

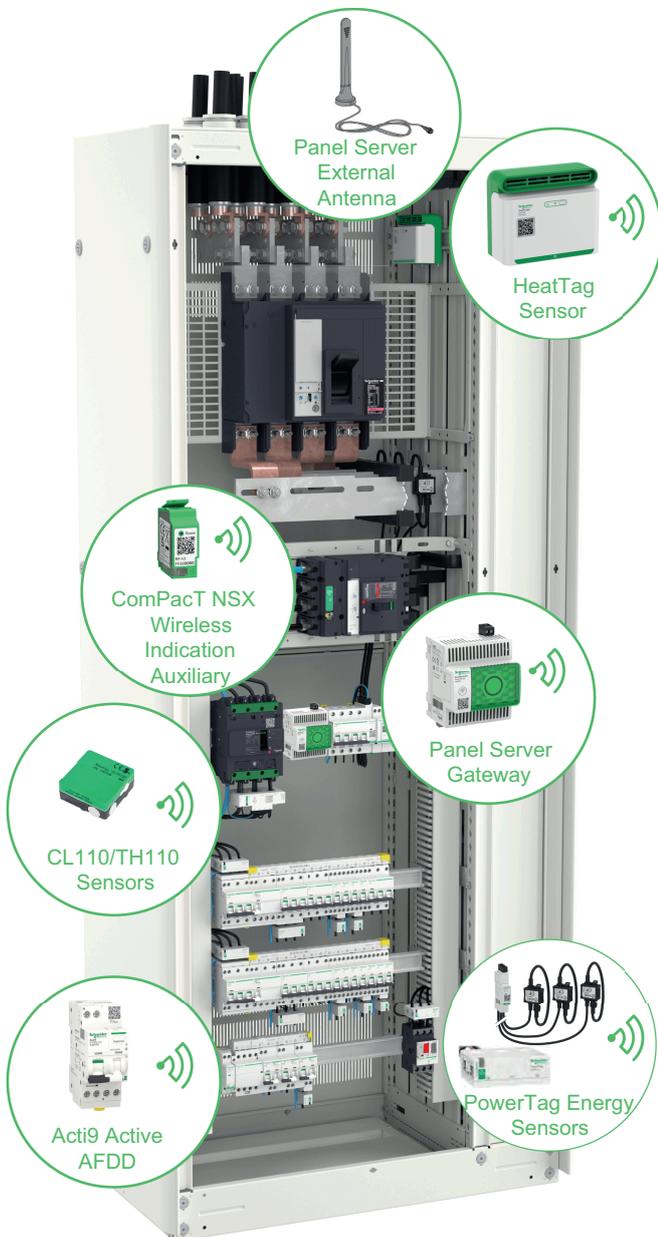


Wireless Communication Architectures With EcoStruxure Panel Server

Design Guide

EcoStruxure offers IoT-enabled architecture and platform.

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Safety Information

Important Information

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, service, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a “Danger” or “Warning” safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER
DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.
⚠ WARNING
WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.
⚠ CAUTION
CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE
NOTICE is used to address practices not related to physical injury.

Please Note

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by Schneider Electric for any consequences arising out of the use of this material.

A qualified person is one who has skills and knowledge related to the construction and operation of electrical equipment and its installation, and has received safety training to recognize and avoid the hazards involved.

About the Book

Document Scope

The EcoStruxure™ Panel Server gateway is designed to connect and digitize the electrical distribution installation and to perform energy management and monitoring, from the enclosure in-come down to the load level.

In addition to traditional wired connectivity (Modbus Serial Line and Modbus TCP/IP communication), the EcoStruxure Panel Server gateway offers wireless communication:

- IEEE 802.15.4 communication to connect Schneider Electric wireless devices (for example, PowerTag Energy sensors, ambient sensors) downstream the Panel Server.
- Wi-Fi communication to connect the Panel Server to Ethernet network architecture on customer site.

This guide is intended to provide information and guidelines to help system designers, installers, and users to obtain reliable wireless communication (IEEE 802.15.4 and Wi-Fi) for the Panel Server by:

- defining the referential installations for an efficient wireless setup inside and outside a metallic enclosure,
- proposing a method to design an IEEE 802.15.4 wireless channel assignment plan for a balanced wireless communication on the channels in case of concentrated wireless architecture.

Some Schneider Electric documents relative to specific enclosures (for example, BlokSeT and Okken switchboards) can deliver less restrictive rules based on additional tests made especially for the enclosures or targeted setup. In this case, these documents can replace this guide.

Validity Note

The information in this guide is relevant for:

- EcoStruxure Panel Server Advanced gateways
- EcoStruxure Panel Server Universal gateways

Convention

EcoStruxure Panel Server is hereafter referred to as Panel Server.

Online Information

The information contained in this guide is likely to be updated at any time. Schneider Electric strongly recommends that you have the most recent and up-to-date version available on www.se.com/ww/en/download.

The technical characteristics of the devices described in this guide also appear online. To access the information online, go to the Schneider Electric home page at www.se.com.

Related Documents

Title of documentation	Reference number
<i>EcoStruxure Panel Server Universal - Instruction Sheet</i>	GDE74119
<i>EcoStruxure Panel Server Advanced - Instruction Sheet</i>	JYT24469
<i>EcoStruxure Panel Server - Wireless Devices / Wi-Fi Antenna - Instruction Sheet</i>	NNZ58425

Title of documentation	Reference number
<i>EcoStruxure Panel Server - User Guide</i>	DOCA0172EN
<i>EcoStruxure Panel Server Universal - Firmware Release Notes</i>	DOCA0178EN
<i>EcoStruxure Panel Server Advanced - Firmware Release Notes</i>	DOCA0248EN
EcoStruxure Panel Server Catalogue	PLSED310196EN
<i>EcoStruxure Panel Server - Cybersecurity Guide</i>	DOCA0211EN

You can download these technical publications and other technical information from our website at www.se.com/ww/en/download.

Introduction

EcoStruxure Master Range

EcoStruxure is Schneider Electric's IoT-enabled, plug-and-play, open, interoperable architecture and platform, in Homes, Buildings, Data Centers, Infrastructure and Industries. Innovation at Every Level from Connected Products to Edge Control, and Apps, Analytics and Services.

