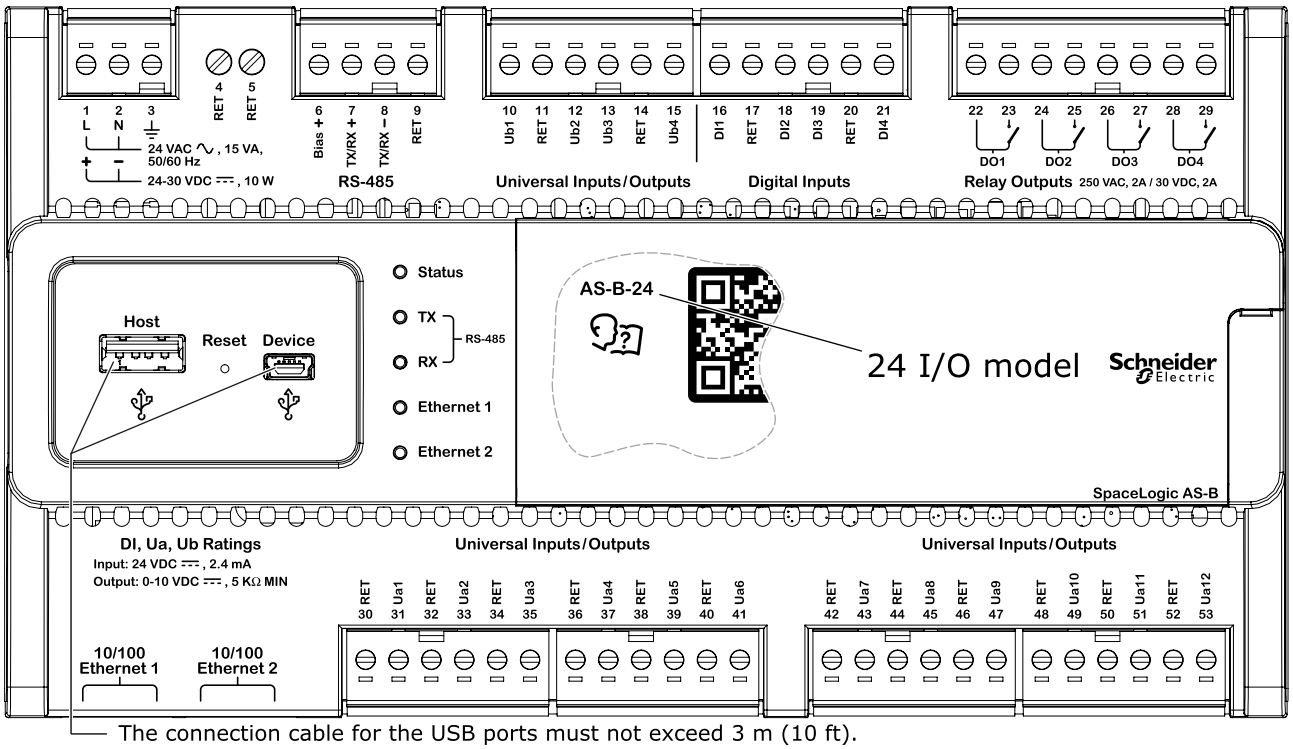
AS-B

RTD resistive wiring	
Maximum wire capacitance	60 nF
Voltage outputs	
Range	0 to 10 VDC
Accuracy	+/-60 mV
Resolution	10 mV
Minimum load resistance	5 kohm
Load range	-1 to +2 mA
Digital inputs, DI	
Channels, AS-B servers with 24 I/O points	4, DI1 to DI4
Channels, AS-B servers with 36 I/O points	0
Absolute maximum ratings	-0.5 to +24 VDC
Digital inputs	
Range	Dry contact switch closure or open collector/open drain, 24 VDC, typical wetting current 2.4 mA
Minimum pulse width	120 ms
Counter inputs	
Range	Dry contact switch closure or open collector/open drain, 24 VDC, typical wetting current 2.4 mA
Minimum pulse width	20 ms
Maximum frequency	25 Hz
Relay outputs, DO	
Channels, AS-B servers with 24 I/O points	4, DO1 to DO4
Channels, AS-B servers with 36 I/O points	4, DO1 to DO4
Contact rating	250 VAC/30 VDC, 2 A, Pilot Duty (C300)
Switch type	Form A Relay Single Pole Single Throw Normally Open
Isolation contact to system ground	3000 VAC
Cycle life (Resistive load)	At least 100,000 cycles
Minimum pulse width	100 ms
Triac outputs, DO	
Channels, AS-B servers with 24 I/O points	0
Channels, AS-B servers with 36 I/O points	4, DO5 to DO8
Output rating	Max. 0.8 A
Voltage	24 VAC +/-20 %

