

# **EcoStruxure Panel Server Universal**

## **Firmware Release Notes**

**Wireless Devices Concentrator and Modbus Gateway** 

**EcoStruxure** offers IoT-enabled architecture and platform.

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# **Table of Contents**

About the Book	5
ntroduction	6
EcoStruxure Master Range	6
Panel Server Universal Gateway	6
Firmware Release History	6
Firmware Update Policy	7
Firmware Update with EcoStruxure Power Commission Software	7
Firmware Update with EcoStruxure Panel Server Webpages	7
Firmware Versions	8
Firmware Version 001.006.000	8
Firmware Version 001.005.001	13
Firmware Version 001.005.000	17
Firmware Version 001.004.000	21
Firmware Version 001.003.002	24
Firmware Version 001.003.001	27
Firmware Version 001.002.000	31
Firmware Version 001.001.000	37
Supported Devices	38
Wireless Devices	38
Modbus TCP/IP Devices	41
Modbus Serial Devices	43

## **About the Book**

#### **Document Scope**

This document provides users with the following information about the EcoStruxure™ Panel Server Universal gateway:

- · History of previous firmware versions
- · List of devices supported

### **Validity Note**

This document applies to the Panel Server Universal gateway with firmware version 001.006.000.

#### 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	Publication date	Reference number
EcoStruxure Panel Server - User Guide	05/2023	DOCA0172EN
EcoStruxure Panel Server - Modbus Registers File	05/2023	DOCA0241EN

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.

# **Panel Server Universal Gateway**

Panel Server Universal is a high performance, all-in-one gateway used to retrieve data from IEEE 802.15.4 and Modbus devices.

Panel Server Universal is a data concentrator for wireless devices (see detailed list, page 38).

Panel Server Universal is available with different power supplies:

PAS600: 110–277 Vac/Vdc

PAS600L: 24 Vdc

PAS600T: 110–240 Vac/Vdc

Panel Server Universal offers the following features:

- Two 10/100BASE-T Ethernet RJ45 ports
- Upstream Modbus TCP/IP connectivity (edge connection)
- Upstream Wi-Fi connectivity
- Downstream Modbus TCP/IP connectivity
- Downstream IEEE 802.15.4 connectivity
- Downstream Modbus-SL connectivity
- Two digital inputs (PAS600L)
- · Wi-Fi external antenna
- · Data sampling
- Compatible with the following commissioning tools of Panel Server and connected devices:
  - EcoStruxure Power Commission software
  - EcoStruxure Panel Server webpages
- · Compatible with the following Schneider Electric cloud applications:
  - EcoStruxure Energy Hub
  - EcoStruxure Facility Expert
  - EcoStruxure Asset Advisor
  - EcoStruxure Resource Advisor

# **Firmware Release History**

Date	Panel Server Universal firmware version	Availability
May 2023	001.006.000	Release for manufacturing
February 2023	001.005.001	Obsolete
November 2022	001.005.000	Obsolete

Date	Panel Server Universal firmware version	Availability
August 2022	001.004.000	Obsolete
June 2022	001.003.002	Obsolete
May 2022	001.003.001	Obsolete
October 2021	001.002.000	Obsolete
April 2021	001.001.000	Obsolete

# Firmware Update Policy

Firmware update is recommended to benefit from the latest features and potential bug fixes.

# Firmware Update with EcoStruxure Power Commission Software

Use the latest version (version 2.28.0 or higher) of EcoStruxure Power Commission software to update Panel Server to the latest firmware version available.

The latest version of EcoStruxure Power Commission software is available at www.se.com.

For more information about the use of EcoStruxure Power Commission software, refer to *EcoStruxure Power Commission Online Help*.

# Firmware Update with EcoStruxure Panel Server Webpages

To update the firmware with the Panel Server webpages, proceed as follows:

- 1. Make sure that the Panel Server is continuously powered during the firmware update.
- 2. From www.se.com, download the latest version of Panel Server firmware on your PC.
- 3. Connect your PC to the Panel Server via an Ethernet cable.
- 4. Follow the procedure described in DOCA0172EN *EcoStruxure Panel Server User Guide* to access the Panel Server webpages.
- 5. From the Panel Server webpages, select **Maintenance > Firmware revision** > **Firmware update**.
- 6. Import the firmware file and follow the instructions.
- 7. Reboot the Panel Server to update the firmware.

**NOTE:** The Panel Server webpages cannot be accessed while the Panel Server is rebooting.

8. After the reboot, check that the firmware version is the latest to make sure that the update is effective.

If the firmware version is still the old one, perform the firmware update again. If the problem persists, contact your Schneider Electric customer support.