Overview

The enclosure design for the EcoStruxure Panel Server system depends on the types of wireless communication and architectures:

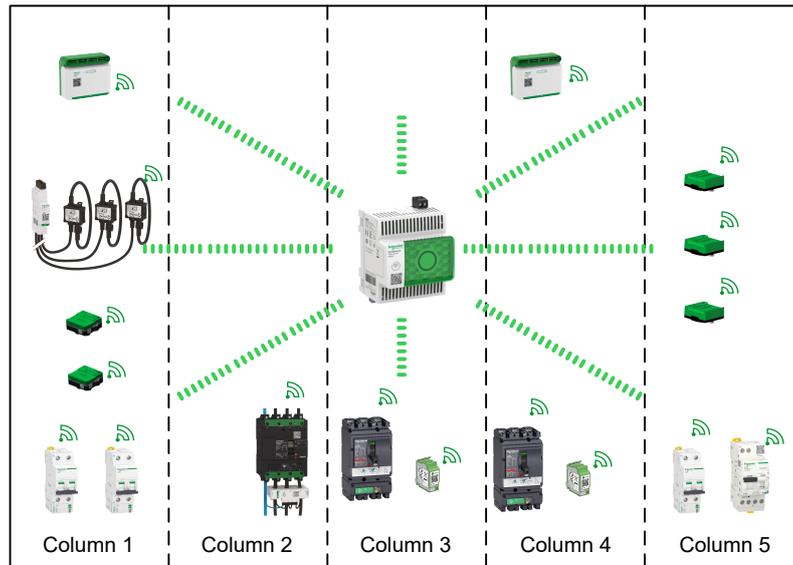
- Installations with IEEE 802.15.4 communication:
 - Panel Server and wireless devices installed inside one enclosure, page 9
 - Wireless devices installed in open field, page 10
 - Panel Server and wireless devices installed inside one enclosure, and other wireless devices installed in open field, page 11
 - Panel Server and wireless devices installed inside two metallic enclosures, page 13
- Installations with Wi-Fi communication:
 - Installation using Panel Server internal antenna, page 14
 - Installation using Panel Server external antenna, page 16

Installation Guidelines for IEEE 802.15.4 Communication

Panel Server and Wireless Devices Inside One Enclosure

The Panel Server can be installed with wireless devices inside one metallic or plastic enclosure, whatever the type and/or brand of the enclosure (Schneider Electric or third-party enclosures).

The diagram shows an example of an enclosure based on five PrismaSeT P columns.



Use the following specifications for installation of the enclosure:

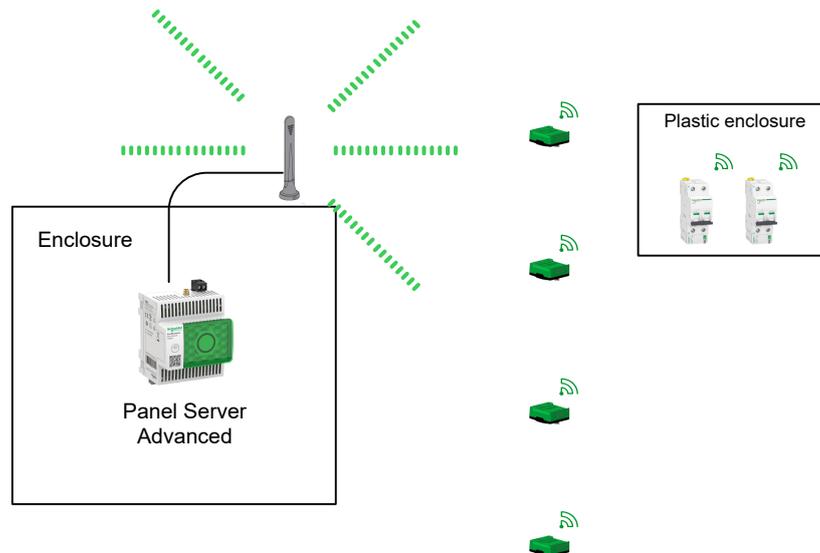
Item	Description
Panel Server model	<ul style="list-style-type: none"> Universal (PAS600 series) Advanced (PAS800 series)
Panel Server external antenna	No
Enclosure specifications	Maximum width of the enclosure: 4 m (13.1 ft) Example: Five PrismaSeT P columns each 800 mm (31.5 in) wide
	Form partitions 1, 2a, or 2b without metallic partition between Panel Server and wireless devices NOTE: More demanding installations, for example, Form 3 and Form 4 and/or with metal partition between Panel Server and wireless devices, are not covered by this guide. Refer to the dedicated documents for recommendations and instructions.
Type and number of wireless devices	Refer to the relevant Panel Server firmware release notes: <ul style="list-style-type: none"> DOCA0178EN <i>EcoStruxure Panel Server Universal - Firmware Release Notes</i> DOCA0248EN <i>EcoStruxure Panel Server Advanced - Firmware Release Notes</i>
IEEE 802.15.4 communication settings in Panel Server (by using Panel Server webpages or EcoStruxure Power Commission software)	Antenna setting: Internal
	Output power level: Low level (setting not editable when antenna is set to Internal .)
Additional recommendations and requirements	It is recommended to install the Panel Server as close as possible to the central point of the enclosure.
	Install several Panel Server gateways in the enclosure if: <ul style="list-style-type: none"> The number of wireless devices is higher than the maximum allowed for the Panel Server model (refer to Maximum Configuration in <i>DOCA0172EN EcoStruxure Panel Server - User Guide</i>). Enclosure width is greater than 4 m (13.1 ft). To define wireless channel values for optimal communication, refer to <i>Wireless Channel Assignment Plan Design</i> , page 18.

Wireless Devices in Open Field

The Panel Server Advanced can be installed in a metallic or plastic enclosure and wireless devices installed in open field.

The use of Panel Server Advanced offers the possibility to connect the IEEE 802.15.4 external antenna in case of modification of environment between the Panel Server and the wireless devices (for example, addition of metallic barriers).

The diagram shows an example of wireless devices installed in open field. Both PowerTag Energy sensors installed in the plastic enclosure can be considered in open field for wireless communication (insignificant mitigation of radio frequency signal by plastic material).



