

HEIDELBERG, JUNE 2021

Webinar "ABB IP Switches IS/S 8.1.1 and ISP/S 8.1.1.1"

Competence Center Europe – Smart Buildings

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Introduction

Application and Benefits

Device features

Marketing

Introduction

Introduction



The IP infrastructure plays an important role in the reliability and availability of all building functions

The increasing dependence on IP infrastructures for the reliability and availability of the building functionality plays a key factor in the design of the IP infrastructure

This is driving the requirement for a cost-effective IP infrastructure within the distribution board or decentral installation boards

Introduction



Building Automation market is increasingly including IP connections on the field level

Additionally, the use of PoE technology in field level devices is rising, e.g. ABB i-bus® KNX IP Router or IP Interface

Separate technical IP infrastructures or networks are becoming more common place in buildings

Introduction

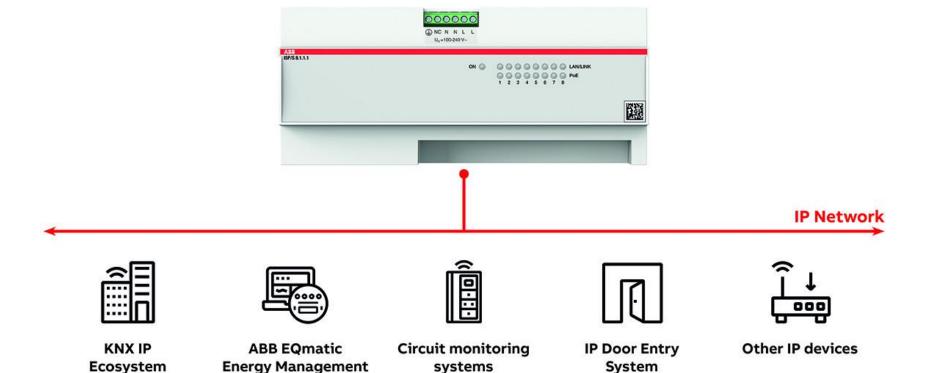


The new ABB IP Switches are two

- Industrial quality standard
- 8 Ports
- fast Ethernet (100 Mbit/s)
- unmanaged

switches (with and without PoE) designed for installation in electrical distribution boards and rapid mounting on DIN-Rails.

Introduction



The new ABB IP Switches are suitable for all applications, segments and markets in which distribution boards with DIN-Rail devices requiring IP connectivity.

Application and Benefits

Application and Benefits



Special Design

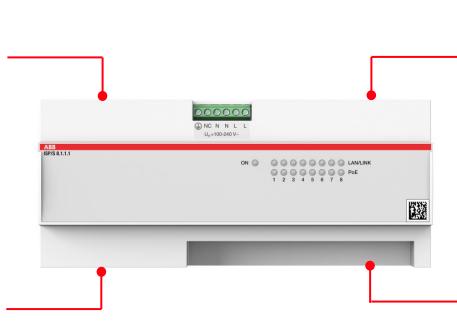
The MDRC device is suitable for installation in standard electrical distribution boards. The IP connection ports are secured under the distribution board cover preventing unauthorized access

- Professional, secure and clean installation
- Saves installation time and space

Maximum Reliability

Robust, industrial-grade, Made in Germany:

- High and long-term reliability
- Industrial quality standard





Compact technology

The PoE variant provides supply voltage on all its 8 ports without the need of extra external power supply:

- Saves installation space
- Reduces costs



Easy installation

Plug-and-play installation, no commissioning required:

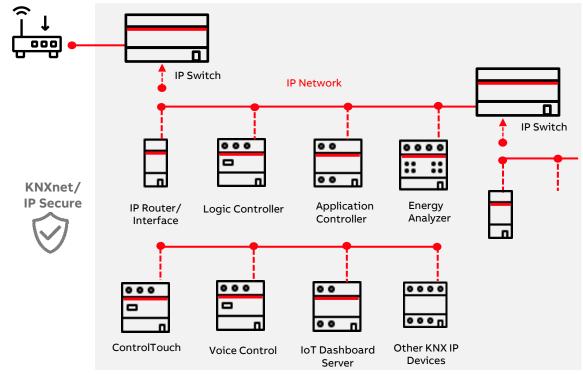
• No special skills to install and use are needed

Application and Benefits

ABB i-bus® KNX

- IP Router IPR/S 3.1.1* and IP Router Secure IPR/S 3.5.1*
- IP Interface IPS/S 3.1.1* and IP Interface Secure IPS/S 3.5.1*
- Logic Controller ABA/S 1.2.1*
- ABB EQmatic Energy Analyzer QA/S 1.16.1
- ClimaECO Application Controller AC/S 1.1.1
- ClimaECO Building Automation Controller BAC/S1.5.1
- KNX Security Panel GM/A 8.1
- Busch-ControlTouch® 6136/APP-500
- Busch-VoiceControl® VCO/S 99.1
- KNX IoT Dashboard Server DBS/S 1.1.1.1
- IP touch 7 / 10 LAN*

