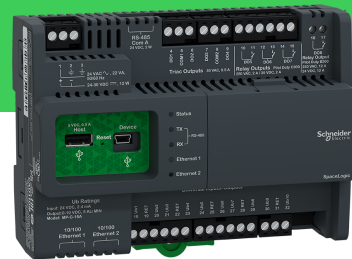# EcoStruxure™
Innovation At Every Level

SpaceLogic MP-C Pro
Plant Room Controllers

EcoStruxure™ Building

Introduction

SpaceLogic™ MP-C Pro is a multi-purpose, fully programmable, IP based field controller. The MP-C models offer a flexible mix of I/O point types that suit a wide range of HVAC applications. MP-C can either be used as a standalone BACnet/IP controller, BACnet/SC node, or as part of an EcoStruxure BMS with a SpaceLogic AS-P or AS-B server or an Enterprise Server as the parent server. The MP-C models support an optional display that provides insight and control of the inputs and outputs.

MP-C has the following features:

- IP enabled with dual-port Ethernet switch
- BACnet/SC node

- Versatile onboard I/O point mix
- Advanced monitoring
- Configurable RS-485 port
- Sensor bus for living space sensors
- Modbus RTU subnetwork
- Commission mobile application for commissioning of the controller before the BMS is in place
- Full EcoStruxure Building Operation software support, providing efficient engineering tools
- SpaceLogic Operator Display support
- Upgrade with signed firmware

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IP connectivity, flexible network topologies, and support for BACnet/SC applications

The BACnet/IP controllers are based on open protocols that simplify interoperability, IP configuration, and device management, and can be enabled as BACnet/SC nodes for increased cybersecurity:

- IP addressing
- BACnet/IP or BACnet/SC communications
- DHCP for easy network configuration

The BACnet/IP controllers have a dual-port Ethernet switch, which enables flexible network topologies:

- Star
- Daisy chain
- Rapid Spanning Tree Protocol (RSTP) ring

In a star topology, the controller and the parent EcoStruxure BMS server are individually connected to an Ethernet switch. Daisy-chain multiple controllers together to reduce installation time and cost. When using a ring network topology, in the event of a broken IP network or a non-operational controller, RSTP will

enable rapid identification of the location of the detected error while maintaining communication with the controllers on either side of the break.

BACnet/SC (Secure Connect) support

The BACnet/IP controllers support BACnet/SC applications as a BACnet/SC node. This allows the controllers to be used in a BACnet/SC network, which allows 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.

Models with a versatile mix of I/O points

MP-C comes in five models with different I/O point count and a versatile mix of I/O point types that match a wide variety of applications. The universal inputs/outputs are highly flexible and can be configured as either inputs or outputs.

I/O Point Types by MP-C Models

I/O Point Types	MP-C-15A	MP-C-18A	MP-C-18B	MP-C-24A	MP-C-36A
Universal I/O Type Ub	8	10	10	16	20
Universal I/O Type Uc	-	-	-	4	8
Triac outputs	6	4	8	-	-
Relay outputs Form A	-	3	-	4	8
High power relay outputs Form A	1	1	-	-	-

Configurations by I/O Point Types

Configurations	Universal I/O Type Ub	Universal I/O Type Uc	Triac Outputs	Relay Outputs Form A	High Power Relay Outputs Form A
Digital inputs	yes	yes	-	-	-
Counter inputs	yes	yes	-	-	-
Supervised inputs	yes	yes	-	-	-
Voltage inputs (0 to 10 VDC)	yes	yes	-	-	-

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Continued

Configurations	Universal I/O Type Ub	Universal I/O Type Uc	Triac Outputs	Relay Outputs Form A	High Power Relay Outputs Form A
Current inputs (0 to 20 mA)	yes	yes	-	-	-
Temperature inputs	yes	yes	-	-	-
Resistive inputs	yes	yes	-	-	-
2-wire RTD temperature inputs	yes	yes	-	-	-
Voltage outputs (0 to 10 VDC)	yes	yes	-	-	-
Current outputs (0 to 20 mA)	-	yes	-	-	-
Digital outputs	-	-	yes	yes	yes
Digital pulsed outputs	-	-	yes	yes	yes
PWM outputs	-	-	yes	yes	yes
Tristate outputs	-	-	yes	yes	-
Tristate pulsed outputs	-	-	yes	yes	-

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.

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 can also be used as voltage outputs or current outputs (Uc only), without the need for external bias resistors. Therefore, the universal inputs/outputs support a wide range of devices, such as actuators.

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. The triac outputs are isolated from the controller. Triacs are silent and are not adversely affected by relay contact wear.

Relay outputs

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

High power relay output

MP-C-15A and MP-C-18A have a high power relay output, which is ideal for switching loads of up to 12 A, such as electrical heating elements.

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.

Advanced monitoring

The BACnet/IP controllers support local trends, schedules, and alarms, enabling local operation when the controller is offline or used in standalone applications.

With user-defined fallback values, the I/O module outputs will be in a predictable state in cases of network disruption.

The battery-free power backup of the memory and real-time clock helps prevent data loss and allows seamless and quick recovery after a power disruption.

All MP-C models can be equipped with the MP-C Display add-on module, which features an LCD display and five keys. With this

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module, you can manually override analog and digital outputs for testing, commissioning, and maintenance of equipment connected to the outputs. The module's dedicated processing power helps to ensure reliable override for maintenance applications. The override status can be viewed in EcoStruxure Building Operation WorkStation and WebStation, enabling more precise monitoring and control.

MP-C Display

In WorkStation, you update the firmware of multiple BACnet/IP controllers at the same time and with minimum down time. The EcoStruxure BMS server keeps track of the installed firmware to support backup, restore, and replacement of the controllers and sensors. The server can host controllers of different firmware versions.