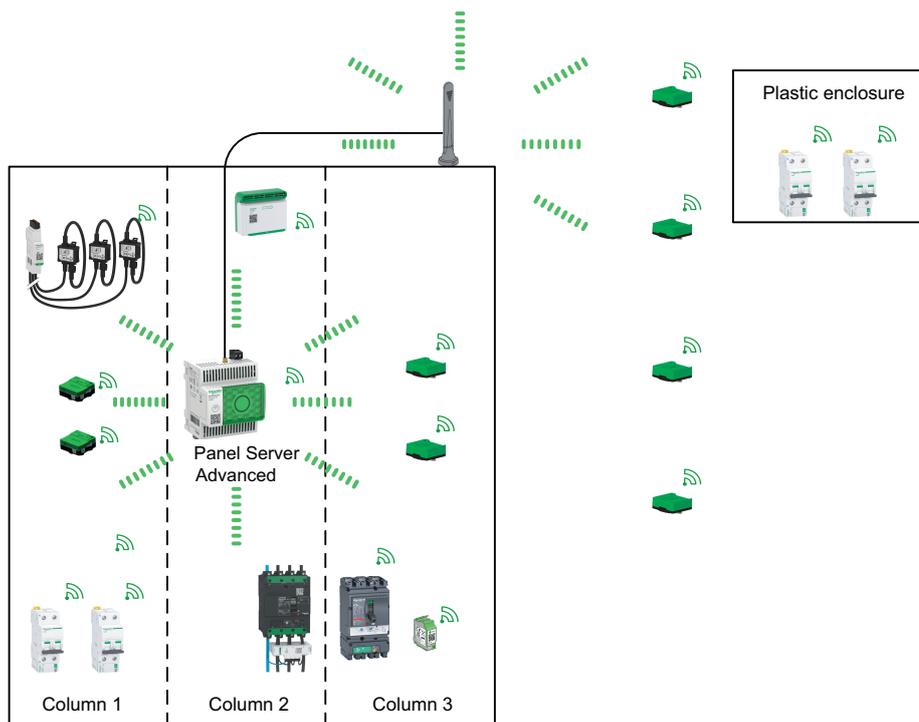
Use the following specifications for installation:

Item	Description
Panel Server model	Advanced (PAS800 series): Panel Server with a connector to an external antenna for IEEE 802.15.4 communication
Panel Server external antenna	Use of the external antenna reference PASA-ANT1: <ul style="list-style-type: none"> • Optional if the Panel Server is installed in a plastic enclosure. • Mandatory if the Panel Server is installed in a metallic enclosure.
Maximum distance between external antenna and wireless devices	10 m (32.8 ft) in open field if IEEE 802.15.4 output power level is set to Low level or High level . NOTE: Selecting high level only increases the strength of the wireless packets sent by the Panel Server, but not the strength of the packets sent by the wireless devices. Therefore, since the communication is two-way, the maximum distance of 10 m (32.8 ft) does not increase when high level is selected.
Type and number of wireless devices	Refer to DOCA0248EN <i>EcoStruxure Panel Server Advanced - Firmware Release Notes</i> .
IEEE 802.15.4 communication settings in Panel Server (by using Panel Server webpages or EcoStruxure Power Commission software)	Antenna setting: External
	Output power setting: Low level or High level
Additional recommendations and requirements	Antenna installation limited to antenna cable length (3.1 m (9.8 ft))

Panel Server and Wireless Devices Inside One Enclosure and Other Wireless Devices in Open Field

The Panel Server Advanced can be installed with wireless devices inside one enclosure, and other wireless devices and the external antenna installed in open field.

The diagram shows an example of an enclosure based on three PrismaSeT P columns with the external antenna installed outside the enclosure to optimize communication with the external IEEE 802.15.4 devices. The devices installed in the additional plastic enclosure can be considered in open field for wireless communication (insignificant mitigation of radio frequency signal by plastic material).



Use the following specifications for installation of the enclosure:

Item	Description
Panel Server model	Advanced (PAS800 series): Panel Server with a connector to an external antenna for IEEE 802.15.4 communication
Panel Server external antenna	Yes, use external antenna reference PASA-ANT1.
Enclosure specifications	Maximum width of the enclosure: 4 m (13.1 ft) Example: Three PrismaSeT P columns each 800 mm (31.5 in) wide
	Form partitions 1, 2a, or 2b without metallic partition between Panel Server and wireless devices NOTE: More demanding installations, for example, Form 3 and Form 4 and/or with metal partition between Panel Server and wireless devices, are not covered by this guide. Refer to the dedicated documents for recommendations and instructions.
Maximum distance between external antenna and wireless devices	10 m (32.8 ft) in open field
Type and number of wireless devices	Refer to DOCA0248EN <i>EcoStruxure Panel Server Advanced - Firmware Release Notes</i> .
IEEE 802.15.4 communication settings in Panel Server (by using Panel Server webpages or EcoStruxure Power Commission software)	Antenna setting: Both (internal and external antennas)
	Output power level: Low level (setting not editable when antenna is set to Both .)
Additional recommendations and requirements	Antenna installation limited to antenna cable length (3.1 m (9.8 ft))

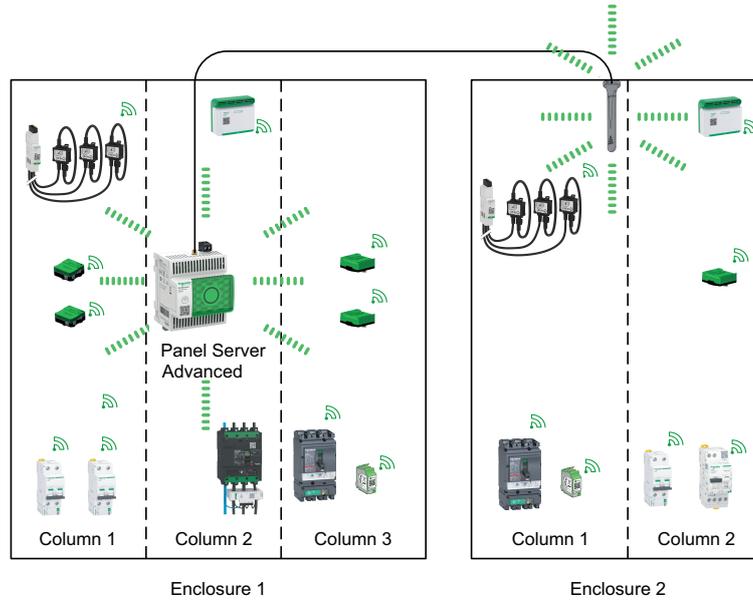
Item	Description
	<p>It is recommended to install the Panel Server as close as possible to the central point of the enclosure.</p> <p>Install several Panel Server gateways in the enclosure if:</p> <ul style="list-style-type: none">• The number of wireless devices is higher than the maximum allowed for one Panel Server model (refer to Maximum Configuration in <i>DOCA0172EN EcoStruxure Panel Server - User Guide</i>).• Width of the enclosure is greater than 4 m (13.1 ft). <p>To define wireless channel values for optimal communication, refer to <i>Wireless Channel Assignment Plan Design</i>, page 18.</p>