## **Firmware Versions**

### Firmware Version 001.006.000

#### **New Features**

- I/O Smart Link (reference A9XMSB11): full support of commissioning and control function of the device outputs by using Panel Server webpages.
- Addition of wireless devices:
  - PowerTag Control: commissioning by using Panel Server webpages or EcoStruxure Power Commission software.
  - PowerLogic PD100 partial discharge monitoring sensor: commissioning by using Panel Server webpages.
- PowerTag Control digital input settings: predefined contextualization values.
   For example, Fan status is available when configuring the status of an IO device connected to either one of the input of the PowerTag Control 2DI wireless device, or the input or output of a PowerTag Control IO wireless device.
- Enhancement of Panel Server features for EcoStruxure Asset Advisor and EcoStruxure Resource Advisor:
  - Panel Server supports additional enhancements for custom model properties, by using EPC-Web software:
    - Additional option for properties: LogicCode.
    - Byte ordering at measurement level.
  - PowerLogic HeatTag enhancements.
  - Modbus TCP/IP and Modbus serial devices on unit ID 248 to 254.
  - Panel Server supports custom alarms in custom models created in EPC-Web software.

## **General Features**

The following table presents the availability of general features on Panel Server Universal in firmware version 001.006.000.

- Available
- Not available

General features		Availability
Functionality	Separated network topology	•
	Switched network topology	•
	Connection to Edge Control (EcoStruxure Power Monitoring Expert, EcoStruxure Power Operation, EcoStruxure Building Operation, any Building Management System, or third-party monitoring or supervision system)	•
	Ability to disable concurrently and permanently the wireless networks (Wi-Fi and IEEE 802.15.4) by using Panel Server webpages	•
Wi-Fi	2.4 GHz	•
	External Wi-Fi antenna (reference: PASA-ANT1)	•
IEEE 802.15.4 communication	<ul> <li>Maximum number of wireless devices:</li> <li>Up to 40 wireless devices as combination of PowerTag Energy sensors, PowerLogic Tag energy sensors, Acti9 Active, wireless indication auxiliaries for ComPacT and PowerPacT circuit breakers, wireless CO<sub>2</sub> sensors, wireless temperature and humidity sensors, PowerTag A, PowerTag Ambient, Easergy TH110/CL110 environmental sensors, and PowerLogic HeatTag sensors, PowerTag Control, and PowerLogic PD100 with maximum 10 PowerTag Control devices, maximum 15 PowerLogic HeatTag, and maximum 15 PowerLogic PD100 sensors</li> <li>or up to 85 Easergy TH110/CL110 environmental sensors</li> <li>NOTE: Total number of PowerTag Control, PowerLogic HeatTag, and</li> </ul>	•
Modbus TCP/IP communication	PowerLogic PD100 should not exceed 20 devices.  64 Modbus TCP/IP devices maximum including devices physically connected to the Panel Server and virtual devices (that is, IEEE 802.15.4 devices connected to a child Panel Server gateway)	•
Human Machine Interface	FDM128 Ethernet display	•
(HMI)	PowerTag Link display	•
Backup restore	Backup and Panel Server configuration restore by using Panel Server webpages and EcoStruxure Power Commission software	•
Configuration	User management by single user account	•
	User management by multiple users with Role-Based Access Control (RBAC)	•
Alarms	In general, publication of alarms supported by the end devices.  Publication of alarms related to:  Communication issue between a device and Panel Server when available from the end devices  ERMS on circuit breaker  The three levels of alarms from HeatTag sensors	•
Protocols	Modbus TCP/IP server	•
	Modbus TCP/IP client	•
	DHCP client	•
	DHCP server	•
	DPWS server	•
	HTTPS	•
	SFTP client	•
Data export	Panel Server webpages for publication on SFTP server	•
	Publication on Schneider Electric cloud by using Panel Server webpages	

# **Commissioning and Monitoring Features**

The following table presents the availability of commissioning and monitoring features on Panel Server Universal in firmware version 001.006.000.

