

# SpaceLogic Twisted Pair Adapter Adapters

EcoStruxure™ Building



## Introduction

SpaceLogic™ Twisted Pair Adapter - Ethernet (TPA-E) connects to the SpaceLogic BACnet/IP controller and automation server via Ethernet 10/100 Mbit (IEEE 802.3) and utilizes existing twisted pair cabling originally used for legacy serial and free topology protocols. This enables seamless integration of existing twisted pair networks into the IP-based infrastructure of the EcoStruxure Building Management System (BMS), reducing installation costs and simplifying the transition from legacy systems, such as LonWorks FTT-10 networks, to the EcoStruxure BMS network.

Twisted Pair Adapter is designed for integration with EcoStruxure BMSs.

The adapter reduces engineering effort by requiring little to no configuration.

The adapter supports free topology networks, including bus, star, ring (loop), daisy-chain, and hybrid (mixed) network topologies.

The adapter supports Ethernet connectivity at 10/100 Mbit/s. Actual data throughput may vary depending on the type and length of the transmission medium.

The device has an Ethernet 10/100BASE-TX port with RJ45 connector for connection to the SpaceLogic BACnet/IP controller or automation server and a 2-position removable screw terminal block for polarity insensitive connection to the twisted pair cable network.

# SpaceLogic Twisted Pair Adapter

The adapter is designed for scalability with support for up to 64 nodes (adapters) per twisted pair cable and cable lengths up to 1200 m (3900 ft).

The device can be powered by a standard 24 VAC or 24 VDC power supply.

The device is designed for installation on a DIN rail with a width of 1.5 units (27 mm or 1.1 inches). The device can also be installed on a wall or flat surface.

## Features

Twisted Pair Adapter has the following features:

- Enabling Ethernet over twisted pair cable networks
- Supports twisted pair cable networks
- L2 switching for IP network communication
- Self-recovering mesh network and multi-hop capability
- Supports retrofit of twisted pair networks using legacy protocols such as LonWorks FTT-10 to BACnet/IP or BACnet/SC over Ethernet
- Support of free topology networks
- IEEE 802.3 compliant Ethernet 10/100 Mbit interface (RJ45) for connection to SpaceLogic BACnet/IP controllers and automation servers
- Scalable with support for up to 64 nodes (adapters) per twisted pair cable network and cable lengths up to 1200 m (3900 ft)
- Powered by a standard 24 VAC or 24 VDC power supply
- Polarity insensitive connection to twisted pair cable networks
- Removable screw terminal blocks for power input and connection to the twisted pair cable network
- Designed for installation on a DIN rail or on a wall or flat surface
- Consistent hardware design with SpaceLogic devices
- Switch to configure the device in Master or Terminal operating mode
- Status indicator LEDs for twisted pair cable network (NET), Ethernet, and Master mode
- Button to restart the device
- Secure boot
- Transparent to EcoStruxure Building Operation software
- Twisted Pair Adapter Engineering Tool

## IP network communication

Twisted Pair Adapter features OSI Layer 2 (L2) switching, enabling efficient data forwarding within local networks using MAC addresses. Designed for plug-and-play operation, the

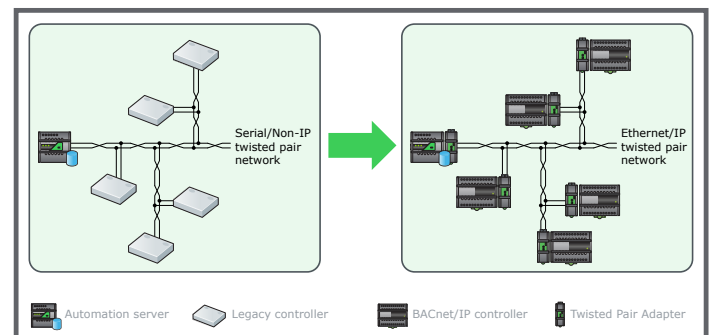
adapter requires no configuration and integrates seamlessly into IP networks.

## Self-recovering mesh network and multi-hop capability

Twisted Pair Adapter supports a self-recovering mesh network that automatically adapts to changes in network topology. The adapter's multi-hop capability extends the communication range.