Panel Server and Wireless Devices Inside Two Metallic Enclosures

In countries conforming to IEC standard, the Panel Server Advanced can be installed with wireless devices inside one metallic enclosure, and other wireless devices and the external antenna installed in another metallic enclosure, whatever the type and/or brand of the enclosures (Schneider Electric or third-party enclosures).

The diagram shows an example of two enclosures:

- Enclosure 1 is based on three PrismaSeT P columns.
- Enclosure 2 is based on two PrismaSeT P columns.



Use the following specifications for installation of the enclosures:

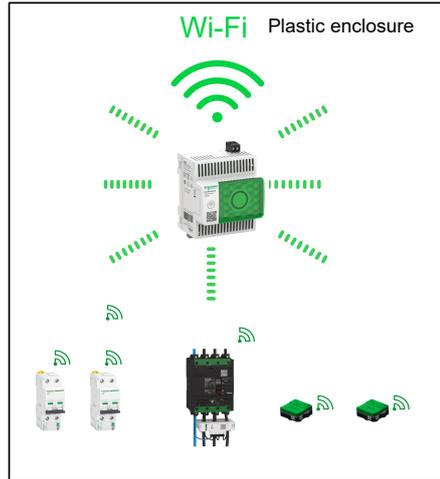
Item	Description
Panel Server model	Advanced (PAS800 series): Panel Server with a connector to an external antenna for IEEE 802.15.4 communication
Panel Server external antenna	Yes, use external antenna reference PASA-ANT1.
Enclosure specifications	Maximum width per enclosure: 4 m (13.1 ft)
	Form partitions 1, 2a, or 2b without metallic partition between Panel Server and wireless devices NOTE: More demanding installations, for example, Form 3 and Form 4 and/or with metal partition between Panel Server and wireless devices, are not covered by this guide. Refer to the dedicated documents for recommendations and instructions.
Type and number of wireless devices	Refer to DOCA0248EN <i>EcoStruxure Panel Server Advanced - Firmware Release Notes</i> .
IEEE 802.15.4 communication settings in Panel Server (by using Panel Server webpages or EcoStruxure Power Commission software)	Antenna setting: Both (internal and external antennas are used.)
	Output power level: Low level (setting not editable when antenna is set to Both) IMPORTANT: Do not set the output power to High level for installation in a metallic enclosure.
Additional recommendations and requirements	Distance between the two enclosures is limited to antenna cable length (3.1 m (9.8 ft)).
	It is recommended to install the Panel Server as close as possible to the central point of the enclosure where installed.
	It is recommended to install the antenna directed downwards with its magnetic support placed on the upper part of the enclosure (see diagram above).
	The minimum distance required between the antenna stem and surrounding metallic barriers is 10 cm (3.93 in).
	Install several Panel Server gateways in one enclosure if: <ul style="list-style-type: none"> • The number of wireless devices is higher than the maximum allowed for one Panel Server model (refer to Maximum Configuration in DOCA0172EN <i>EcoStruxure Panel Server - User Guide</i>). • Width per enclosure is greater than 4 m (13.1 ft). To define wireless channel values for optimal communication, refer to <i>Wireless Channel Assignment Plan Design</i> , page 18.

Installation Guidelines for Wi-Fi Communication

Installation Using Panel Server Internal Antenna

The Panel Server can be installed with wireless devices in a plastic enclosure, and connected to Wi-Fi 2.4 GHz (or 5 GHz for Panel Server Advanced) compliant to standard 802.11 a/b/g/n, through its internal antenna.

The following diagram shows an example of a Panel Server connected to Wi-Fi through the Panel Server internal Wi-Fi antenna.



Use the following specifications for installation:

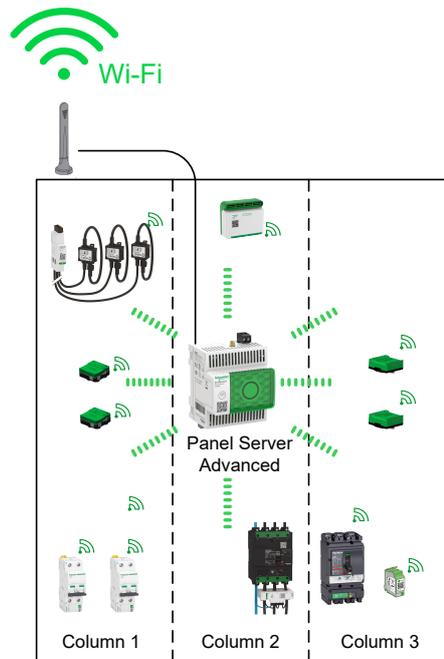
Item	Description
Panel Server model	<ul style="list-style-type: none"> • Universal (PAS600 series) • Advanced (PAS800 series)
Panel Server external antenna	No
Enclosure specifications	Plastic enclosures (not metallic enclosures)
Additional recommendations and requirements	<p>Select a Wi-Fi signal with at least two power bars (strong or medium signal) in the Panel Server webpage.</p> <div style="display: flex; align-items: center; margin-top: 10px;"> <div style="margin-right: 10px;"> Strong Wi-Fi signal Medium Wi-Fi signal Weak Wi-Fi signal </div> </div>

Item	Description
	<div data-bbox="520 170 699 533" data-label="Figure"> </div> <p data-bbox="730 170 1407 215">Select an IEEE 802.15.4 wireless channel that does not overlap with the selected Wi-Fi 2.4 GHz channel:</p> <ul data-bbox="746 226 1437 376" style="list-style-type: none"> <li data-bbox="746 226 1437 293">• Use a Wi-Fi scanner application on your smartphone, for example, an open source Wi-Fi analyzer, to identify the channel used by the Wi-Fi network selected on the Panel Server. <li data-bbox="746 304 1437 376">• Select or change the IEEE 802.15.4 wireless channel to avoid overlapping. For more information, see Step 2: Define Overlapped IEEE802.15.4 Channels, page 21.