- Available
- Not available

Commissioning and monitoring	Availability	
Modbus serial communication	Commissioning of feature to use the Modbus serial port in reverse mode by using Panel Server webpages	•
Digital inputs (PAS600L)	Commissioning by using EcoStruxure Power Commission software	•
	Commissioning by using Panel Server webpages	•
	Monitoring by using EcoStruxure Power Commission software	•
	Monitoring by using Panel Server webpages	•
	Status assignment from a list of predefined values for each generic input/output in the <b>IO status</b> setting by using EcoStruxure Power Commission software or Panel Server webpages	•
Firmware update	Applied to one Panel Server gateway by using EcoStruxure Power Commission software	•
	Applied to one Panel Server gateway by using Panel Server webpages	•
	Applied to several Panel Server gateways by using EcoStruxure Power Commission software	•
	Applied to several Panel Server gateways by using Panel Server webpages	•
Backup restore	Backup restore on a Panel Server of the same model by using EcoStruxure Power Commission software	•
	Backup restore on a Panel Server of the same model by using Panel Server webpages	•
Configuration	Configuration by using EcoStruxure Power Commission software	•
	Ethernet configuration for upstream communication by using Panel Server webpages	•
	Modbus configuration of Modbus TCP/IP and Modbus serial devices by using Panel Server webpages	•
	Selective pairing of wireless devices by using EcoStruxure Power Commission software	•
	Selective pairing of wireless devices by using Panel Server webpages	•
	Disable concurrently and permanently the wireless networks (Wi-Fi and IEEE 802.15.4) in the Panel Server by using Panel Server webpages	•
Monitoring	Display of data of I/O Smart Link devices by using Panel Server webpages	•
	Display of data of Panel Server digital inputs by using Panel Server webpages	•
	Display of data of the supported devices (see commercial references in Supported Devices, page 38) by using Panel Server webpages	•
	Diagnostic by using Panel Server webpages	•

#### **Performance and Limitations**

- · Performance and limitations on Panel Server Universal:
  - When SFTP publication is enabled, alarms are displayed in the Panel Server webpages but are not published on SFTP Server.
  - No manual addition of wireless devices connected to a child/downstream gateway by using EcoStruxure Power Commission software.
  - Automatic discovery of wireless devices under a child gateway is limited to 64 devices because wireless devices are seen as Modbus TCP/IP devices.
  - The typical response time to Modbus TCP/IP request for a wireless IEEE 802.15.4 device is 30 ms.
  - The maximum response time to Modbus TCP/IP request for a wireless IEEE 802.15.4 device is 1 s, set up Modbus/TCP client timeout accordingly.
  - Typical Panel Server latency between Modbus TCP/IP request forwarded to the Modbus serial network is 10 ms.
  - Wi-Fi function available through a connection to a Wi-Fi infrastructure only.
     Access point function not available.
- Limitations on sampling and publishing for Schneider Electric cloud applications:
  - The number of individual data points that can be sampled is limited to 2,000 and limited to a flow of 500 data points per minute.
  - The number of individual alarms that can be configured for monitoring is limited to 100.
- · Limitations on I/O Smart Link:
  - I/O contextualization (IO status setting in EcoStruxure Power Commission software or Panel Server webpages) is not available.
  - Circuit breaker status is not published in case of selection of Wired Devices family.
  - Signal Element as predefined Standard I/O is not available.
  - No predefined configuration is available for Schneider Electric pulse counters
  - Neither operating time, nor operation counter, nor trip counter for Wired devices and Standard I/O.
- Limitations on wireless devices:
  - PowerTag Control:
    - Feedback loop in contactor mode is not supported.
    - Configuration in impulse relay mode is not supported.
    - If a PowerTag Control device is connected to a child gateway:
      - No automatic discovery.
      - No data is published to the parent gateway. To be able to publish at the parent gateway level, a custom model has to be developed for the parent gateway.
      - No control function is available through the Panel Server webpages.
      - Pairing process to be followed:
        - 1. Pair the PowerTag Control devices if any in the configuration (all the other wireless devices must be unpowered).
        - 2. Pair the PowerLogic HeatTag sensors if any in the configuration.
        - 3. Pair PowerLogic PD100 if any in the configuration.
        - 4. Pair the other wireless devices.
  - PowerTag Display: not supported by Panel Server Universal.

- Limitations on topology publication to the Schneider Electric cloud: all the
  devices must be connected at least once to the Panel Server to enable the
  correct topology to be published to the Schneider Electric cloud.
- Limitations on custom model for wireless devices connected under a child gateway: if a custom model uses the same name as a predefined model and devices are already associated with the predefined model, follow this procedure to load the custom model:
  - 1. Decommission any device already associated with the predefined model.
  - 2. Load the custom model in the Panel Server.
  - 3. Reboot the Panel Server.
  - 4. Associate the devices with the newly loaded custom model.
  - 5. Publish the topology in case of use of the Panel Server with a Schneider Electric cloud application such EcoStruxure Asset Advisor or EcoStruxure Resource Advisor.

