

# SpaceLogic Twisted Pair Adapter Adapters

EcoStruxure™ Building



## Introduction

SpaceLogic™ Twisted Pair Adapter - Ethernet (TPA-E) connects SpaceLogic BACnet/IP controllers and automation servers to IP networks using existing twisted pair cabling. The adapter enables seamless integration of legacy serial and free topology networks into the EcoStruxure Building Management System (BMS), reducing installation costs and simplifying retrofit projects. Designed for scalability and easy installation, the adapter supports free network topologies and requires minimal configuration.

## Features

Twisted Pair Adapter offers the following features:

- Ethernet over twisted pair cable networks
- OSI Layer 2 (L2) switching for IP communication
- Self-recovering mesh network and multi-hop capability
- Retrofit support for legacy protocols such as LonWorks FTT-10 to BACnet/IP or BACnet/SC
- Free topology network support
- IEEE 802.3 compliant Ethernet 10/100 Mbit interface (RJ45)
- Scalable up to 64 nodes across the twisted pair network and a total connected cable length of up to 1200 m (3900 ft)

# SpaceLogic Twisted Pair Adapter

- BACnet/IP and BACnet/SC support
- Standard 24 VAC or 24 VDC power supply
- DIN rail or wall installation
- Polarity-insensitive connection to twisted pair cables
- Removable screw terminal blocks
- Consistent hardware design with SpaceLogic devices
- Configurable Master/Terminal operating mode
- LED status indicators and restart button
- Secure boot
- Transparent to EcoStruxure Building Operation software
- Twisted Pair Adapter Engineering Tool for monitoring and firmware upgrade

## IP network communication

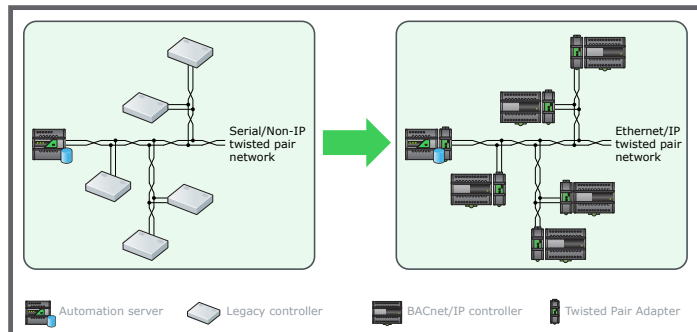
The adapter features OSI Layer 2 (L2) switching, enabling efficient data forwarding using MAC addresses. Designed for plug-and-play operation, the adapter requires no configuration.

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

The adapter supports a self-recovering mesh network that adapts to changes in network topology and extends communication range through multi-hop capability.

## Retrofit projects

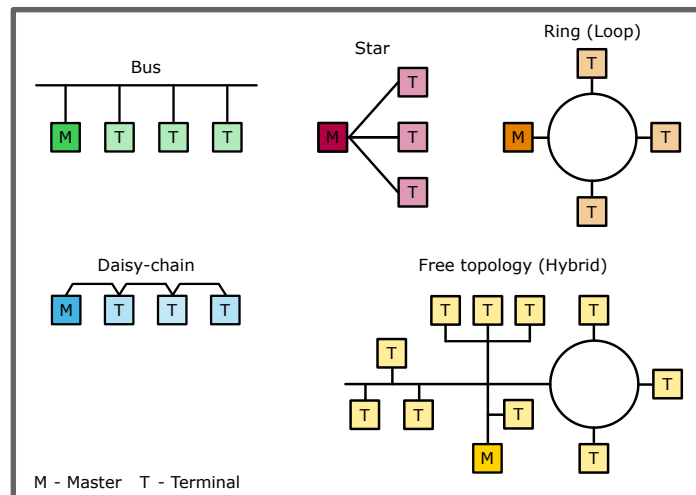
The adapter enables integration of the IP-based SpaceLogic controllers into networks originally designed for serial or free topology protocols. By reusing existing twisted pair cabling, the adapter minimizes the need for new wiring and infrastructure changes.



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

## Free topology network support

The adapter supports free topology networks, allowing twisted pair cable networks to be arranged in bus, star, ring, daisy-chain, or hybrid configurations.