Installation Using Panel Server External Antenna

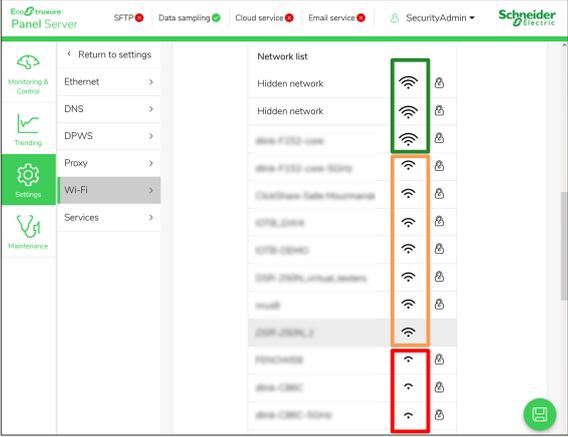
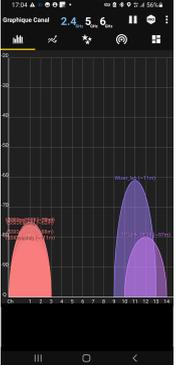
The Panel Server can be installed with wireless devices in a plastic or metallic enclosure, and connected to Wi-Fi 2.4 GHz (or 5 GHz for Panel Server Advanced) compliant to standard 802.11 a/b/g/n, through its external antenna. The Panel Server external antenna is mandatory for metallic enclosures but optional for plastic enclosures.

The following diagram shows an example of a Panel Server Advanced connected to Wi-Fi through its external Wi-Fi antenna.



Use the following specifications for installation:

Item	Description
Panel Server model	<ul style="list-style-type: none"> • Universal (PAS600 series) • Advanced (PAS800 series)
Panel Server external antenna	Yes, use external antenna reference PASA-ANT1.
Enclosure specifications	<ul style="list-style-type: none"> • Plastic • Metallic
Additional recommendations and requirements	The minimum distance required between the antenna stem and surrounding metallic barriers is 10 cm (3.93 in).
	In case of architectures with two external antennas, the minimum distance required between both antennas is 10 cm (3.93 in).
	Select a Wi-Fi signal with at least two power bars (strong or medium signal) in the Panel Server webpage.

Item	Description
	 <div style="float: right; margin-top: 10px;">  Strong Wi-Fi signal  Medium Wi-Fi signal  Weak Wi-Fi signal </div>
	 <p>Select an IEEE 802.15.4 wireless channel that does not overlap with the selected Wi-Fi 2.4 GHz channel:</p> <ul style="list-style-type: none"> • Use a Wi-Fi scanner application on your smartphone, for example, an open source Wi-Fi analyzer, to identify the channel used by the Wi-Fi network selected on the Panel Server. • Select or change the IEEE 802.15.4 wireless channel to avoid overlapping. For more information, see Step 2: Define Overlapped IEEE802.15.4 Channels, page 21.

Wireless Channel Assignment Plan Design

Introduction

Each Panel Server gateway is assigned one wireless channel.

A wireless channel has limited bandwidth that is impacted by:

- The number of associated Panel Server gateways and paired IEEE 802.15.4 devices.
- Wireless communication periods set in each gateway for each type of device.

NOTE: Exceeding bandwidth in a channel can lead to wireless communication disturbances and wireless communication issues.

EcoStruxure System Wireless Architecture Ranking

Wireless architecture is classified into two types:

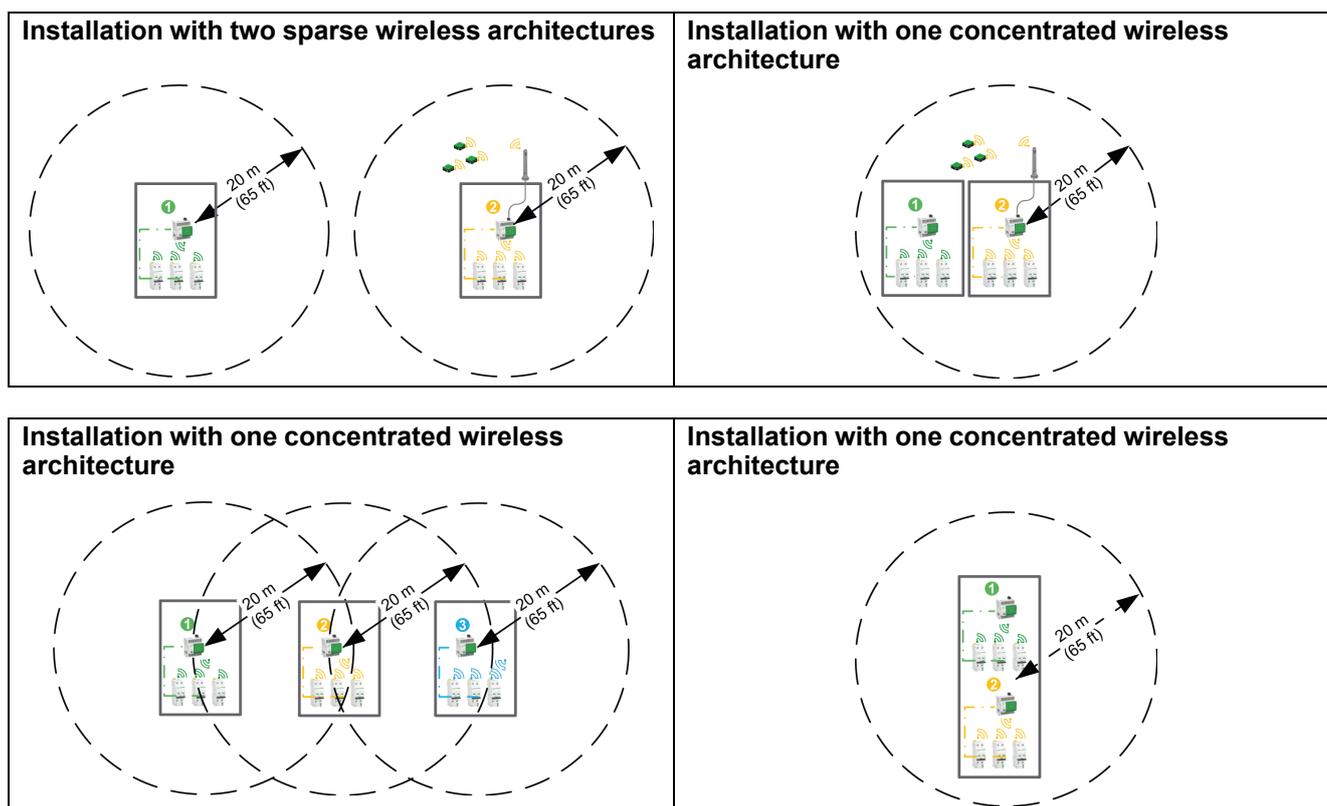
- **Sparse wireless architecture:** one Panel Server and its external IEEE 802.15.4 antenna, if installed, communicates with Schneider Electric wireless devices that are within a radius of 20 m (65 ft).