## Firmware Version 001.005.001

#### **New Features**

- Automatic discovery of wireless devices connected under a child gateway (Panel Server, PowerTag Link, or Smartlink SIB).
- Smartlink SIB gateway natively supported as a child gateway of Panel Server.
- Defining end-device energy by using the Panel Server webpages (**Commodity** field in the end-device details, field not published in Schneider Electric cloud services).
- For any type of PowerTag wireless devices, delivered and received energy available in Modbus registers (upload the most recent version of DOCA0241EN EcoStruxure Panel Server - Modbus Registers File).
- Publication to SFTP server of data sampled on devices connected to the Panel Server, including authentication to SFTP server with either user name and password or user name and SSH key.
- Setting of the pulse counter type digital inputs by using the Panel Server webpages.

## **General Features**

The following table presents the availability of general features on EcoStruxure Panel Server Universal in firmware version 001.005.001.

Available

Not available

General features		Availability
Functionality	Separated network topology	•
	Switched network topology	•
	Connection to Edge Control (EcoStruxure Power Monitoring Expert, EcoStruxure Power Operation, EcoStruxure Building Operation, any Building Management System, or third-party monitoring or supervision system)	•
	Ability to disable concurrently and permanently the wireless networks (Wi-Fi and IEEE 802.15.4) by using Panel Server webpages	•
Wi-Fi	2.4 GHz	•
	External Wi-Fi antenna (reference: PASA-ANT1)	•
IEEE 802.15.4 communication	Maximum number of wireless devices:  Up to 40 wireless devices as combination of PowerTag Energy sensors, PowerLogic Tag energy sensors, Acti9 Active, wireless indication auxiliaries for ComPacT and PowerPacT circuit breakers, wireless CO <sub>2</sub> sensors, wireless temperature and humidity sensors, PowerTag A, PowerTag Ambient, Easergy TH110/CL110 environmental sensors, and PowerLogic HeatTag sensors  or up to 65 Easergy TH110/CL110 environmental sensors	
Modbus TCP/IP communication	64 Modbus TCP/IP devices maximum including devices physically connected to the Panel Server and virtual devices (that is, IEEE 802.15.4 devices connected to a child Panel Server gateway)	•
Human Machine	FDM128 Ethernet display	•
Interface (HMI)	PowerTag Link display	•
Backup restore	Backup and Panel Server configuration restore by using Panel Server webpages and EcoStruxure Power Commission software	•
Configuration	User management by single user account	•
	User management by multiple users with Role-Based Access Control (RBAC)	•
Alarms	Publication of alarms related to:  Communication issue between a device and Panel Server when available from the end devices  ERMS on circuit breaker  The three levels of alarms from HeatTag sensors	•
Protocols	Modbus TCP/IP server	•
	Modbus TCP/IP client	•
	DHCP client	•
	DHCP server	•
	DPWS server	•
	HTTPS	•
	SFTP client	•

Data export	Panel Server webpages for publication on SFTP server	
	Publication on Schneider Electric cloud by using Panel Server webpages	•

# **Commissioning and Monitoring Features**

The following table presents the availability of commissioning and monitoring features on EcoStruxure Panel Server Universal in firmware version 001.005.001.

Available

Not available

Commissioning and	Availability	
Modbus serial communication	Commissioning of feature to use the Modbus serial port in reverse mode by using Panel Server webpages	•
Digital inputs (PAS600L)	Commissioning by using EcoStruxure Power Commission software	•
	Commissioning by using Panel Server webpages	•
	Monitoring by using EcoStruxure Power Commission software	•
	Monitoring by using Panel Server webpages	•
Firmware update	Applied to one Panel Server gateway by using EcoStruxure Power Commission software	•
	Applied to one Panel Server gateway by using Panel Server webpages	•
	Applied to several Panel Server gateways by using EcoStruxure Power Commission software	•
	Applied to several Panel Server gateways by using Panel Server webpages	•
Backup restore	Backup restore on a Panel Server of the same model by using EcoStruxure Power Commission software	•
	Backup restore on a Panel Server of the same model by using Panel Server webpages	•
Configuration	Configuration by using EcoStruxure Power Commission software	•
	Ethernet configuration for upstream communication by using Panel Server webpages	•
	Modbus configuration of Modbus TCP/IP and Modbus serial devices by using Panel Server webpages	•
	Selective pairing of wireless devices by using EcoStruxure Power Commission software	•
	Selective pairing of wireless devices by using Panel Server webpages	•
	Disable concurrently and permanently the wireless networks (Wi-Fi and IEEE 802.15.4) in the Panel Server by using Panel Server webpages	•
Monitoring	Display of data of Smartlink Modbus devices by using Panel Server webpages	•
	Display of data of Panel Server digital inputs by using Panel Server webpages	•
	Display of data of the supported devices (see commercial references in Supported Devices, page 38) by using Panel Server webpages	•
	Diagnostic by using Panel Server webpages	•