* Data and PoE



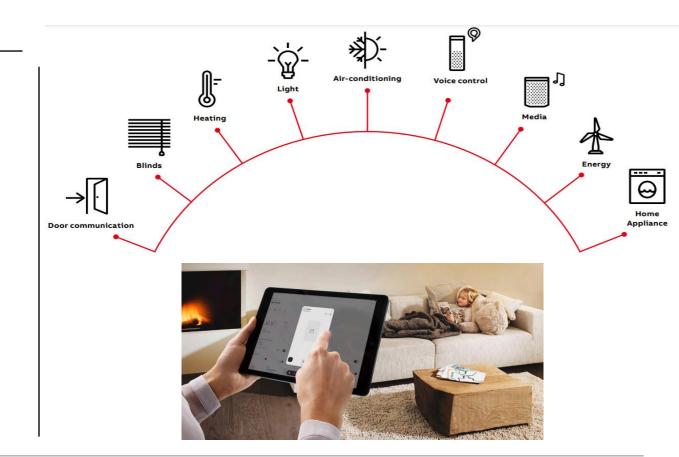
Simplifying IP connectivity in your KNX installation

Application and Benefits

ABB-free@home®

- System Access Point
- IP touch 7 / 10 LAN*

* Data and PoE

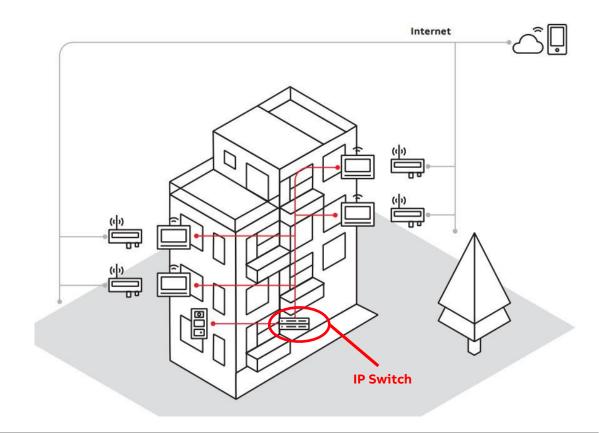


Application and Benefits

Door entry systems

- ABB-Welcome IP
 - Video Outdoor Station*
 - Video Indoor Station IP touch 7 and 10* and Guard Unit
 - Smart Access Point*
 - IP Actuator
- ABB-Welcome (2-wire)
 - IP-Gateway

* Data and PoE





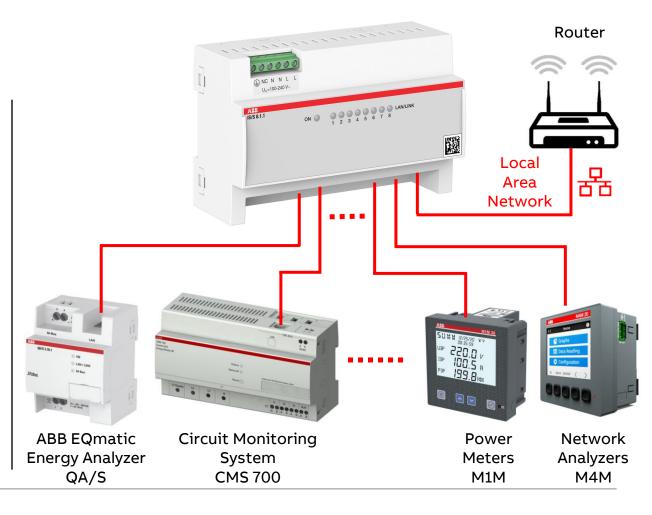
Application and Benefits

DIN-Rail and other devices

- ABB EQmatic Energy Analyzer QA/S
 - QA/S 3.xx.1 Energy Analyzer, M-Bus
 - QA/S 4.xx.1 Energy Analyzer, Modbus
- Circuit Monitoring System CMS 700
- InSite Pro Control Unit SCU100
- Network Analyzers M4M
 - M4M 20 Ethernet
 - M4M 30 Ethernet
- Power Meters

- ...