NOTE: Default Panel Server wireless settings (communication periods and automatic channel selection) can be used.

- **Concentrated wireless architecture:** two wireless gateways communicate with Schneider Electric wireless devices that are within a radius of 20 m (65 ft).

NOTE: The circumference of a circle with a 20 m (65 ft) radius is not the maximum distance for communication between the Panel Server gateway and paired wireless devices. It is the distance which helps ensure that two wireless Panel Server systems are independent.

The following figure shows examples of wireless architectures with Panel Server gateways.



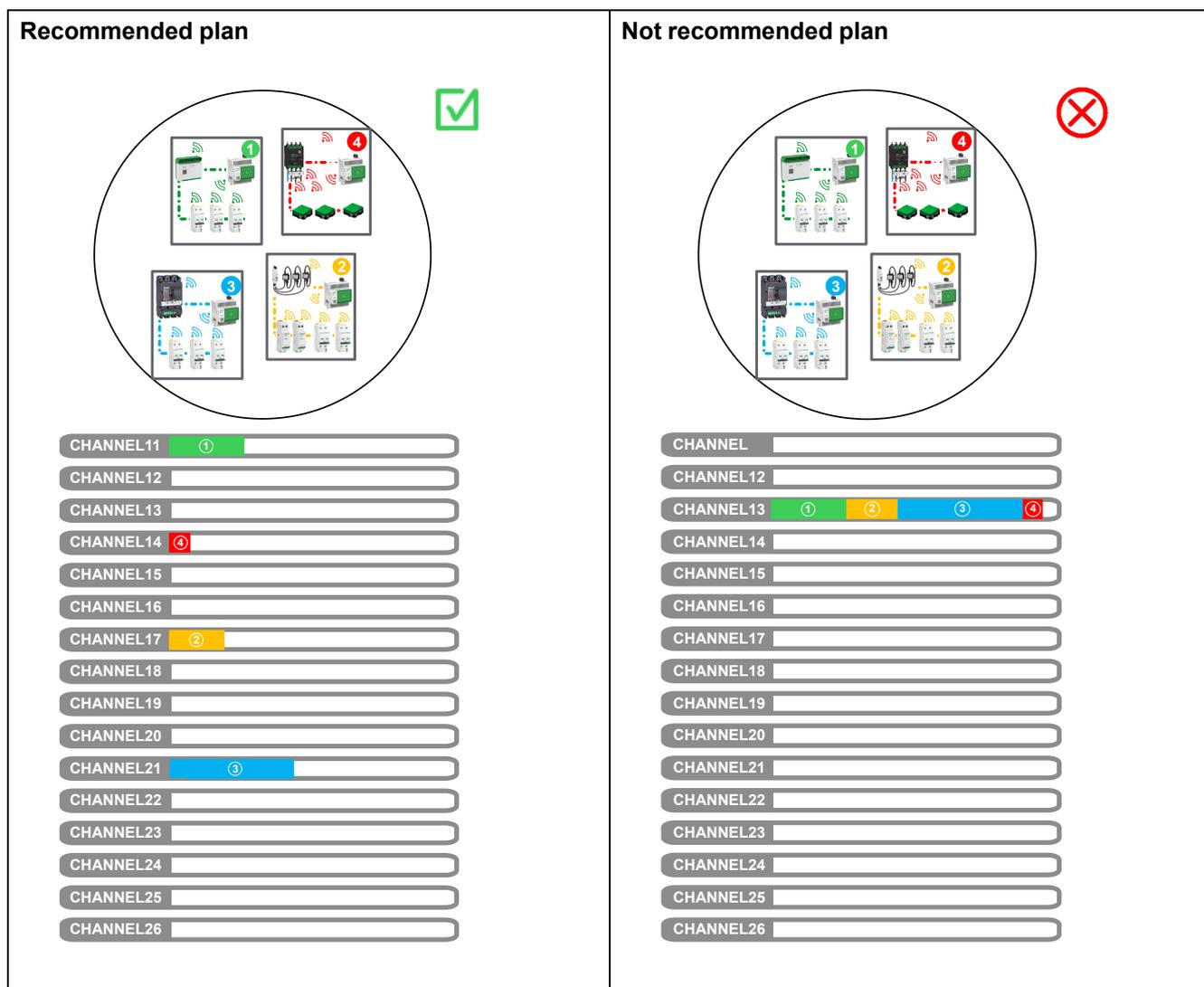
Concentrated Wireless Architecture

For a concentrated wireless architecture, IEEE 802.15.4 wireless communication should be distributed across several channels to avoid wireless channel saturation. The system integrator needs to create a wireless channel assignment plan (see detailed procedure, page 20).