Configurable RS-485 port

The MP-C controller has one configurable RS-485 port, which can be configured to support two different types of networks:

- Sensor bus
- Modbus network

Sensor bus for living space sensors

The BACnet/IP controllers provide an interface designed for the SpaceLogic Sensor family of living space sensors. The SpaceLogic Sensor devices offer an efficient way to sense the temperature, humidity, CO_2, and occupancy in a room. The SpaceLogic Sensor devices are available with different combinations of sensor types and various covers and user interface options, such as touchscreen, setpoint and override buttons, and blank covers. For more information, see the SpaceLogic Sensors - SXWS Sensors for MP and RP IP Controllers - Specification Sheet.

SpaceLogic Sensor devices

The sensor bus provides both power and communications for up to four sensors that are daisy-chained using standard Cat 5 (or higher) cables. The maximum number of sensors that can be connected to a controller varies depending on the sensor model and the combination of cover and sensor base type:

- Blank covers: Up to four sensors of any combination of sensor base types
- 3-button and touchscreen covers:
  - Up to two sensor bases with CO_2 option
  - Up to four sensor bases without CO_2 option
- SpaceLogic LCD temperature sensors: Up to four sensors are supported

The maximum total length of the sensor bus is 61 m (200 ft). For more information, see the SpaceLogic Sensors - SXWS Sensors for MP and RP IP Controllers - Specification Sheet.

The RS-485 Power Adapter can be used to supply 24 VDC power to the MP controller sensor bus so that the maximum number of sensor bases with CO_2 option can be increased from two to four sensor bases. The adapter can be ordered from Schneider Electric. For more information, see section the RS-485 Adapters Specification Sheet.

Modbus RTU subnetwork

The MP-C Modbus RTU (RS-485) subnetwork allows standard Modbus devices to be connected to the controller.

The Modbus RTU protocol is used for the communication. The MP controller acts as the Modbus client and the connected devices act as servers.

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For connection to Modbus devices, it is recommended to use the non-isolated RS-485 adapter to provide screw termination. The adapter converts an RS-485 RJ45 interface to screw terminals. The adapter can be ordered from Schneider Electric. For more information, see the RS-485 Adapters Specification Sheet.

To connect the adapter, it is recommended that you use a Cat 5 (or higher) UTP cable with eight conductors and RJ45 connectors. The cable should be rated for the target environment and have a maximum length of 0.3 m (12 in.). The cable is not included and needs to be purchased separately.

The maximum number of Modbus devices that can be connected to an MP controller depends on the type of Modbus device and the number of Modbus registers.

The MP controller Modbus network supports up to 20 connected Modbus devices with the following restrictions:

- Maximum of 1,000 Modbus registers per network

64-bit Modbus registers are supported, which can be used in energy metering.

Maximum total length of the Modbus network is 72 m (236 ft).

The Modbus devices require a separate power supply unit.

Modbus device types

Modbus device types are pre-configured Modbus applications for quick and easy Modbus device integration in EcoStruxure Building Operation solutions. For information on the Modbus devices supported using Modbus device types, see the document EcoStruxure Building - Modbus Device Integration - Supported Device Brochure.

Commission mobile application

The Commission mobile application is designed for local configuration, field deployment, and commissioning of BACnet/IP controllers. The mobile application reduces the commissioning time, allows flexibility in project execution, and minimizes dependencies on network infrastructure.

The mobile application is designed for use with Android, Apple (iOS), and Microsoft Windows 10 and Windows 11 devices. For more information, see the EcoStruxure Building Commission Specification Sheet.
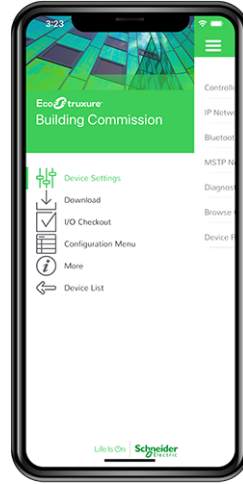
Commission mobile application

Using the Commission mobile application, you can connect to one or many BACnet/IP controllers. You can connect to a single BACnet/IP controller using the SpaceLogic Bluetooth Adapter connected to a SpaceLogic Sensor. Using a wireless access point or a network switch, you can connect to a network of BACnet/IP controllers on the local IP network.

Device configuration

With the Commission mobile application, you can easily discover BACnet/IP controllers on the IP network. You can change the configuration of each controller, including the BACnet and IP network settings, location, and parent server. To save engineering time, you can save common device settings and then reuse them for controllers of the same model.

Field deployment and I/O checkout

The Commission mobile application does not require an EcoStruxure BMS server or a network infrastructure to be in place. You can use the mobile application to load the controller application directly into the local BACnet/IP controller and deploy the controller. The controller application can be created offline using Project Configuration Tool or WorkStation. You can also perform an I/O checkout to verify that the controller's I/O points are configured, wired, and operating correctly.

Full EcoStruxure Building Operation software support

The power of the BACnet/IP controller is fully realized when it is part of an EcoStruxure BMS, which provides the following benefits:

- WorkStation/WebStation interface
- Script and Function Block programming options
- Device discovery
- Engineering efficiency

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- Preconfigured BMS applications for HVAC

WorkStation/WebStation interface

WorkStation and WebStation provide a consistent user experience regardless of which EcoStruxure BMS server the user is logged on to. The user can log on to the parent EcoStruxure BMS server to engineer, commission, supervise, and monitor the BACnet/IP controller and its I/O as well as its attached SpaceLogic Sensor devices. For more information, see the WorkStation and WebStation specification sheets.