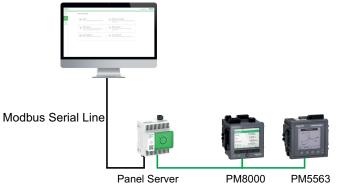
#### **Performance and Limitations**

- Performance and limitations on Panel Server Universal:
  - When SFTP publication is enabled, alarms are displayed in the Panel Server webpages but are not published on SFTP Server.
  - No manual addition of wireless devices connected to a child/downstream gateway by using EcoStruxure Power Commission software.
  - Automatic discovery of wireless devices under a child gateway is limited to 64 devices because wireless devices are seen as Modbus TCP/IP devices.
  - The typical response time to Modbus TCP/IP request for a wireless IEEE 802.15.4 device is 30 ms.
  - The maximum response time to Modbus TCP/IP request for a wireless IEEE 802.15.4 device is 1 s, set up Modbus/TCP client timeout accordingly.
  - Typical Panel Server latency between Modbus TCP/IP request forwarded to the Modbus serial network is 10 ms.
  - Wi-Fi function available through a connection to a Wi-Fi infrastructure only.
     Access point function not available.
- · Limitations on sampling and publishing for cloud applications:
  - The number of individual data points that can be sampled is limited to 2,000 and limited to a flow of 500 data points per minute.
  - The number of individual alarms that can be configured for monitoring is limited to 100.
- · Limitations on Smartlink Modbus:
  - Commissioning by using EcoStruxure Power Commission software only (not available through Panel Server webpages).
  - Control of Smartlink Modbus output(s) by using Panel Server webpages is not available.
- Limitations on wireless devices: PowerTag Control and PowerTag Display are not supported by Panel Server Universal.

## Firmware Version 001.005.000

#### **New Features**

- Backup and restore of Panel Server configuration on a Panel Server of the same model, by using Panel Server webpages or EcoStruxure Power Commission software.
- Wireless networks (Wi-Fi and IEEE 802.15.4) can be concurrently and permanently deactivated in the Panel Server by using the Panel Server webpages.
- Panel Server Modbus serial port can be configured in reverse mode on Panel Server to allow any Modbus client connected to the RS485 port, to access data from devices connected to ETH1 and/or ETH2 Ethernet port.



Modbus TCP/IP devices

- Selective pairing with wireless devices by using EcoStruxure Power Commission software.
- Display in the Panel Server webpages, of data related to Panel Server digital inputs.
- · For Smartlink Modbus:
  - Data related to the device displayed in Panel Server webpages.
  - Predefined alarms (circuit breaker opened, circuit breaker trip, generic input status) displayed in Panel Server webpages.
- · Publication of alarms related to:
  - Communication issue between a device and Panel Server when available from the end devices (see DOCA0241EN EcoStruxure Panel Server -Modbus Registers File).
  - Energy Reduction Maintenance Settings (ERMS) on circuit breaker.
  - The three levels of alarms from HeatTag sensor.
- · Additional supported wireless devices: Acti9 Active Vigi.

#### **Known Issues**

The Earth leakage protection trip alarm is not managed by the Panel Server for ComPacT NS trip units that do not offer this alarm.

## **General Features**

The following table presents the availability of general features on EcoStruxure Panel Server Universal in firmware version 001.005.000.

Available

Not available

General features		Availability
Functionality	Separated network topology	•
	Switched network topology	•
	Connection to Edge Control (EcoStruxure Power Monitoring Expert, EcoStruxure Power Operation, EcoStruxure Building Operation, any Building Management System, or third-party monitoring or supervision system)	•
	Panel Server webpages to disable concurrently and permanently the wireless networks (Wi-Fi and IEEE 802.15.4)	•
Wi-Fi	2.4 GHz	•
	External Wi-Fi antenna (reference: PASA-ANT1)	•
IEEE 802.15.4 communication	Maximum number of wireless devices:  Up to 40 wireless devices as combination of PowerTag Energy sensors, PowerLogic Tag energy sensors, Acti9 Active, wireless indication auxiliaries for ComPacT and PowerPacT circuit breakers, wireless CO <sub>2</sub> sensors, wireless temperature and humidity sensors, PowerTag A, PowerTag Ambient, Easergy TH110/CL110 environmental sensors, and PowerLogic HeatTag sensors, with a maximum of 3 HeatTag sensors	•
	or up to 65 Easergy TH110/CL110 environmental sensors	
Modbus TCP/IP communication	64 Modbus TCP/IP devices maximum including devices physically connected to the Panel Server and virtual devices (that is, IEEE 802.15.4 devices connected to a child Panel Server gateway)	•
Human Machine Interface (HMI)	FDM128 Ethernet display	•
menaee (riwi)	PowerTag Link display	•
Backup restore	Backup and Panel Server configuration restore by using Panel Server webpages and EcoStruxure Power Commission software	•
Configuration	User management by single user account	•
	User management by multiple users with Role-Based Access Control (RBAC)	•
Alarms	Publication of alarms related to:  Communication issue between a device and Panel Server when available from the end devices  ERMS on circuit breaker  The three levels of alarms from HeatTag sensors	•
Protocols	Modbus TCP/IP server	•
	Modbus TCP/IP client	•
	DHCP client	•
	DHCP server	•
	DPWS server	•
	HTTPS	