- M1M 20 Ethernet
- M1M 30 Ethernet

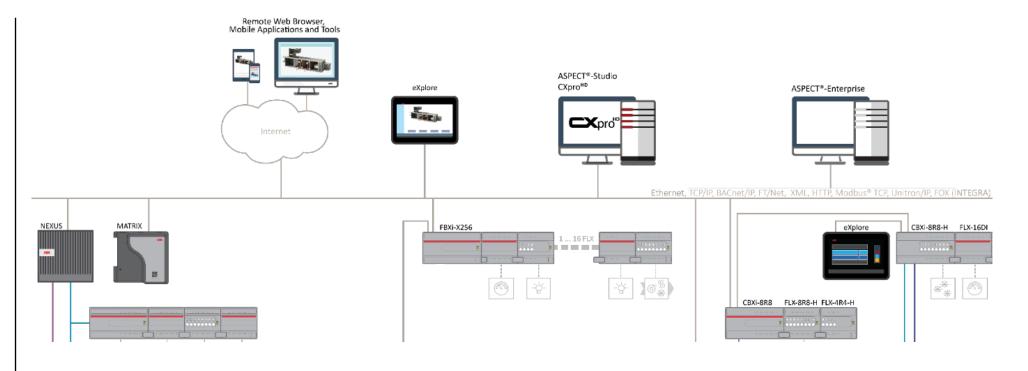




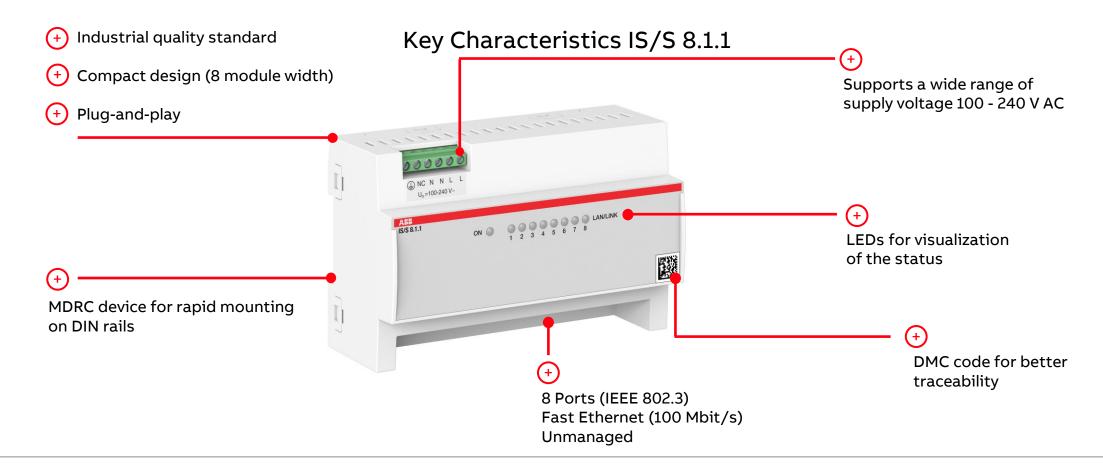
Application and Benefits

ABB Cylon®

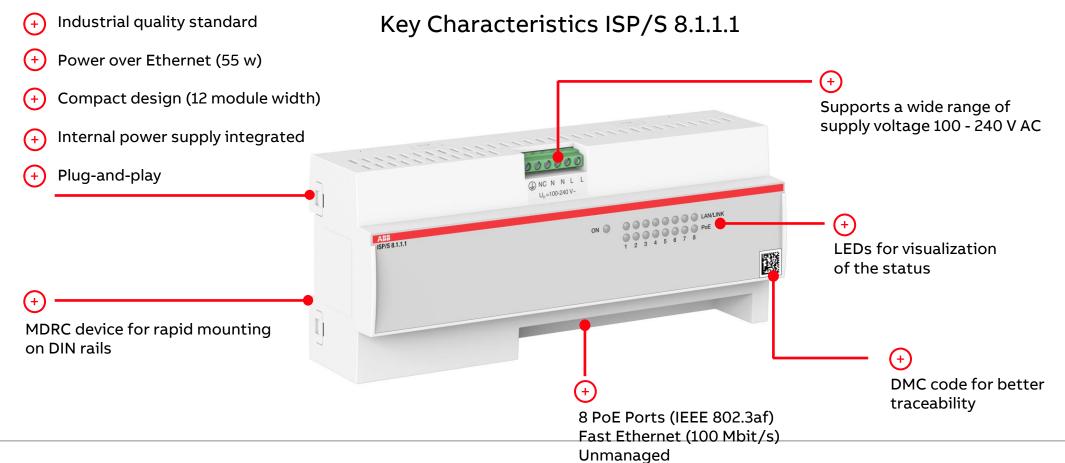
- HVAC Controller
 - CBXi
 - FLXeon FBXi
- Variable Air Volume
 Controller FLXeon
 FBVi
- Room Display eXplore
- Visualization Nexus and Matrix
- Integra[™] Building Control IT-8000