Script and Function Block programming options

Unique to the industry, the BACnet/IP controllers have both Script and Function Block programming options. This flexibility assures that the best programming method can be selected for the application. Existing programs can easily be reused between the EcoStruxure BMS server and the controller.

Device discovery

The enhanced Device Discovery in WorkStation enables you to easily identify BACnet/IP controllers on a BACnet network and to associate the controllers with their parent server.

Engineering efficiency

The engineering and maintenance of BACnet/IP controllers can be done very efficiently using the EcoStruxure Building Operation reusability features. With these features, you can create library items (Custom Types) for a complete controller application that contains programs and all necessary objects such as trends, alarms, and schedules. The controller application in the Custom Types library is reusable across all controllers of the same model. You can use the controller application as a base for creating new controllers intended for similar applications. You can then edit the controller application, and the changes are automatically replicated to all controllers, while each controller keeps its local values.

WorkStation supports both online and offline engineering of BACnet/IP controllers. You can make the configuration changes online or use database mode to make the changes offline. In database mode, the changes are saved to the EcoStruxure Building Operation database so that you can apply the changes to the controllers later.

Project Configuration Tool enables you to perform all the engineering off site, without the need for physical hardware, which minimizes the time you need to spend on site. You can run the EcoStruxure BMS servers virtually and engineer the BACnet/IP controllers before you deploy your server and controller applications to the servers and controllers on site. For more information, see the Project Configuration Tool specification sheet.

Preconfigured BMS applications for HVAC

To improve engineering efficiency and standardize engineering practices, fully designed and tested controller applications are available at bms-applications.schneider-electric.com for use with the MP controllers. This library contains applications for different MP controller models and application types, such as fan coil units, VAV, and ceiling solutions. These preconfigured controller applications are packages that include all software programs, and for example graphics, alarms, and documentation such as functional specifications and I/O wiring schedules, that are needed for your projects. The online repository can be accessed using common web browsers on Windows PCs as well as mobile devices running Apple iOS 11.3 (or later) and Android 6.0 Marshmallow (or later).
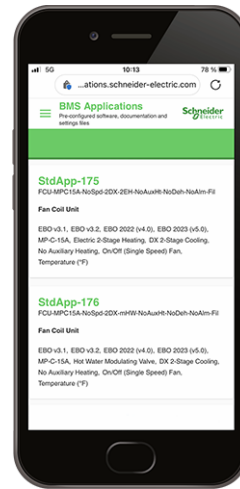
Download page for preconfigured BMS applications

SpaceLogic Operator Display support

SpaceLogic Operator Display is an easy HMI based on the BACnet B-OD profile. It can interface and interact with up to seven SpaceLogic BACnet/IP controllers in a small BMS without an EcoStruxure BMS server. 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.

Upgrade with signed firmware

Using digitally signed firmware provides more secure upgrading of the device. During an upgrade, the device verifies that the firmware is authentic and uncompromised Schneider Electric firmware. If the device detects discrepancies in the authenticity or integrity of the firmware, it will reject the upgrade. Once the device is upgraded with signed firmware, all upgrades thereafter must be with a signed firmware version.

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Part Numbers for MP-C

Product	Part number
MP-C-15A	SXWMPC15A10001
MP-C-18A	SXWMPC18A10001
MP-C-18B	SXWMPC18B10001
MP-C-24A	SXWMPC24A10001
MP-C-36A	SXWMPC36A10001
MP-C-15A-BAA[a]	SXWMPC15A10A01
MP-C-18A-BAA[a]	SXWMPC18A10A01
MP-C-18B-BAA[a]	SXWMPC18B10A01
MP-C-24A-BAA[a]	SXWMPC24A10A01
MP-C-36A-BAA[a]	SXWMPC36A10A01
MP-C-15A-SMK[b]	SXWMPC15A1S001
MP-C-18A-SMK[b]	SXWMPC18A1S001
MP-C-18B-SMK[b]	SXWMPC18B1S001
MP-C-24A-SMK[b]	SXWMPC24A1S001
MP-C-36A-SMK[b]	SXWMPC36A1S001

a) Buy American Act (BAA) compliant. MP-C-15A-BAA and MP-C-36A-BAA are also included in BAA compliant bundles that include either the MP-C-15A-BAA controller and MP-C-BAA DISPLAY or the MP-C-36A-BAA controller and MP-C-BAA DISPLAY. The bundles can be ordered using the part number SXWMPC15AB10A01 for the MP-C-15A-BAA bundle or SXWMPC36AB10A01 for the MP-C-36A-BAA bundle.
b) Approved for use in UL 864 smoke control systems. The smoke control (SMK) models are shipped with a validated UL 864 software version, which can differ from the latest released software. For information on the approved software revisions for the device when used in UL 864 smoke control systems, see the Smoke Control System Approved Software Revisions - EcoStruxure Building Management document, 01-16001-XX-en.

Part Numbers for MP-C Accessories

Product	Part number
MP-C DISPLAY[a] (MP-C override display module)	SXWMPCDSP10001
MP-C-BAA DISPLAY[b] (MP-C BAA override display module)	SXWMPCDSP10A01
Spare terminal blocks for all MP-C models (4 x 3-pin, 1 x 4-pin, 7 x 6-pin, 2 x 8-pin terminal blocks)	SXWMPCCON10001
DIN-RAIL-CLIP, DIN-rail end clip package of 25 pieces	SXWDINEND10001
Non-isolated RS-485 adapter[c]	SXWNISORS48510001
RS-485 power adapter[c]	SXWNISORS485P10001
SpaceLogic Bluetooth Adapter[c]	SXWBTAECXX10001

a) Approved for use in UL 864 smoke control systems.
b) MP-C-BAA DISPLAY is included in Buy American Act (BAA) compliant bundles along with either the MP-C-15A-BAA or MP-C-36A-BAA controller. MP-C-BAA DISPLAY can only be ordered using the part number for the MP-C-15A-BAA bundle (SXWMPC15AB10A01) or MP-C-36A-BAA bundle (SXWMPC36AB10A01). MP-C-BAA DISPLAY does not differ from MP-C DISPLAY in terms of hardware and functionality.
c) The RS-485 adapters and the Bluetooth adapter are not available in Buy American Act (BAA) compliant variants.