# **Commissioning and Monitoring Features**

The following table presents the availability of commissioning and monitoring features on EcoStruxure Panel Server Universal in firmware version 001.005.000.

- Available
- Not available

Commissioning and	Availability	
Modbus serial communication	Commissioning of feature to use the Modbus serial port in reverse mode by using Panel Server webpages	•
Digital inputs (PAS600L)	Commissioning by using EcoStruxure Power Commission software	•
	Commissioning by using Panel Server webpages	
	Monitoring by using EcoStruxure Power Commission software	•
	Monitoring by using Panel Server webpages	
Firmware update	Applied to one Panel Server gateway by using EcoStruxure Power Commission software	•
	Applied to one Panel Server gateway by using Panel Server webpages	•
	Applied to several Panel Server gateways by using EcoStruxure Power Commission software	•
	Applied to several Panel Server gateways by using Panel Server webpages	
Backup restore	Backup restore on a Panel Server of the same model by using EcoStruxure Power Commission software	•
	Backup restore on a Panel Server of the same model by using Panel Server webpages	•
Configuration	Configuration by using EcoStruxure Power Commission software	•
	Ethernet configuration for upstream communication by using Panel Server webpages	•
	Modbus configuration of Modbus TCP/IP and Modbus serial devices by using Panel Server webpages	•
	Selective pairing of wireless devices by using EcoStruxure Power Commission software	•
	Selective pairing of wireless devices by using Panel Server webpages	•
	Disable concurrently and permanently the wireless networks (Wi-Fi and IEEE 802.15.4) in the Panel Server by using Panel Server webpages	•
Monitoring	Display of data of Smartlink Modbus devices by using Panel Server webpages	•
	Display of data of Panel Server digital inputs by using Panel Server webpages	•
	Display of data of the supported devices (see commercial references in Supported Devices, page 38) by using Panel Server webpages	•
	Diagnostic by using Panel Server webpages	•
Data export	Publication on Schneider Electric cloud by using Panel Server webpages	•

#### **Performance and Limitations**

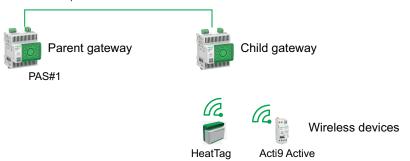
- Performance and limitations on Panel Server Universal:
  - No data publication on an SFTP server.
  - No manual addition of wireless devices connected to a child/downstream gateway by using EcoStruxure Power Commission software.
  - The typical response time to Modbus TCP/IP request for a wireless IEEE 802.15.4 device is 30 ms.
  - The maximum response time to Modbus TCP/IP request for a wireless IEEE 802.15.4 device is 1 s, set up Modbus/TCP client timeout accordingly.
  - Typical Panel Server latency between Modbus TCP/IP request forwarded to the Modbus serial network is 10 ms.
  - Wi-Fi function available through a connection to a Wi-Fi infrastructure only.
     Access point function not available.
- Limitations on sampling and publishing for cloud applications:
  - The number of individual data points that can be sampled is limited to 2,000 and limited to a flow of 500 data points per minute.
  - The number of individual alarms that can be configured for monitoring is limited to 100.
- Limitations on Smartlink Modbus:
  - Commissioning by using EcoStruxure Power Commission software only, not by using Panel Server webpages.
  - Status of Smartlink Modbus output not displayed on Panel Server webpages.
  - No control of Smartlink Modbus by using Panel Server webpages.
  - No publication of Smartlink Modbus data to the cloud applications.
- Limitations on wireless devices: PowerTag Control and PowerTag Display are not supported by Panel Server Universal.