Application and Benefits



Application and Benefits



Device features

Device features

General information

- The IP Switches
 - are designed for the special requirements of building automation
 - meets the relevant industry standards, provides very high operational reliability, even under extreme conditions and also long-term reliability and flexibility
 - are designed for installation in electrical distribution boards and small housings for rapid mounting on a 35 mm mounting rail in accordance with EN 60715

Product name	Туре	Order Code		
IP Switch	IS/S 8.1.1	2CDG120082R0011		
IP Switch-PoE	ISP/S 8.1.1.1	2CDG120083R0011		

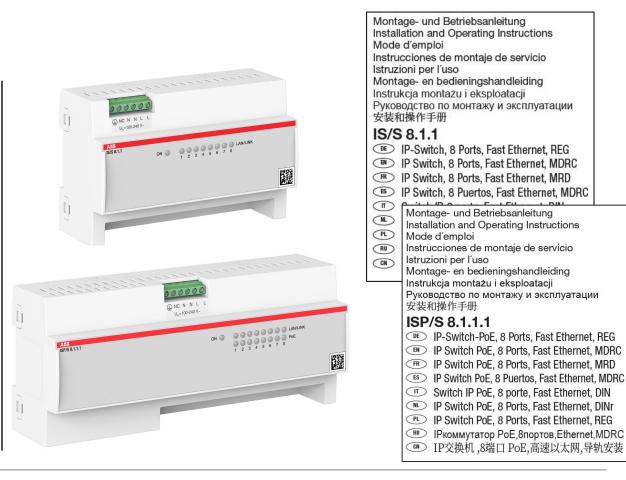




Device features

Scope of delivery

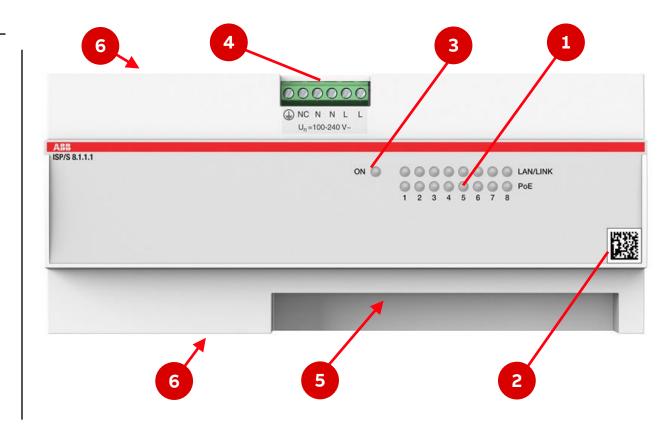
- 1 x IP Switch IS/S 8.1.1 or 1x IP Switch ISP/S 8.1.1.1
- 1 x Installation and operating instructions
 - DE, EN, FR, NL, ES, IT, PL, RU, CN
- The IP Switches are available and on stock



Device features

Connection diagram

- (1) LED display elements for port status and PoE status
- (2) Data matrix code (NEW!)
- (3) LED display element for device status
- (4) 6-pin terminal block with screw lock Earth Symbol: Protective earthing NC: Not connected N: Neutral L: Line
- (5) 8 × RJ45 socket for 10/100-Mbit/s Twisted Pair connections Ports secured under the distribution board cover
 → no unauthorized access
- (6) Ventilation slits

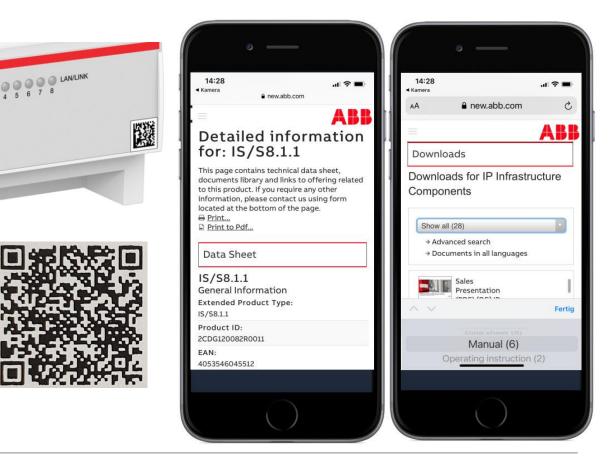




Device features

QR and Data matrix code (DMC) – NEW!