## Retrofit projects

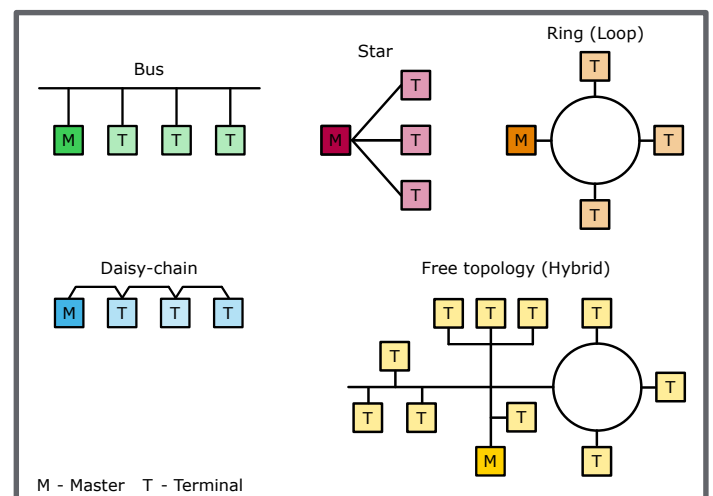
Twisted Pair Adapter enables seamless integration of the IP-based SpaceLogic controllers into networks originally designed for serial or free topology protocols. By reusing existing twisted pair cabling, the adapter minimizes the need for new wiring and avoids major infrastructure changes, making retrofit projects more efficient and cost-effective.



Example with transition from serial communication to Ethernet/IP over twisted pair network

## Support of free topology networks

Twisted Pair Adapter supports free topology networks, allowing twisted pair cable networks to be arranged in bus, star, ring (loop), daisy-chain, or hybrid (mixed) configurations.



Free topology networks supported

# SpaceLogic Twisted Pair Adapter

## Scalable network

Twisted Pair Adapter is designed for scalability, allowing you to connect up to 64 nodes (adapters) on a single twisted pair cable network.

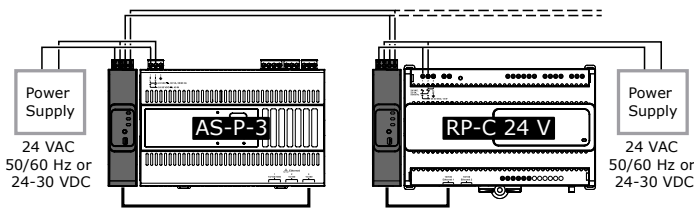
The adapter supports cable lengths up to 1200 m (3900 ft).

## Support of various IP-based protocols

As a protocol-agnostic device, the Twisted Pair Adapter supports various IP-based protocols, including BACnet/IP, and BACnet/SC (Secure Connect), used in the EcoStruxure BMS network.

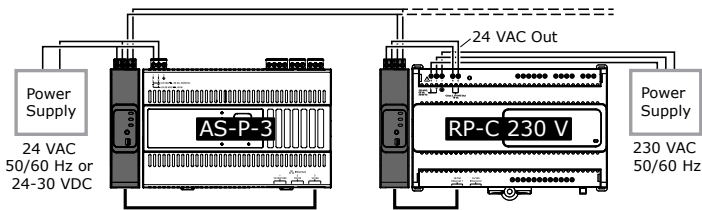
## 24 VAC or 24 VDC power supply

The adapter uses a standard 24 VAC or 24 VDC power supply, which can be the same as the one used for the SpaceLogic BACnet/IP controller or automation server. The adapter does not supply power to the twisted pair network.



Example with AS-P-3 server and RP-C 24 V controller model

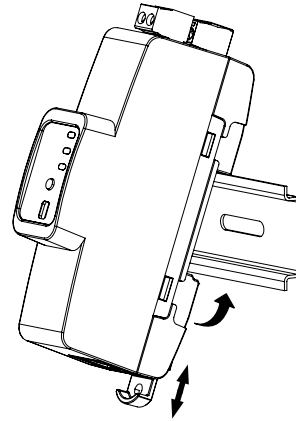
For RP-C 230 V controller models, the 24 VAC output can power the adapter.



Example with AS-P-3 server and RP-C 230 V controller model

## Simple DIN rail installation

Install the adapter to the left side of the SpaceLogic BACnet/IP controller or automation server on the DIN rail. The enclosure has a spring latch that snaps onto the rail, securing the adapter in place.



Installing the device on a DIN rail

## Consistent hardware design with SpaceLogic devices

The adapter features a hardware design that aligns with other SpaceLogic devices, helping maintain visual and mechanical consistency across installations.