The definition of a wireless channel assignment plan is required that serves the following purposes:

- Assign a channel (from 11 to 26) to each Panel Server by balancing communication loads.
- Define wireless communication periods for communication between each Panel Server and paired wireless devices.

The following figures show examples of wireless channel assignment plans.



Wireless Channel Assignment Procedure

Prerequisites

Prerequisites for assignment of a wireless channel assignment plan are the following:

- The total number of Panel Server gateways for the architecture is defined.
- The panels/enclosures are pre-designed in accordance with design rules (see installation guidelines for IEEE 802.15.4 communication, page 9 and for Wi-Fi, page 14). Subsequently, the number of Panel Server gateways and the number or type of paired wireless devices per gateway for each type of panel/enclosure is defined.
- The physical position of each panel/enclosure is defined.

Procedure

Stages for defining a wireless channel assignment plan are the following:

1. Define position of panels/enclosures to the building layout, see Step 1, page 20.
2. Define IEEE 802.15.4 channels overlapped by Wi-Fi signal, see Step 2, page 21.
3. Reserve IEEE 802.15.4 channels for future evolution, see Step 3, page 22.
4. Define IEEE 802.15.4 channel of each Panel Server, see Step 4, page 22.
5. Define wireless communication periods for communication between the Panel Server and paired wireless devices, see Step 5, page 24.

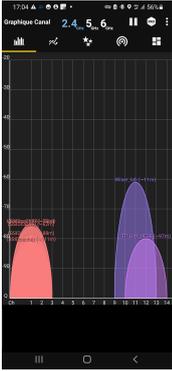
Step 1: Define Position of Panel/Enclosure to Building Layout

For multi-storey buildings, it can be considered that attenuation of a reinforced concrete floor is high. Therefore, one wireless channel assignment plan has to be created for each floor without dependency between the channel assignment plans of the building.

Add the panels/enclosures to the building layout (respecting scale) and label each panel/enclosure.

Reference each panel/enclosure so that the type of panel/enclosure can be identified immediately and easily associated with the type and number of paired wireless devices.

Step 2: Define Overlapped IEEE 802.15.4 Channels



Each IEEE 802.15.4 channel has a range of 2 MHz with 5 MHz spacing.

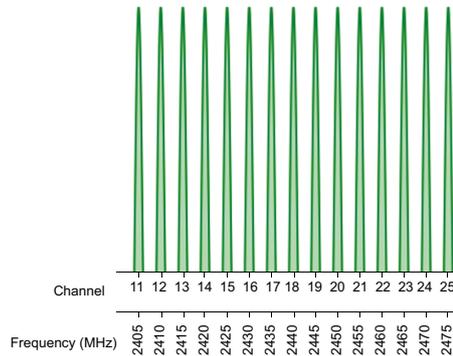
Frequency range associated with an IEEE 802.15.4 channel selected in a Panel Server can also be used by other wireless systems (such as Wi-Fi 2.4 GHz network or third-party wireless equipment) around the Panel Server system. Even if two contiguous wireless systems (for example, a PowerTag system or a third-party radio frequency system such as a Wi-Fi network) are able to run on the same frequency bandwidth without issues, Schneider Electric recommends that you segregate two different non-overlapped channels where possible.

To discover Wi-Fi channels around the installation, you can use a channel scanner application, for example, an open source Wi-Fi analyzer available on mobile devices.

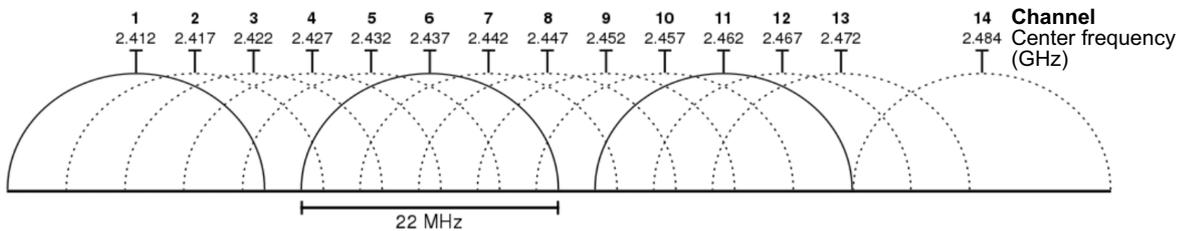
Scan radio frequency occupation to determine which Wi-Fi channels are used and exclude overlapped IEEE 802.15.4 channels of the wireless channel assignment plan, as per the following table:

Wi-Fi 2.4 GHz channel	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Frequency band (MHz)	2401–2423	2406–2428	2411–2433	2416–2438	2421–2443	2426–2448	2431–2453	2436–2458	2441–2463	2446–2468	2451–2473	2456–2478	2461–2483	2473–2495
Overlapped IEEE 802.15.4 channel	11–14	12–15	13–16	14–17	15–18	16–19	17–21	18–22	19–23	20–23	21–24	22–25	23–26	25–26

The following figure shows the radio frequency bandwidth per IEEE 802.15.4 channel.



The following figure shows the radio frequency bandwidth per Wi-Fi 2.4 GHz channel.



Step 3: Reserve IEEE 802.15.4 Channels for Future Evolution

During the creation phase of a wireless channel assignment plan, it can be planned to add a third-party radio frequency system after the implementation of the plan. In this case, reserve a dedicated channel.

For future evolution, it is recommended to reserve channels to the wireless channel assignment plan depending on the density of Schneider Electric wireless devices that should be within a radius of 20 m (65 ft) from the Panel Server:

- Reserve one more channel if density should be lower than 1,200 Schneider Electric wireless devices.
- Reserve two more channels if density should be of 1,200 or more Schneider Electric wireless devices.

Step 4: Define Panel Server IEEE 802.15.4 Channel

You have to define the IEEE 802.15.4 channel for each Panel Server.

Use all the available channels to balance Panel Server and paired wireless devices by using the following formula:

Number of available channels = 16 - Number of overlapped channels - Number of reserved channels

Maintain uniform usage of channels by respecting both priorities:

1. Maximize distance between the Panel Server gateways using the same channel.
2. Maximize distance between a Panel Server using channel X and a Panel Server using adjacent channels (channel X-1 and channel X+1).