- The packaging is labeled with a QR code and the front of the device with a data matrix code
- These codes are used for unique identification of the device and include the following information:
 - Link to the product page
 - Order number
 - Device serial number
- The codes can be read using any mobile device with an appropriate app

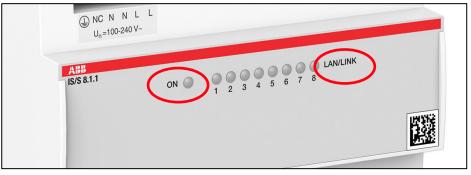


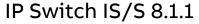
Device features

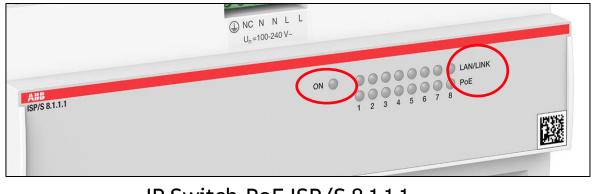
Display elements

- This LED provides information on the status of the power supply
- After the supply voltage is switched on, the device performs a self-test. During this process, various LEDs light up

LED	Color	Activity	Meaning		
ON Green	Lights up	Supply voltage is on. Device is ready for operation.			
	Green	None	Supply voltage is too low. Device is not ready for operation.		
		Lights up	Device detects a valid link		
LAN/ Link Green	Green	Flashing	Device is transmitting and/or receiving data		
		None	Device detects an invalid or missing link		
	PoE* Green	Lights up	Powered device is supplied with power		
PoE*		Flashing one time a second	No power supply of the powered device as the power output required by the powered device cannot be provided on this port.		
		None	No powered device connected		
	*only IP Sw	itch-PoE ISP/S 8.1.1.1			







IP Switch-PoE ISP/S 8.1.1.1

Device features

IP Switch IS/S 8.1.1: Technical Data

Dimensions (W × H × D)	140 x 90 x 58
Modular width	8 MW Modular installation device (MDRC)
Mounting Position	Any
Supply voltage (Rated voltage range):	100 V AC 240 V AC, 50 Hz 60 Hz
Power consumption	Max. 1.4 W
Ambient air temperature	-5 °C +60 °C



Device features

IP Switch IS/S 8.1.1: Technical Data

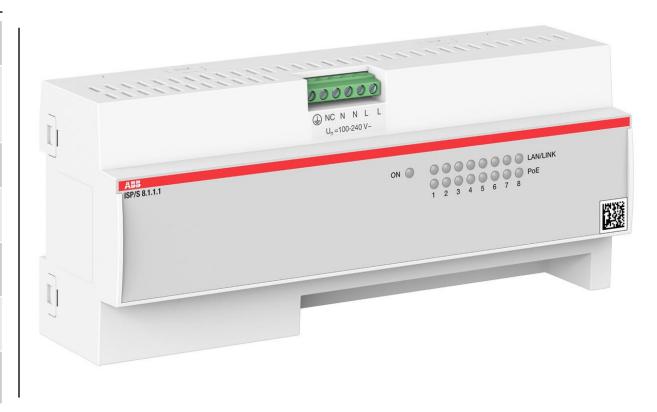
8 Ethernet Ports	 10/100-Mbit/s twisted pair port according to the IEEE 802.3 10BASE-T/100BASE-TX standard To connect terminal devices and other network segments (IP Switches)
Port supports	 Autonegotiation Autopolarity Autocrossing 100 Mbit/s half-duplex mode, 100 Mbit/s full duplex mode 10 Mbit/s half-duplex mode, 10 Mbit/s full duplex mode
Network range 10/100- Mbit/s twisted pair port	Length of a twisted pair segment: Max. 100 m (for Cat5e cable)



Device features

IP Switch-PoE ISP/S 8.1.1.1: Technical Data

Dimensions (W × H × D)	210 x 90 x 58
Modular width	12 MW Modular installation device (MDRC)
Mounting Position	Any
Supply voltage (Rated voltage range):	100 V AC 240 V AC, 50 Hz 60 Hz
Power consumption (without PoE load)	Max. 2.5 W
Power consumption/power output (with PoE load incl. 55 W PoE)	Max. 11 W/55W (max. total 66W)
Ambient air temperature	-5 °C +60 °C Derating!



Device features

IP Switch-PoE ISP/S 8.1.1.1: Technical Data

Note the derating values

 The derating values depend on the ambient air temperature of the power supply unit combined with the PoE load and the input voltage

Ambient air temperature	Permitted PoE load		
up to 45 °C	55 W		
45 °C 50 °C	45 W		
50 °C 55 °C	37 W		
55 °C 60 °C	29 W		

Input voltage	Derating of PoE load		
from 100 V AC	0 W		
100 V AC 90 V AC	5 W		
90 V AC 85 V AC	8 W		