## Polarity insensitive network connection

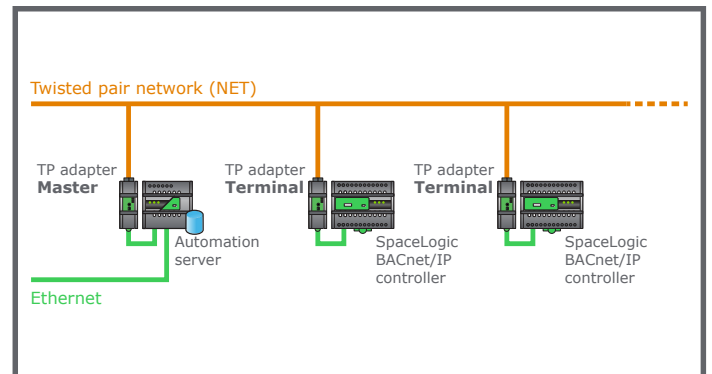
The adapter's interface to the twisted pair cable network is not only isolated but also polarity-insensitive, allowing for easy and error-resistant installation.

## Configurable operating mode

The operating modes are controlled by the M/T slide switch on the front of the adapter:

- Master – For connection to an automation server (only one Master per network).
- Terminal – For connection to a SpaceLogic BACnet/IP controller.

Master mode is used when the adapter is connected to an automation server. Only one adapter can be configured as Master within a network. Terminal mode is used when the adapter is connected to a SpaceLogic BACnet/IP controller.



Master and Terminal operating modes

# SpaceLogic Twisted Pair Adapter

## LED status indicators

The device has three LEDs on the front:

- NET Link LED shows the status of the device's twisted pair cable network connection.
- Ethernet LED displays the status of the Ethernet link and data activity.
- Master LED indicates if the device is in Master mode or Terminal mode.

## Restart button

The device has an INIT button on the front that allows you to restart the device.

## Secure boot

Secure boot is a security standard to help ensure that a device boots using only software that is trusted by Schneider Electric.

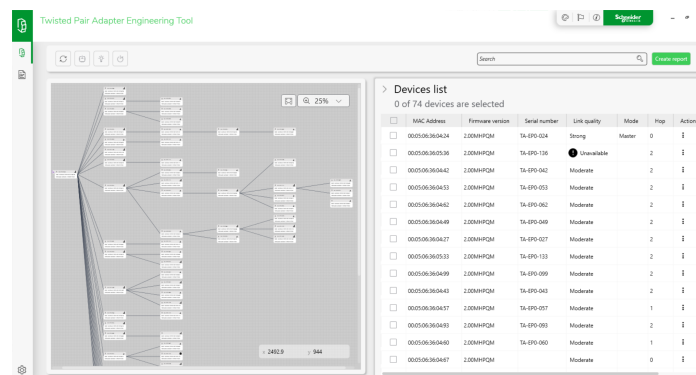
Secure boot is supported by the Twisted Pair Adapter.

## Transparent to EcoStruxure Building Operation software

As the adapter functions as part of the network infrastructure, it is transparent to the EcoStruxure Building Operation software and does not appear in the user interface.

## Twisted Pair Adapter Engineering Tool

Twisted Pair Adapter Engineering Tool is a standalone tool that allows monitoring of Twisted Pair Adapter status and link quality. The tool enables firmware upgrade of connected devices.



Twisted Pair Adapter Engineering Tool

## Part Numbers

Product	Part number
SpaceLogic TPA-E	SXWTPAE10001

## Specifications

SpaceLogic Twisted Pair Adapter	
AC input	
Nominal voltage	24 VAC
Operating voltage range	±30 %
Frequency	50/60 Hz
Maximum power consumption	3 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	1.5 W
Power input protection	MOV suppression and internal fuse

# SpaceLogic Twisted Pair Adapter

## Environment

Ambient temperature, operating -25 to +60 °C (-13 to +140 °F)

Ambient temperature, storage -30 to +75 °C (-22 to +167 °F)

Humidity Maximum 95 % RH non-condensing

## Material

Ingress protection rating IP 20

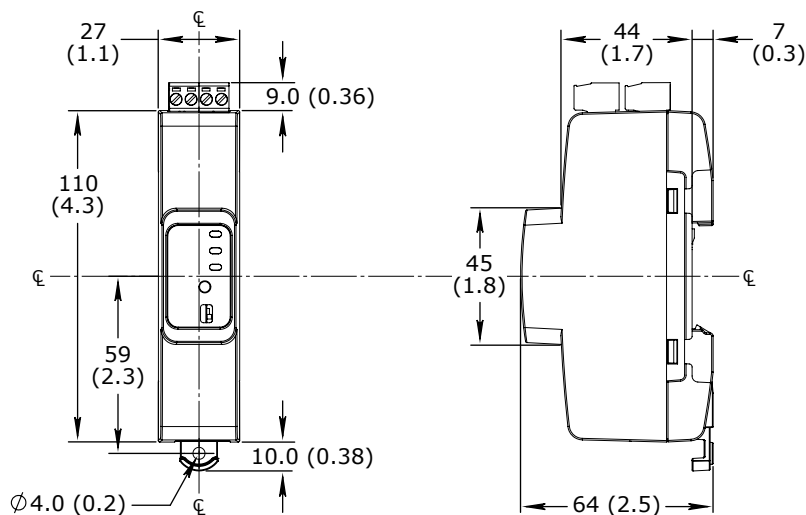
Plastic flame rating UL94 V-0

Plenum rating UL 2043 (Approved for plenum installations)