Free topology network support

## Scalable network

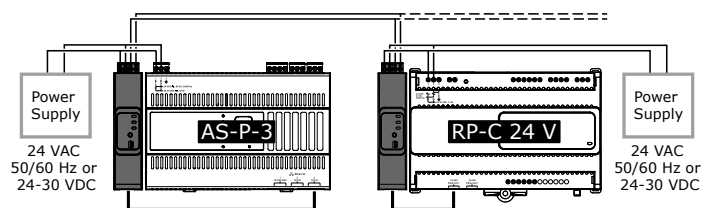
The adapter is designed for scalability, supporting up to 64 nodes (adapters) across the twisted pair network and a total connected cable length of up to 1200 m (3900 ft), including all stubs.

## Support for IP-based protocols

The adapter is protocol-agnostic and supports BACnet/IP and BACnet/SC (Secure Connect) used in EcoStruxure BMS networks.

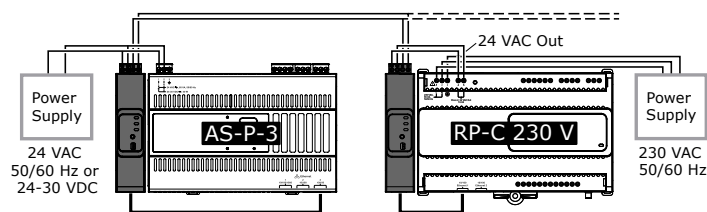
## Power supply

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.

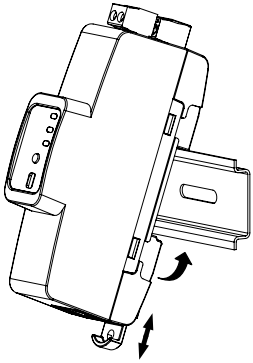


Example with AS-P-3 server and RP-C 230 V controller model

# SpaceLogic Twisted Pair Adapter

## DIN rail installation

The device can be easily mounted on a DIN rail using a spring latch or installed on a wall or flat surface. It measures 1.5 units in width (27 mm or 1.1 inches). You install it next to the SpaceLogic BACnet/IP controller or automation server.



Installing the device on a DIN rail

## Consistent hardware design

The adapter features a hardware design that aligns visually and mechanically with other SpaceLogic devices for uniform installations.

## Polarity-insensitive network connection

The adapter interface to the twisted pair cable network is isolated and polarity-insensitive for error-resistant installation.

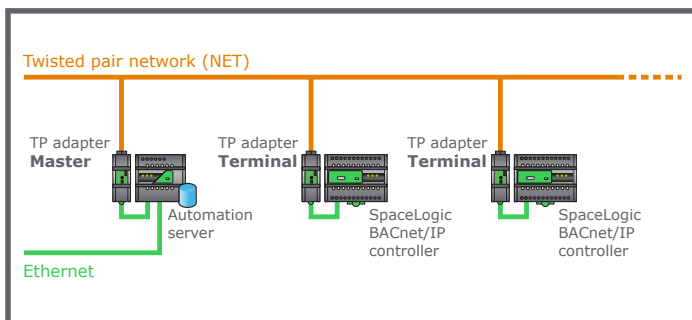
## Removable screw terminal blocks

The device has removable screw terminal blocks for power input and connection to the twisted pair cable network.

## 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 (exactly one Master is required per twisted pair network).
- Terminal – For connection to a SpaceLogic BACnet/IP controller.



Master and Terminal operating modes

## 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

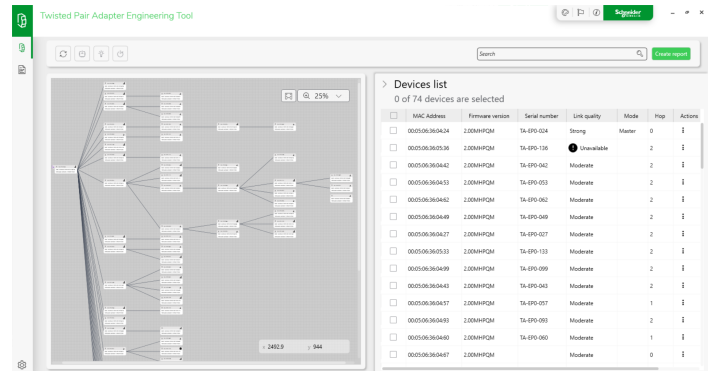
The adapter uses Secure Boot to help ensure the device starts only with Schneider Electric trusted software.