AS-B

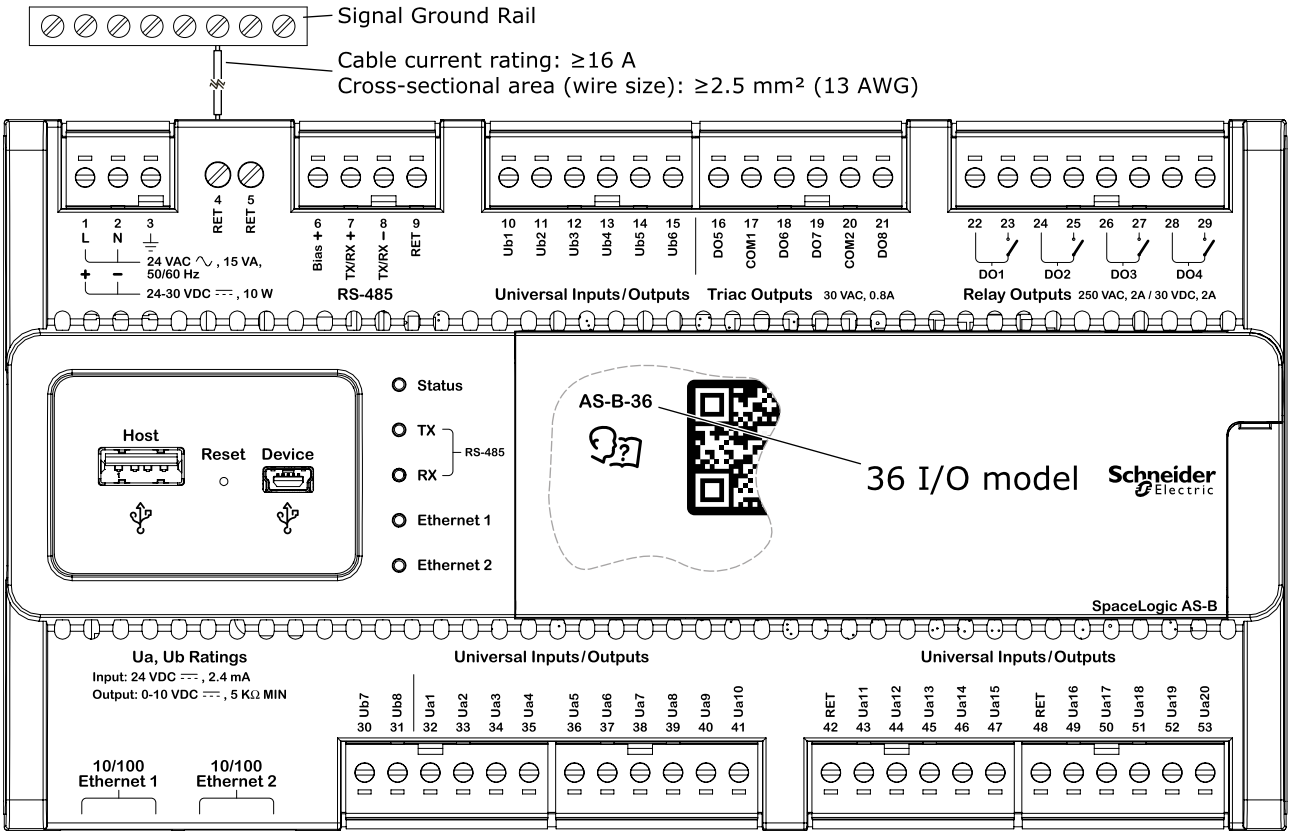
Commons The common terminals COM1 and COM2 can be connected to 24 VAC or to ground.	COM1 for DO5 and DO6 COM2 for DO7 and DO8
Common voltage, high side output	24 VAC
Common voltage, low side output	0 VAC (ground)
Minimum pulse width	100 ms

Terminals



AS-B server model with 24 I/O points

AS-B



AS-B server model with 36 I/O points

For protection from excess current that could be produced by field wiring, follow these instructions:

- Connect RET terminal number 4 or 5 to a common chassis/signal ground rail in the control panel using a size 2.5 mm² (13 AWG) or larger wire. The wire must have a current rating greater than or equal to 16 A.
- AS-B servers with 24 I/O points have more RET terminals for connection of I/O returns, so the common chassis/signal ground rail is optional and may not be needed.
- Individual 24 VDC power sources to the field must be current limited to maximum 4 A for UL compliant installations, and maximum 6 A in other areas.

For more information on wiring, see the SpaceLogic Hardware Reference Guide.

AS-B

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.

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

CE - Compliance to European Union (EU)
2014/30/EU Electromagnetic Compatibility Directive
2014/35/EU Low Voltage Directive
2011/65/EU Restriction of Hazardous Substances (RoHS) Directive
2015/863/EU amending Annex II to Directive 2011/65/EU
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).

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.

UK Conformity Assessed
S.I. 2016/1091 - Electromagnetic Compatibility Regulations 2016
S.I. 2016/1101 - Electrical Equipment (Safety) Regulations 2016
S.I. 2012/3032 - Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012
S.I. 2013/3113 - Waste Electrical and Electronic Equipment Regulations 2013
This equipment complies with the rules, of the UK regulations, for governing the UKCA Marking for the United Kingdom specified in the above directive(s).

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