Device features

IP Switch-PoE ISP/S 8.1.1.1: Technical Data

8 Ethernet Ports	 10/100-Mbit/s twisted pair port			
with PoE function →	according to the IEEE 802.3			
Connection of devices	10BASE-T/100BASE-TX standard To connect terminal devices and			
with and without PoE	other network segments (IP			
function	Switches)			
Port supports	 Autonegotiation Autopolarity Autocrossing 100 Mbit/s half-duplex mode, 100 Mbit/s full duplex mode 10 Mbit/s half-duplex mode, 10 Mbit/s full duplex mode 			
Network range 10/100-	Length of a twisted pair segment:			
Mbit/s twisted pair port	Max. 100 m (for Cat5e cable)			



Device features

Power over Ethernet – PoE

From Wikipedia, the free encyclopedia

- Power over Ethernet describes any of several standards or ad hoc systems that pass electric power along with data on twisted pair Ethernet cabling
- This allows a single cable to provide both data connection and electric power to devices such as Wireless Access Points (WAPs), IP cameras and Voice over Internet Protocol (VoIP) phones
- A powered device (PD) is any device powered by PoE, thus consuming energy
- Many powered devices have an auxiliary power connector for an optional external power supply (backup power in case PoEsupplied power fails)



62 W

7

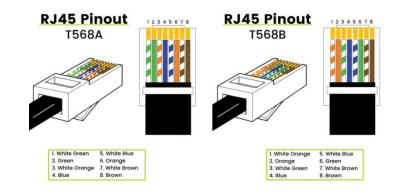
IEEE802.3bt PoE++

Device features

Power over Ethernet – PoE

From Wikipedia, the free encyclopedia

- Three modes, "A", "B" and "4-pair", are available to power devices
 - Mode "A" delivers power on the data pairs of 100BASE-TX or 10BASE-T (phantom power technique)
 - Mode "B" delivers power on the spare pairs
 - "4-pair" delivers power on all four pairs



Pins at switch	T568A color	T568B color	10/100 mode B, DC on spares		10/100 mode A, mixed DC & data	
Pin 1	White/green stripe	White/orange stripe	Rx +		Rx +	DC +
Pin 2	Green solid	Orange solid	Rx -		Rx -	DC +
Pin 3	White/orange stripe	White/green stripe	Tx +		Tx +	DC -
Pin 4	Blue solid	Blue solid		DC +	Unused	
Pin 5	White/blue stripe	White/blue stripe		DC +	Unused	
Pin 6	Orange solid	Green solid	Tx -		Tx -	DC -
Pin 7	White/brown stripe	White/brown stripe		DC -	Unused	
Pin 8	Brown solid	Brown solid		DC -	Unused	

802.3af standards A and B from the power sourcing equipment perspective

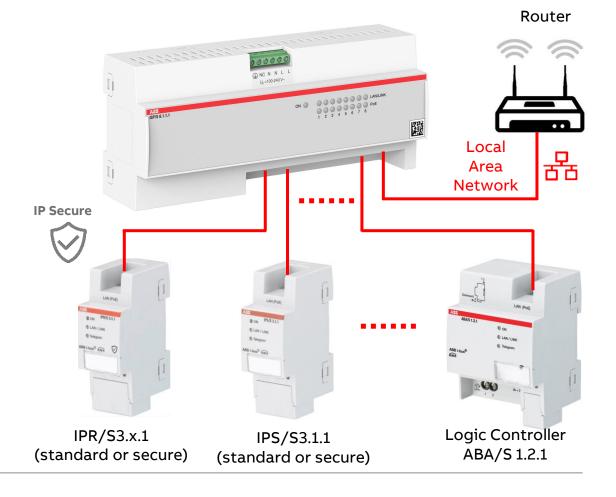


Device features

IP Switch-PoE ISP/S 8.1.1.1: Power over Ethernet – PoE

ABB i-bus® KNX devices that can be supplied via PoE

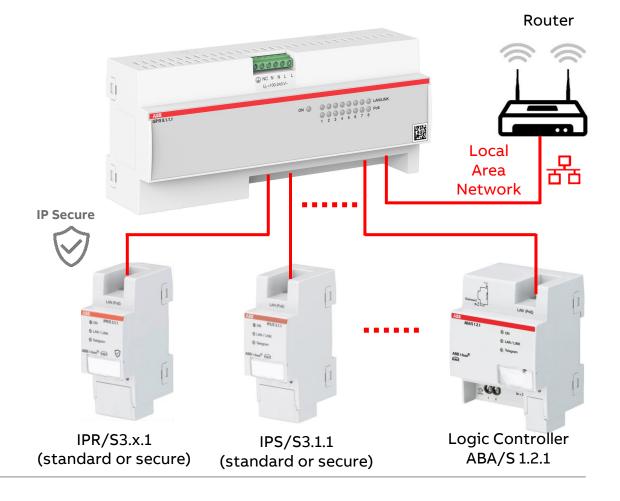
- PoE IEEE 802.3af class 1 (3.84 W)
 - IP Router IPR/S 3.1.1
 - IP Router Secure IPR/S 3.5.1
 - IP Interface IPS/S 3.1.1
 - IP Interface Secure IPS/S 3.5.1 \rightarrow Power loss of a max. of 1.8 W
- PoE IEEE 802.3af class 2 (6.5 W)
 - Logic Controller ABA/S 1.2.1 \rightarrow Power loss of a max. of 3 W
- Note on IP Router IPR/S and IP Interface IPS/S:
 If PoE and supply voltage are connected at the same time, PoE is used