The following guidelines should be considered when several Panel Server gateways are installed in one metallic enclosure:

- Do not define the same channel for more than one Panel Server.
- Favour the definition of non-adjacent channels for each Panel Server.

To apply the wireless channel assignment plan, each Panel Server must be set to **Channel Mode > Manual** (not to **Auto**, default setting). In manual channel mode, the system integrator can select the channel number (from 11 to 26) in accordance with the definition of the plan.

The following figures show examples of wireless channel assignment plans and the channel **Ch** associated to each Panel Server **PS**.

Recommended plan

PS1 Ch22	PS2 Ch12	PS3 Ch23	PS4 Ch15	PS5 Ch13	PS6 Ch23
PS11 Ch24	PS12 Ch14	PS13 Ch20	PS14 Ch11	PS15 Ch21	PS16 Ch11
PS21 Ch20	PS22 Ch11	PS23 Ch22	PS24 Ch24	PS25 Ch15	PS26 Ch23
PS31 Ch24	PS32 Ch13	PS33 Ch20	PS34 Ch12	PS35 Ch21	PS36 Ch12
PS41 Ch21	PS42 Ch15	PS43 Ch24	PS44 Ch14	PS45 Ch23	PS46 Ch14
PS51 Ch13	PS52 Ch22	PS53 Ch12	PS54 Ch20	PS55 Ch11	PS56 Ch21



Possible plan

Contiguous enclosures with contiguous channel:

- PS12, PS21, PS22, and PS32 on channels 11, 12, 13, 14
- PS35 and PS36 on channel 20, 21

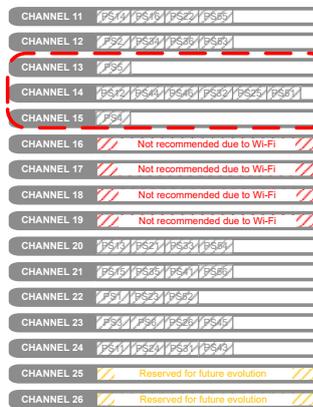
PS1 Ch22	PS2 Ch12	PS3 Ch23	PS4 Ch15	PS5 Ch13	PS6 Ch23
PS11 Ch24	PS12 Ch14	PS13 Ch20	PS14 Ch11	PS15 Ch21	PS16 Ch11
PS21 Ch12	PS22 Ch11	PS23 Ch22	PS24 Ch24	PS25 Ch15	PS26 Ch23
PS31 Ch24	PS32 Ch13	PS33 Ch20	PS34 Ch12	PS35 Ch21	PS36 Ch20
PS41 Ch21	PS42 Ch15	PS43 Ch24	PS44 Ch14	PS45 Ch23	PS46 Ch14
PS51 Ch13	PS52 Ch22	PS53 Ch12	PS54 Ch20	PS55 Ch11	PS56 Ch21



Not recommended plans

Wireless traffic not balanced on all the channels (too much traffic on channel 14)

PS1 Ch22	PS2 Ch12	PS3 Ch23	PS4 Ch15	PS5 Ch13	PS6 Ch23
PS11 Ch24	PS12 Ch14	PS13 Ch20	PS14 Ch11	PS15 Ch21	PS16 Ch11
PS21 Ch20	PS22 Ch11	PS23 Ch22	PS24 Ch24	PS25 Ch15	PS26 Ch23
PS31 Ch24	PS32 Ch14	PS33 Ch20	PS34 Ch12	PS35 Ch21	PS36 Ch12
PS41 Ch21	PS42 Ch15	PS43 Ch24	PS44 Ch14	PS45 Ch23	PS46 Ch14
PS51 Ch14	PS52 Ch22	PS53 Ch12	PS54 Ch20	PS55 Ch11	PS56 Ch21

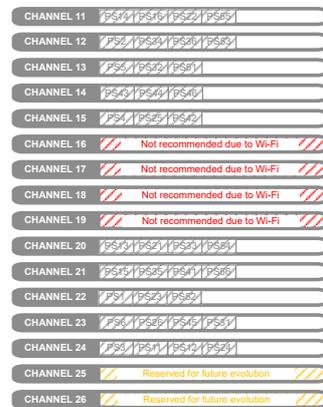


Not recommended plans

Contiguous enclosures with the same channel:

- PS3, PS11, and PS12 on channel 24
- PS43 and PS44 on channel 14

PS1 Ch22	PS2 Ch12	PS3 Ch24	PS4 Ch15	PS5 Ch13	PS6 Ch23
PS11 Ch24	PS12 Ch24	PS13 Ch20	PS14 Ch11	PS15 Ch21	PS16 Ch11
PS21 Ch20	PS22 Ch11	PS23 Ch22	PS24 Ch24	PS25 Ch15	PS26 Ch23
PS31 Ch24	PS32 Ch13	PS33 Ch20	PS34 Ch12	PS35 Ch21	PS36 Ch12
PS41 Ch21	PS42 Ch15	PS43 Ch14	PS44 Ch14	PS45 Ch23	PS46 Ch14
PS51 Ch13	PS52 Ch22	PS53 Ch12	PS54 Ch20	PS55 Ch11	PS56 Ch21



- Not recommended due to Wi-Fi
- Reserved for future evolution

Step 5: Define Wireless Communication Periods

Define wireless communication period values for each type of device according to wireless device density:

- Enter identical communication period values for the Panel Server gateways in the area.
- Do not set communication periods to less than 15 seconds for concentrated wireless architectures.
- Set the Panel Server communication periods according to the number of wireless devices installed within a 20 m (65 ft) radius from the Panel Server:

Number of wireless devices	Communication periods setting
< 100	≥ 15 seconds
100–600	≥ 30 seconds
600–1,200	≥ 60 seconds
≥1,200	Contact your Schneider Electric representative.

The screenshot shows the Panel Server webpage to set communication periods.

Wireless communication

It defines the length of time (in seconds) each wireless device (sensor, control, energy related) sends data to the Panel Server. This is only applicable to real-time data and not to alarms, which are notified immediately. Please consult the user guide for further information.

! Set communication period for all paired devices that support this feature.

Communication period for sensor devices (s) *

Communication period for control devices (s) *

Communication period for energy related devices (s) *

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As standards, specifications, and design change from time to time,
please ask for confirmation of the information given in this publication.

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