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For more information on part numbers for Network Connectivity Accessories, see the Product Selection Guide - EcoStruxure Building.

Specifications

| SpaceLogic MP-C Pro	
AC input	
Nominal voltage	24 VAC
Operating voltage range	+/- 20 %
Frequency	50/60 Hz
Maximum power consumption (MP-C-15A, -18A, -18B)	22 VA
Maximum power consumption (MP-C-24A)	28 VA
Maximum power consumption (MP-C-36A)	33 VA
Power input protection	MOV suppression and internal fuse
DC input	
Nominal voltage	24 to 30 VDC
Operating voltage range	21 to 33 VDC
Maximum power consumption (MP-C-15A, -18A, -18B)	12 W
Maximum power consumption (MP-C-24A)	15 W
Maximum power consumption (MP-C-36A)	18 W
Power input protection	MOV suppression and internal fuse
Environment	
Ambient temperature, operating	0 to 50 °C (32 to 122 °F) at normal operation[a] -40 to +60 °C (-40 to +140 °F) for rooftop applications, horizontal installation only[a]
a) MP-C Display has an operating temperature range of -30 to +60 °C (-22 to +140 °F).	
Ambient temperature, storage	-40 to +70 °C (-40 to +158 °F)
Maximum humidity	95 % RH non-condensing
Material	
Plastic flame rating	UL94 V-0
Ingress protection rating	IP 20
Mechanical	
Dimensions (MP-C-15A, -18A, -18B)	153 W x 110 H x 64 D mm (6.0 W x 4.3 H x 2.5 D in.)

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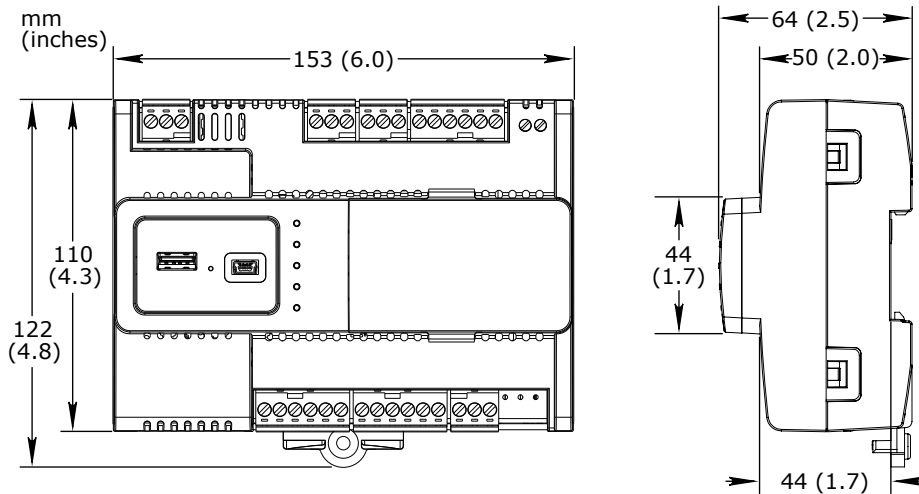
| Dimensions (MP-C-24A, -36A) | 234 W x 110 H x 64 D mm (9.2 W x 4.3 H x 2.5 D in.) |
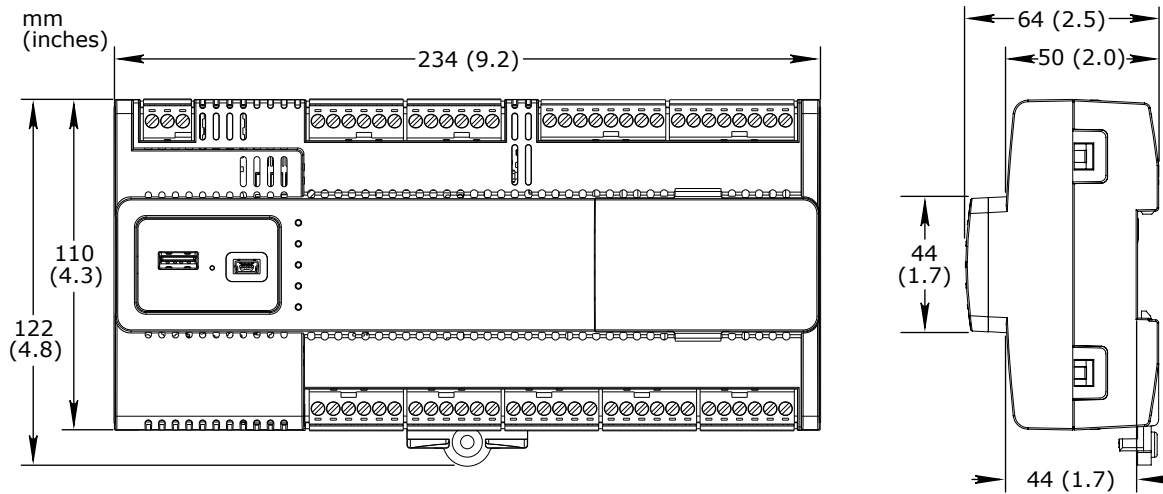
Weight, MP-C-15A Including terminal blocks	0.358 kg (0.789 lb)
Weight, MP-C-18A Including terminal blocks	0.371 kg (0.818 lb)
Weight, MP-C-18B Including terminal blocks	0.361 kg (0.796 lb)
Weight, MP-C-24A Including terminal blocks	0.495 kg (1.091 lb)
Weight, MP-C-36A Including terminal blocks	0.547 kg (1.206 lb)
Recommended installation	DIN rail or flat surface in a cabinet[a]
a) It is recommended to install the device in an enclosure (cabinet), unless local regulations allow an exception.	
Terminal blocks	Removable