Device features

IP Switch-PoE ISP/S 8.1.1.1: Support of PoE

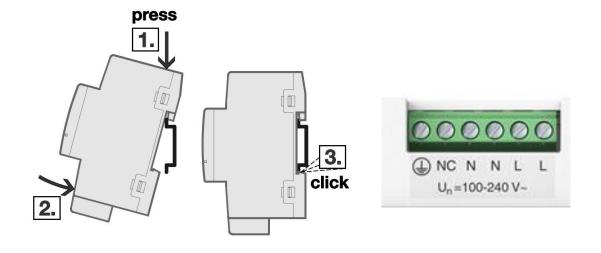
- The device supports Power over Ethernet (PoE) in accordance with IEEE 802.3af
- The Power over Ethernet function is activated on the PoE ports on delivery
- The devices are supplied with PoE voltage via the internal voltage supply
- The PoE voltage to the twisted-pair cables is supplied via the wire pairs transmitting the signal (phantom voltage)
- The PoE voltage is decoupled from the power supply
- The individual ports are not electrically insulated from each other
- Ensure that the device does not exceed the specified maximum
 PoE power output → For the maximum power available to PoE
 end devices in total, see the technical data

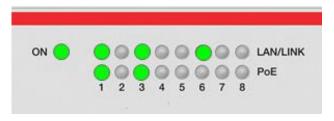


Device features

Installation

- On delivery, the device is ready for operation
- Perform the following steps to install the device
 - Install the device onto the DIN rail
 - Ground the device via the 6-pin terminal block
 - Connect the wires according to the pin assignment on the device with the clamps (N: Neutral and L: Line/phase)
 → By connecting the supply voltage, you start the operation of the device and performs a self-test
 - When the device is ready for operation, the "ON" LED lights up
 - Connect the data cables according to your requirements
 - Operate the device below the specified maximum ambient air temperature exclusively
 - Relieve the connection points of cables and lines from mechanical stress





Device features

Connecting data cables

Note the following general recommendations for data cable connections in environments with high electrical interference levels:

- Keep the length of the data cables as short as possible \rightarrow Max. 100 m for Cat5e cable
- Use optical data cables for the data transmission between the buildings
- Ensure that the minimum distance of 10 mm between data lines/telecommunication lines and power lines is maintained
- Ideally, install the cables in separate cable ducts
- Verify that power supply cables and data cables do not run parallel over longer distances (inductive coupling)

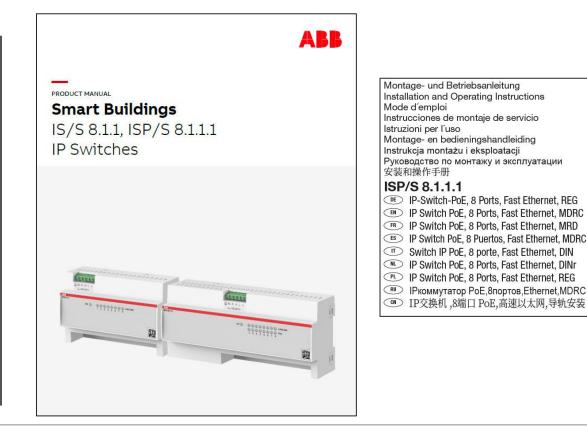




ABB IP Switches IS/S 8.1.1 and ISP/S 8.1.1.1 Marketing

Documentation

- Product Manual
- Installation and Operating Instructions
- Technical Data (.PDF)
 - Dutch (NL)
 - Russian (RU)
 - Polish (PL)
 - Italian (IT)
 - French (FR)
 - Spanish (ES)
 - German (DE)
 - English (EN)



Catalog

 Smarter Solutions for Home and Building Automation ABB i-bus KNX – Product Range Overview 2021