## Mechanical

Dimensions 27 W x 110 H x 64 D mm (1.1 W x 4.3 H x 2.5 D in.)

mm  
(inches)



Weight 98 g (3.5 oz)

Installation DIN rail or flat surface  
Approved for plenum installation (UL 2043)

## Agency compliances

Emission RCM; BS/EN IEC 61000-6-3; BS/EN IEC 63044-5-2; FCC Part 15, Sub-part B, Class B; CAN ICES-003(B)

Immunity BS/EN IEC 61000-6-2; BS/EN IEC 63044-5-2; BS/EN IEC 63044-5-3

Safety standards BS/EN IEC 60730-1; BS/EN IEC 60730-2-11; BS/EN IEC 63044-3; UL 916 C-UL US Listed<sup>a</sup>

a) The device is marked "Energy Management Equipment".

Product BS/EN IEC 63044-1

Fire performance in air-handling spaces<sup>a</sup> UL 2043

a) The device is approved for plenum applications.

## Communication ports

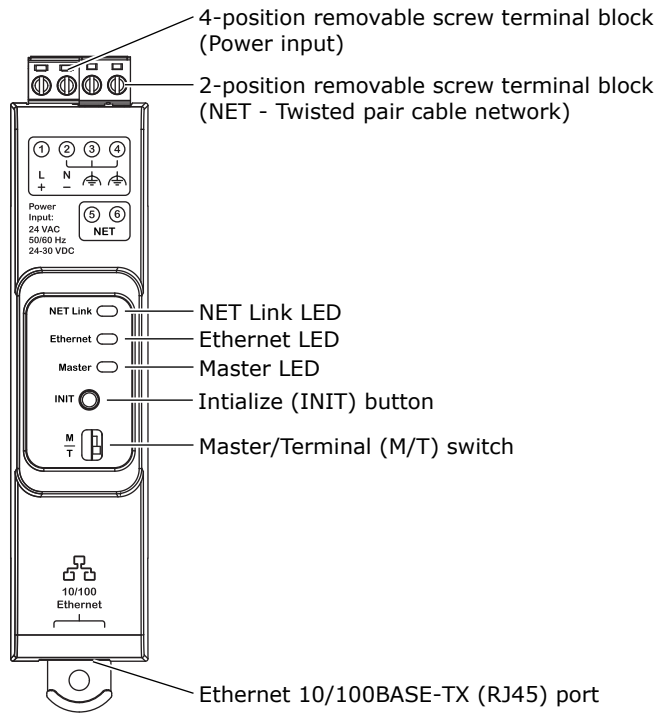
Ethernet 10/100BASE-TX (RJ45), IEEE 802.3 compliant

# SpaceLogic Twisted Pair Adapter

NET <sup>a</sup>	2-position removable screw terminal block, polarity insensitive MOV suppression
a) Twisted pair cable network.	
<b>Communications</b>	
Transmission media	Twisted pair cable network
Maximum number of nodes per network	64
Maximum cable length	1200 m (3900 ft)
Recommended cable type	Twisted pair, single pair, 20 AWG (0.52 mm <sup>2</sup> ) or greater cross-sectional area
Transmission rate	10 or 100 Mbit/s <sup>a</sup>
a) Actual data throughput may vary depending on the type and length of the transmission medium.	
<b>Hardware</b>	
Connectors	RJ45 port for Ethernet 10/100BASE-TX, IEEE 802.3 compliant 4-position removable screw terminal block for power input 2-position removable screw terminal block for NET (twisted pair cable network)
Status indicator LEDs	NET link Ethernet link/activity Master mode
Button	Initialize (INIT)
Switch	Master/Terminal mode 2-pole slide switch

# SpaceLogic Twisted Pair Adapter

## Connectors, LEDs, Button, and Switch



Twisted Pair Adapter connectors, LEDs, button, and switch

# SpaceLogic Twisted Pair Adapter

## Regulatory Notices



### Federal Communications Commission

FCC Rules and Regulations CFR 47, Part 15, Class B

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

### Industry Canada

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.



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

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



### CE - Compliance to European Union (EU)

2014/30/EU Electromagnetic Compatibility Directive

2011/65/EU Restriction of Hazardous Substances (RoHS) Directive

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. 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).



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

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