SpaceLogic MP-C Pro

Compatibility	
EcoStruxure BMS server communication EcoStruxure Building Operation	version 2.0.4 and later
Modbus RTU subnetwork support EcoStruxure Building Operation software	version 5.0.1 and later
BACnet/SC network support EcoStruxure Building Operation	version 6.0.1 and later
EcoStruxure Building Management Smoke Control System[a] EcoStruxure Building Operation	For information, see the Smoke Control System Approved Software Revisions - EcoStruxure Building Management document, 01-16001-XX-en.

a) Applies to the Smoke Control (SMK) models.

Agency compliances	
Emission	RCM; BS/EN 61000-6-3; BS/EN IEC 63044-5-2; FCC Part 15, Sub-part B, Class B
Immunity	BS/EN 61000-6-2; BS/EN IEC 63044-5-3
Safety standards	BS/EN 60730-1; BS/EN 60730-2-11; BS/EN IEC 63044-3; UL 916 C-UL US Listed
Smoke control product safety[a]	UL 864

a) Applies to the Smoke Control (SMK) models and MP-C DISPLAY module. For specifications and information on the restrictions that apply to the SMK models and display module when used in UL 864 smoke control systems, see the EcoStruxure Building Management - Smoke Control System Design Guide, 04-16014-XX-en.

Real-time clock	
Accuracy, at 25 °C (77 °F)	+/-1 minute per month
Backup time, at 25 °C (77 °F)	7 days minimum

Communication ports	
Ethernet	Dual 10/100BASE-TX (RJ45), IEEE 802.3 compliant
USB	1 USB 2.0 device port (mini-B) 1 USB 2.0 host port (type-A), 5 VDC, 2.5 W
RS-485 port Com A	24 VDC, 2 W, RS-485 (RJ45) Transient voltage suppressors on communication and power signals

RS-485 transceiver characteristics	
Transceiver type	Failsafe Non-isolated
External biasing	None required
Total Unit Load (UL) per device	Maximum 0.5 UL

Communications	
BACnet	BACnet/IP, port configurable, default 47808 BACnet/SC, port configurable, no default port BTL B-AAC (BACnet Advanced Application Controller), B-GW (BACnet Gateway)[a]

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

CPU	
Frequency	500 MHz
Type	ARM Cortex-A7 dual-core

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DDR3 SDRAM	128 MB
NOR flash memory	32 MB
Memory backup	128 kB, FRAM, non-volatile

MP-C Display (Optional)

Removable	No
Dimensions	74 W x 46 H x 24 D mm (2.9 W x 1.8 H x 0.9 D in.)

mm (inches)

74 (2.9)
36 (1.4)
17 (0.7)
46 (1.8)
24 (0.9)

Display size	36 W x 17 H mm (1.4 W x 0.7 H in.)
Display resolution	128 x 64 pixels
Display type	FSTN monochrome LCD, white color transflective backlight
Power consumption	max. 0.15 W (45 mA at 3.3 V)
Ambient temperature, operating	-30 to +60 °C (-22 to +140 °F)
Ambient temperature, storage	-40 to +70 °C (-40 to +158 °F)
Maximum humidity	95 % RH non-condensing
Weight	0.035 kg (0.077 lb)
Compliance with standards	EN ISO 16484-2

Universal inputs/outputs, Ub and Uc

Channels, MP-C-15A	8 Ub, Ub1 to Ub8
Channels, MP-C-18A	10 Ub, Ub1 to Ub10
Channels, MP-C-18B	10 Ub, Ub1 to Ub10
Channels, MP-C-24A	16 Ub, Ub1 to Ub16 4 Uc, Uc1 to Uc4
Channels, MP-C-36A	20 Ub, Ub1 to Ub20 8 Uc, Uc1 to Uc8
Absolute maximum ratings	-0.5 to +24 VDC
A/D converter resolution	16 bits
Universal input/output protection	Transient voltage suppressor on each universal input/output

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Digital inputs

Range	Dry contact switch closure or open collector/open drain, 24 VDC, typical wetting current 2.4 mA
Minimum pulse width	150 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

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	1.0 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

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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

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 inputs

Supported RTDs	Pt1000, Ni1000, and LG-Ni1000

Pt1000

Sensor range	-50 to +150 °C (-58 to +302 °F)

BACnet/IP device environment	Sensor range	Measurement accuracy
0 to 50 °C (32 to 122 °F)	-50 to +70 °C (-58 to +158 °F)	+/-0.5 °C (+/-0.9 °F)
0 to 50 °C (32 to 122 °F)	70 to 150 °C (158 to 302 °F)	+/-0.7 °C (+/-1.3 °F)
-40 to +60 °C (-40 to +140 °F)	-50 to +150 °C (-58 to +302 °F)	+/-1.0 °C (+/-1.8 °F)

Ni1000

Sensor range	-50 to +150 °C (-58 to +302 °F)