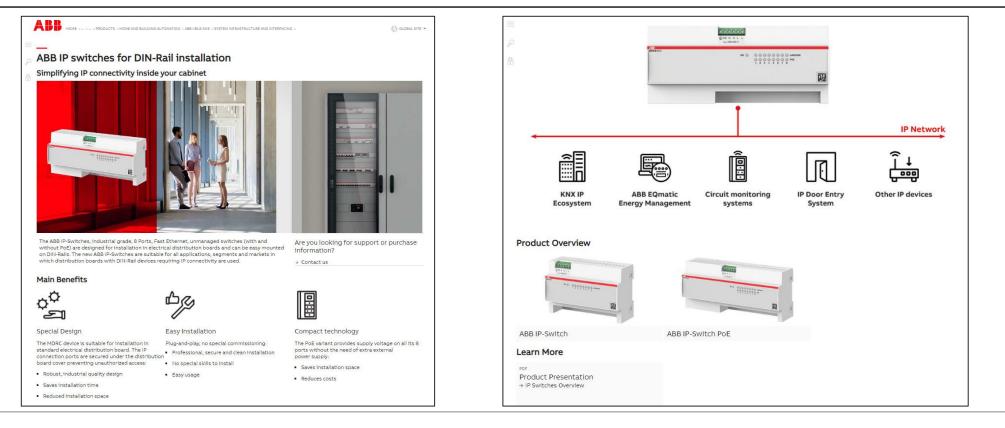
• <u>→ LINK</u>

- Catalogue 2021
 Electrical installation solutions for buildings
 - Chapter 8 "Energy Efficiency"
 - Chapter 14 "ABB i-bus® KNX
 - <u>→ LINK</u>





Microsite with the first main information and links to further related pages \rightarrow Link

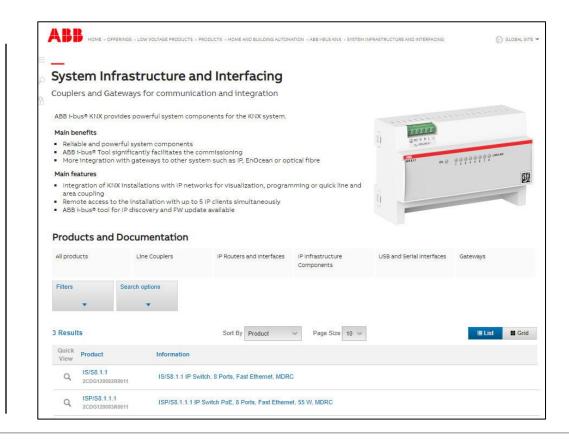


Homepage

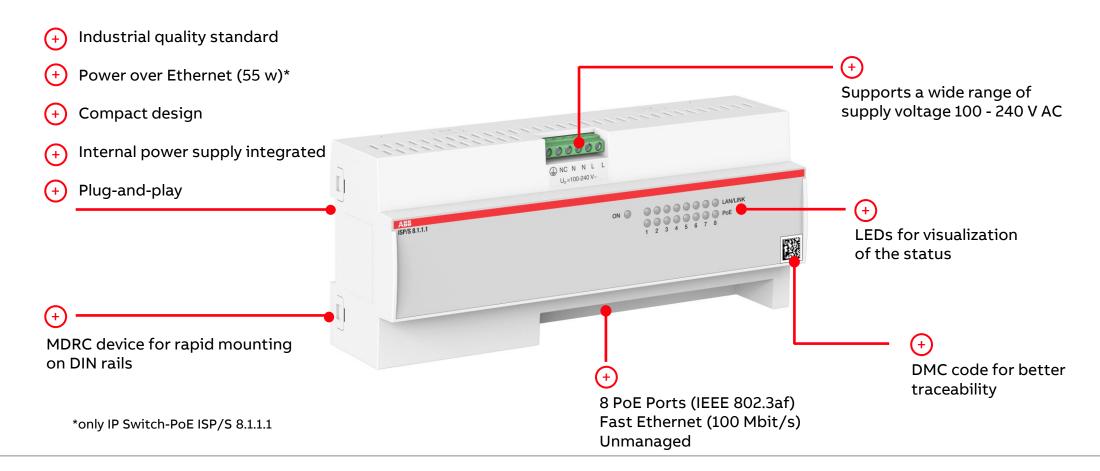
www.abb.com/KNX

- \rightarrow Products and Downloads
 - → System Infrastructure and Interfacing → IP Infrastructure Components
- Product Manual
- Technical Data
- Operating instruction
- Engineering Guides
- Installation and Operating Instruction
- Specification Text

- ...



Summary



Training Material

Training & Qualification Database

- The database contains extensive training content
 - <u>Webinar, Learning Sessions,</u>... slides and videos
 - Presentations
 - Video tutorials
 - and more ...
 - <u>https://go.abb/ba-training</u>
 - <u>ww.abb.com/knx</u> (→ Services & Tools → Training and Qualification → Training Database)

YouTube

- Channel "ABB Home and Building Automation"
 - <u>https://www.youtube.com/user/ABBibusKNX</u>





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