## Firmware Version 001.004.000

#### **New Features**

- Connection to EcoStruxure cloud applications:
  - EcoStruxure Facility Expert Energy
  - EcoStruxure Energy Hub
- Manual addition of wireless devices connected to a child/downstream gateway through the Panel Server webpages (not available with EcoStruxure Power Commission software). For example, child/downstream gateways can be a Panel Server or PowerTag Link.

**Example:** Two wireless devices are connected to a child/downstream Panel Server in a separate topology. The child/downstream Panel Server (PAS#2) is connected to one Ethernet port of the parent/upstream gateway. For more information, refer to DOCA0172EN *EcoStruxure Panel Server - User Guide*.



 Additional supported Modbus Serial devices: Power Factor controllers VarPlus Logic VL6 and VL12.

### **Known Issues**

No known issues.

## **Features**

The following table presents the availability of features on EcoStruxure Panel Server Universal in firmware version 001.004.000.

Available

Not available

Features		Availability
Functionality	Separated network topology	•
	Switched network topology	•
	Connection to Edge Control (EcoStruxure Power Monitoring Expert, EcoStruxure Power Operation, EcoStruxure Building Operation, any Building Management System, or third-party monitoring or supervision system)	•
	Embedded webpages for diagnostic	•
	Embedded webpages for monitoring all the supported devices (see commercial references in Supported Devices, page 38).	•
Wi-Fi	2.4 GHz	•
	External Wi-Fi antenna (reference: PASA-ANT1)	•
IEEE 802.15.4	Maximum number of wireless devices:	•
communication	<ul> <li>Up to 30 wireless devices as combination of PowerTag Energy sensors, PowerLogic Tag energy sensors, Acti9 Active, wireless indication auxiliaries for ComPacT and PowerPacT circuit breakers, wireless CO<sub>2</sub> sensors, wireless temperature and humidity sensors, PowerTag A, PowerTag Ambient, environmental sensors Easergy TH110/CL110, and PowerLogic HeatTag sensors, with a maximum of 3 PowerLogic HeatTag.</li> </ul>	
	or up to 65 environmental sensors Easergy TH110/ CL110	
Digital inputs (PAS600L)	Commissioning with EcoStruxure Power Commission software	•
	Commissioning with Panel Server webpages	
	Monitoring with EcoStruxure Power Commission software and EcoStruxure Panel Server webpages	•
Human Machine Interface (HMI)	FDM128 Ethernet display	•
interiace (Fivir)	PowerTag Link display	•
Firmware update	Applied to one Panel Server gateway with EcoStruxure Power Commission software	•
	Applied to one Panel Server gateway with Panel Server webpages	•
	Applied to several Panel Server gateways with EcoStruxure Power Commission software	•
	Applied to several Panel Server gateways with Panel Server webpages	•
Configuration	EcoStruxure Power Commission software	•
	Embedded webpages for Ethernet settings for upstream communication	•
	Embedded webpages for Modbus settings of Modbus TCP/IP and Modbus Serial devices	•
	User management by single user account	•
	User management by multiple users with Role-Based Access Control (RBAC)	•

Features		Availability
Protocols	Modbus TCP/IP server	•
	Modbus TCP/IP client	•
	DHCP client	•
	DHCP server	•
	DPWS	•
	HTTPS	•

#### **Performance and Limitations**

- Performance and limitations on Panel Server Universal:
  - No connection to EcoStruxure Facility Expert Operations.
  - No manual addition of wireless devices connected to a child/downstream gateway through EcoStruxure Power Commission software.
  - Function to backup and restore Panel Server configuration not available.
  - Alarms not set in EcoStruxure Panel Server webpages.
  - The typical response time to Modbus TCP/IP request for a wireless IEEE 802.15.4 device is 30 ms.
  - The maximum response time to Modbus TCP/IP request for a wireless IEEE 802.15.4 device is 1 s, set up Modbus/TCP client time-out accordingly.
  - Typical Panel Server latency between Modbus TCP/IP request forwarded to the Modbus RS485 network is 10 ms.
  - Wi-Fi function available through a connection to a Wi-Fi infrastructure only.
     Access point function not available.
- Limitations on sampling and publishing for cloud applications:
  - The number of individual data points that can be sampled is limited to 2000.
- Limitations on Smartlink Modbus:
  - Commissioning through EcoStruxure Power Commission software, not through EcoStruxure Panel Server webpages.
  - Status of Smartlink Modbus inputs/outputs or counter available from the Modbus registers, not displayed on Panel Server webpages.
  - Alarms not displayed in Panel Server webpages.
  - No control of Smartlink Modbus through Panel Server webpages.
- Limitations on wireless devices: PowerTag Control are not supported by Panel Server Universal.