BACnet/IP device environment	Sensor range	Measurement accuracy
0 to 50 °C (32 to 122 °F)	-50 to +150 °C (-58 to +302 °F)	+/-0.5 °C (+/-0.9 °F)
-40 to +60 °C (-40 to +140 °F)	-50 to +150 °C (-58 to +302 °F)	+/-0.5 °C (+/-0.9 °F)

LG-Ni1000

Sensor range	-50 to +150 °C (-58 to +302 °F)

BACnet/IP device environment	Sensor range	Measurement accuracy
0 to 50 °C (32 to 122 °F)	-50 to +150 °C (-58 to +302 °F)	+/-0.5 °C (+/-0.9 °F)
-40 to +60 °C (-40 to +140 °F)	-50 to +150 °C (-58 to +302 °F)	+/-0.5 °C (+/-0.9 °F)

RTD temperature wiring

Maximum wire resistance	20 ohm/wire (40 ohm total)

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Continued

Maximum wire capacitance The wire resistance and capacitance typically corresponds to a 200 m wire.	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

Current outputs (Uc only)	
Range	0 to 20 mA
Accuracy	+/-0.2 mA
Resolution	21 µA
Load range	0 to 650 ohm

Relay outputs, DO	
Channels, MP-C-15A	0
Channels, MP-C-18A	3, DO5 to DO7
Channels, MP-C-18B	0
Channels, MP-C-24A	4, DO1 to DO4
Channels, MP-C-36A	8, DO1 to DO8
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

High power relay outputs, DO	
Channels, MP-C-15A	1, DO7
Channels, MP-C-18A	1, DO8
Channels, MP-C-18B	0
Channels, MP-C-24A	0
Channels, MP-C-36A	0
Contact rating	250 VAC/24 VDC, 12 A, Pilot Duty (B300)

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|	
Switch type	Form A Relay Single Pole Single Throw Normally Open
Isolation contact to system ground	5000 VAC
Cycle life (Resistive load)	At least 100,000 cycles
Minimum pulse width	100 ms
Triac outputs, DO	
Channels, MP-C-15A	6, DO1 to DO6
Channels, MP-C-18A	4, DO1 to DO4
Channels, MP-C-18B	8, DO1 to DO8
Channels, MP-C-24A	0
Channels, MP-C-36A	0
Output rating (for each triac output)	Max. 0.5 A
Voltage	24 VAC +/-20 %
Commons	COM1 for DO1 and DO2 (on MP-C-15A, -18A, -18B) COM2 for DO3 and DO4 (on MP-C-15A, -18A, -18B) COM3 for DO5 and DO6 (on MP-C-15A, -18B) COM4 for DO7 and DO8 (on MP-C-18B only)
The common terminals can be connected to 24 VAC or to ground.	
Common voltage, high side output	24 VAC
Common voltage, low side output	0 VAC (ground)
Minimum pulse width	100 ms
Triac output protection	MOV and snubber across each triac output MOV from triac COM to ground

Terminals

Follow proper installation wiring diagrams and instructions, including these instructions:

- All MP-C models have several RET terminals for connection of I/O returns, so a common chassis/signal ground rail is optional and may not be needed.