## Transparent to EcoStruxure Building Operation software

The adapter functions as part of the network infrastructure 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 adapter status and link quality. The tool also enables firmware upgrades of connected adapters.



Twisted Pair Adapter Engineering Tool

# SpaceLogic Twisted Pair Adapter

## Part Numbers

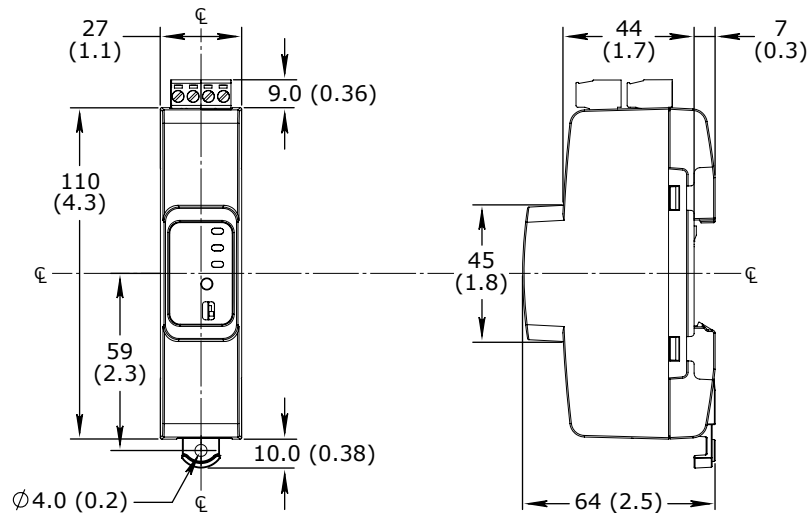
Product	Part number
SpaceLogic TPA-E	SXWTPAE10001

## 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
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.)

# SpaceLogic Twisted Pair Adapter

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

NET<sup>a</sup> 2-position removable screw terminal block, polarity insensitive  
MOV suppression

a) Twisted pair cable network.

## Communications

### Data communication

Transmission media Twisted pair cable network

Maximum number of nodes across the twisted pair network 64

Maximum total connected 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

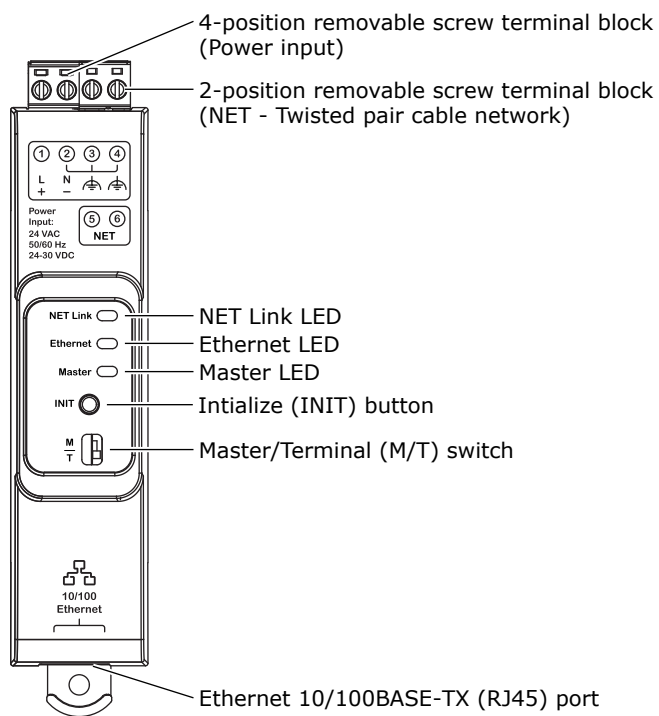
Transmission rate 10 or 100 Mbit/s<sup>a</sup>

a) Actual data throughput may vary depending on the type and length of the transmission medium, network topology, and the number of nodes.

# SpaceLogic Twisted Pair Adapter

Management interface	
Management IP address	192.168.0.249
Hardware	
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

## 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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