- Individual 24 V 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 and EasyLogic - Hardware Installation System Guide.
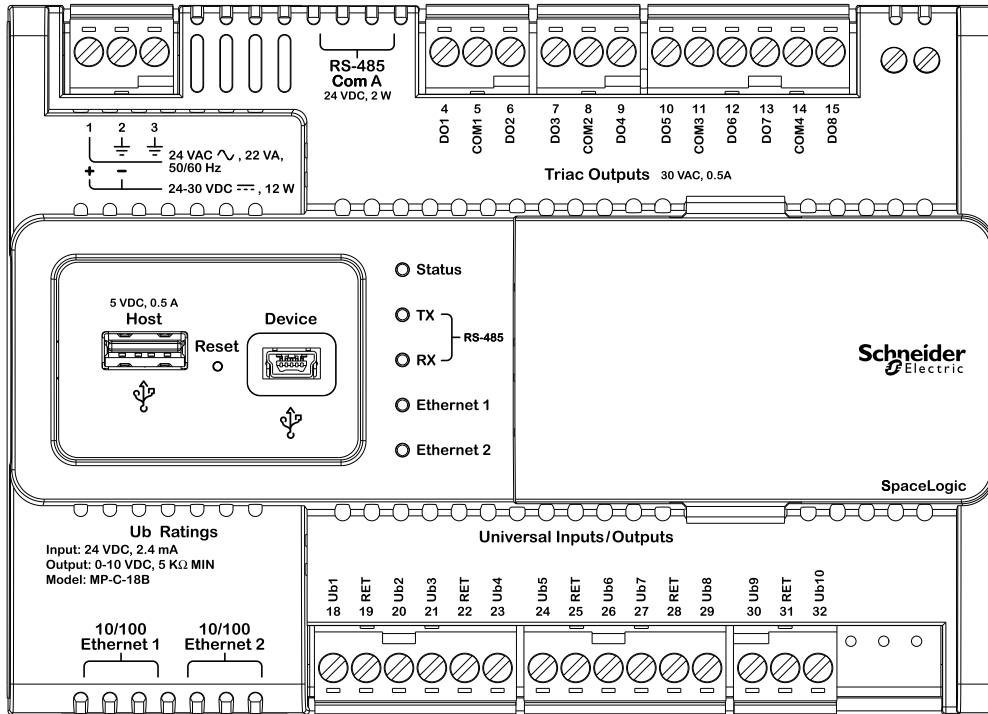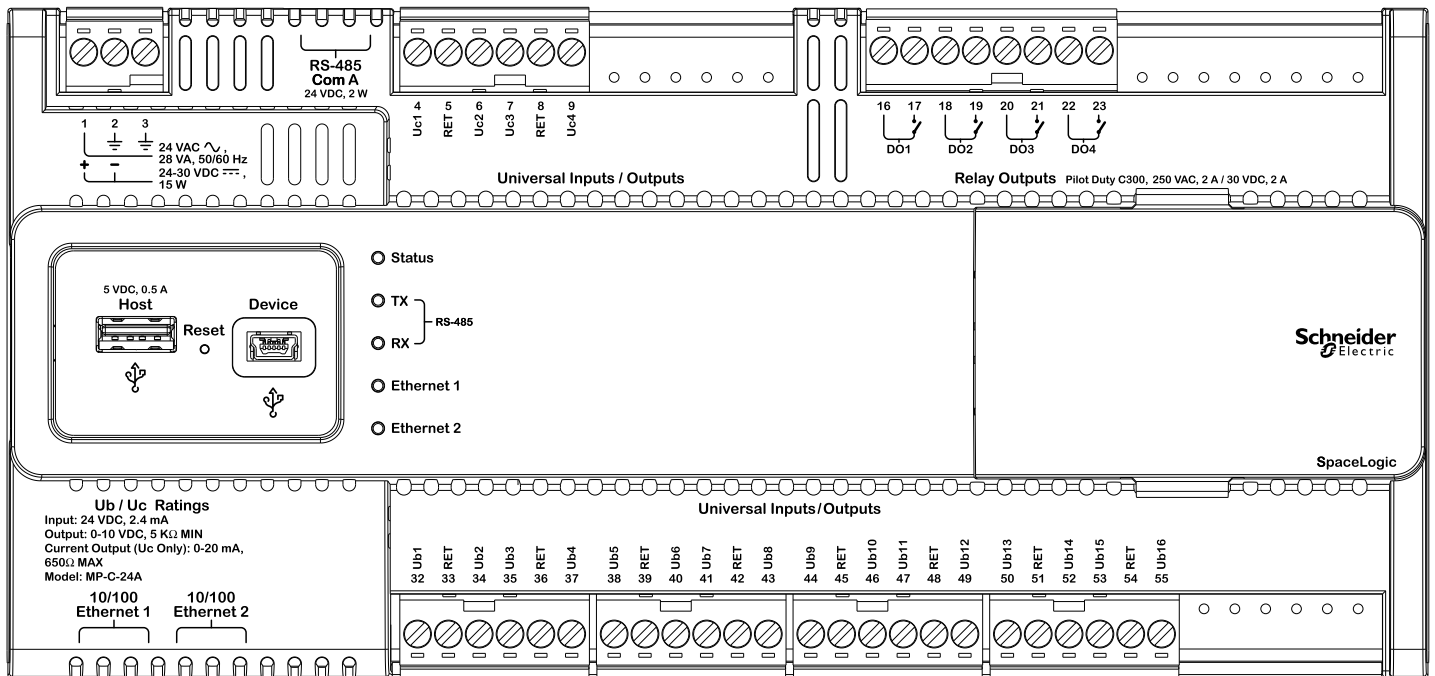
SpaceLogic MP-C Pro
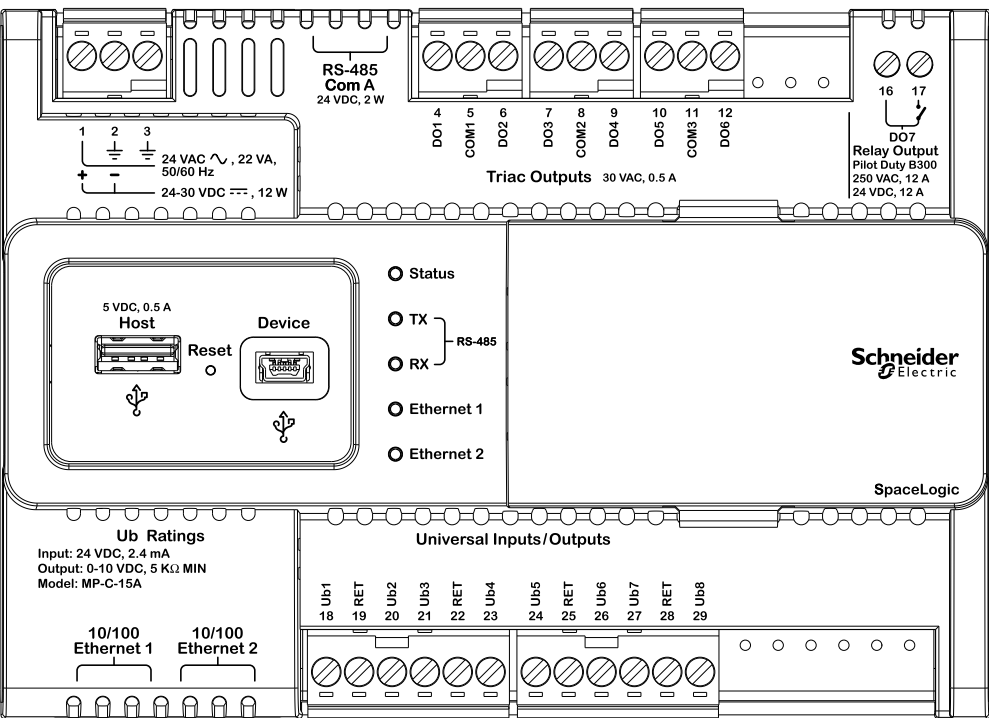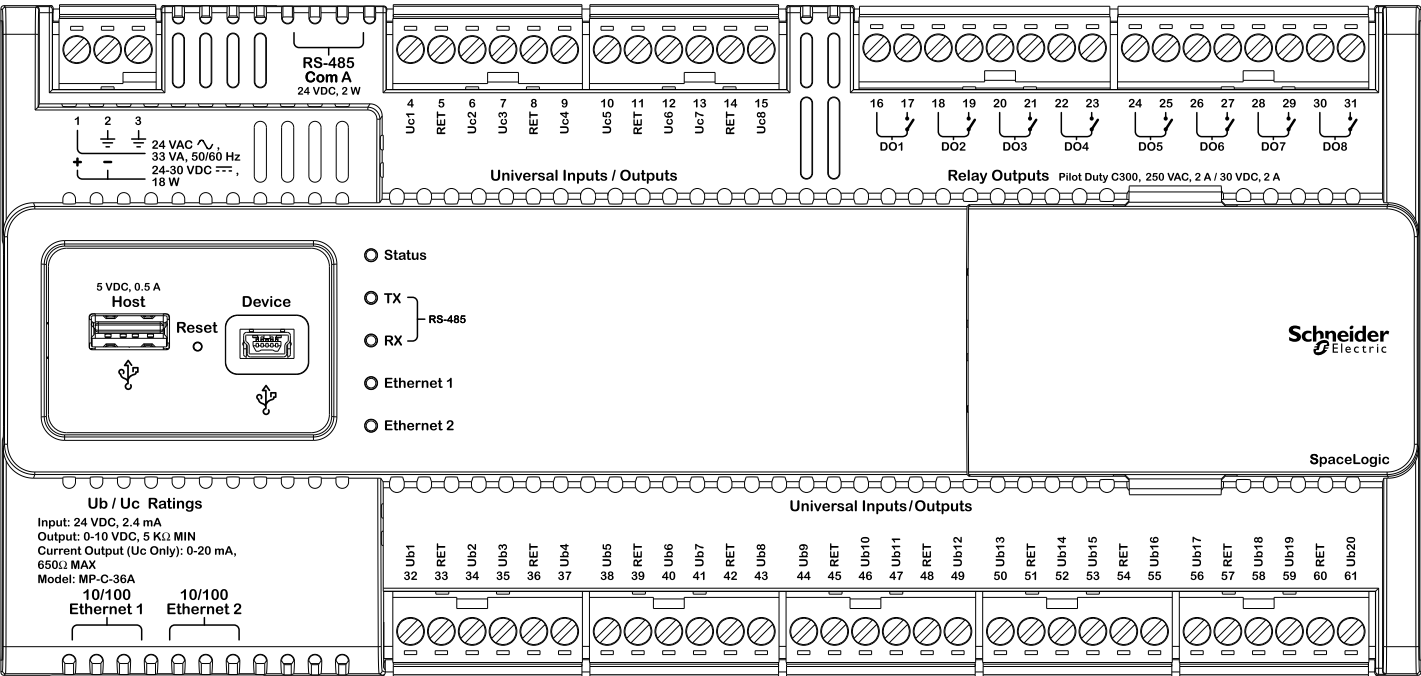

MP-C-15A
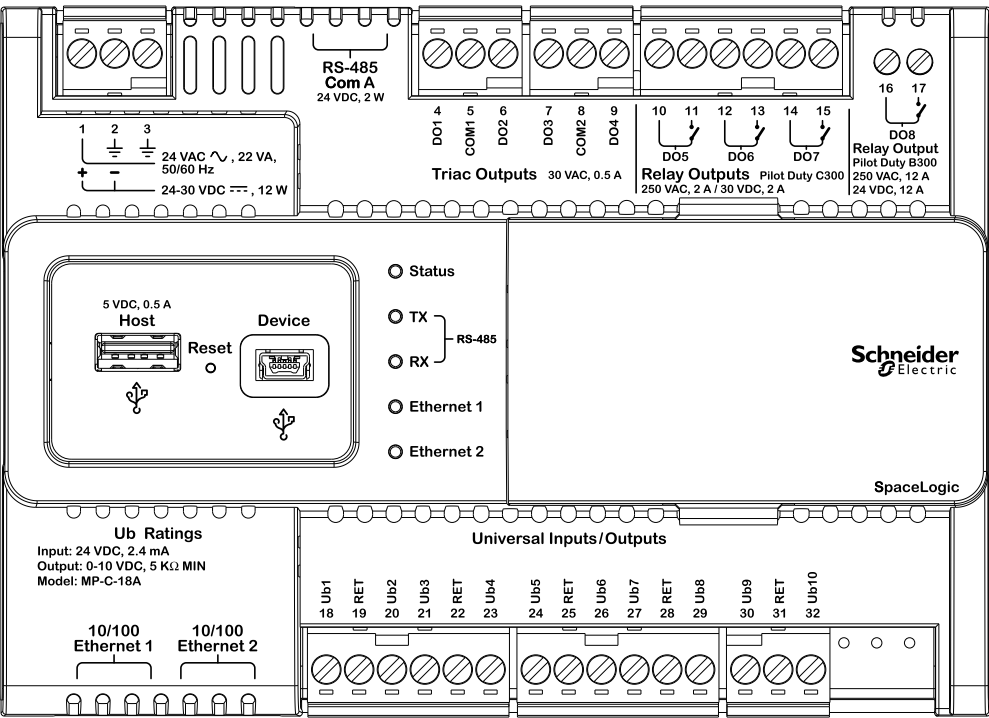
MP-C-18A

SpaceLogic MP-C Pro

MP-C-18B

MP-C-24A

SpaceLogic MP-C Pro

MP-C-36A

SpaceLogic MP-C Pro

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.

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).

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.

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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