### Firmware Version 001.003.002

#### **New Features**

Active predefined alarms from any device connected to the Panel Server are displayed in the Panel Server webpages.

#### **Known Issues**

 EcoStruxure Power Commission software version 2.24.1 does not use virtual server ID to access Modbus Serial devices.

When a *virtual server ID* different from the *physical Modbus address / server ID* is allocated to a Modbus Serial device, EcoStruxure Power Commission software version 2.24.1 uses the physical Modbus address / server ID to access the Modbus Serial device.

To avoid any issue during commissioning of Modbus Serial devices in EcoStruxure Power Commission software, ensure that the physical Modbus address / server ID and the virtual server ID of each downstream Modbus device under the Panel Server gateway are unique and have not been previously assigned as a physical Modbus address or virtual server ID to any wireless, Modbus Serial, or Modbus TCP/IP device.

To solve this issue, proceed as follows:

- Option 1 Change the physical Modbus address of the device on the Modbus Serial network as follows:
  - Set the physical Modbus address of the device to a value not assigned as virtual server ID to any other wireless, Modbus Serial, or Modbus TCP/IP device.
  - Login to the Panel Server webpages and update accordingly the physical Modbus address / server ID of the device in the Panel Server.
- Option 2 Change the virtual server ID of the device in the Panel Server as follows:
  - Login to the Panel Server webpages and change the virtual server ID of the device to a value different from the physical Modbus address / server ID of any other device on the Modbus Serial network.
- Webpages freeze when several Modbus Serial devices are missing.
  - When several Modbus Serial devices are being disconnected (4 devices or more) at the same time, the Panel Server webpages can become frozen while the Panel Server is still attempting to communicate with the missing devices.

Webpages operation recovers:

- When, after several retries, the Panel Server detects that the devices are disconnected.
- After reconnecting the missing devices.

## **Features**

The following table presents the availability of features on EcoStruxure Panel Server Universal in firmware version 001.003.002.

- Available
- Not available

Features		Availability
Functionality	Separated network topology	•
	Switched network topology	•
	Connection to Edge Control (EcoStruxure Power Monitoring Expert, EcoStruxure Power Operation, EcoStruxure Building Operation, any Building Management System, or third-party monitoring or supervision system)	•
	Embedded webpages for diagnostic	•
	Embedded webpages for monitoring all the supported devices (see commercial references in Supported Devices, page 38).	•
Wi-Fi	2.4 GHz	•
	External Wi-Fi antenna (reference: PASA-ANT1)	•
IEEE 802.15.4 communication	Maximum number of wireless devices:  Up to 30 wireless devices as combination of PowerTag Energy sensors, PowerLogic Tag energy sensors, Acti9 Active, wireless indication auxiliaries for ComPacT and PowerPacT circuit breakers, wireless CO <sub>2</sub> sensors, wireless temperature and humidity sensors, PowerTag A, PowerTag Ambient, environmental sensors Easergy TH110/CL110, and PowerLogic HeatTag sensors, with a maximum of:  20 PowerTag or PowerLogic Tag energy sensors, or Acti9 Active  3 PowerLogic HeatTag  6 wireless indication auxiliaries for ComPacT and PowerPacT circuit breakers  or up to 65 environmental sensors Easergy TH110/CL110	
Digital inputs (PAS600L)	Commissioning with EcoStruxure Power Commission software	•
	Commissioning with Panel Server webpages  Monitoring with EcoStruxure Power Commission software and EcoStruxure Panel Server webpages	•
Human Machine	FDM128 Ethernet display	•
Interface (HMI)	PowerTag Link display	•
Firmware update	Applied to one Panel Server gateway with EcoStruxure Power Commission software	•
	Applied to one Panel Server gateway with Panel Server webpages	•
	Applied to several Panel Server gateways with EcoStruxure Power Commission software	•
	Applied to several Panel Server gateways with Panel Server webpages	•

Features	Availability					
Configuration	EcoStruxure Power Commission software	•				
	Embedded webpages for Ethernet settings for upstream communication	•				
	Embedded webpages for Modbus settings of Modbus TCP/IP and Modbus Serial devices	•				
	User management by single user account	•				
	User management by multiple users with Role-Based Access Control (RBAC)					
Protocols	Modbus TCP/IP server	•				
	Modbus TCP/IP client	•				
	DHCP client	•				
	DHCP server	•				
	DPWS	•				
	HTTPS	•				

#### **Performance and Limitations**

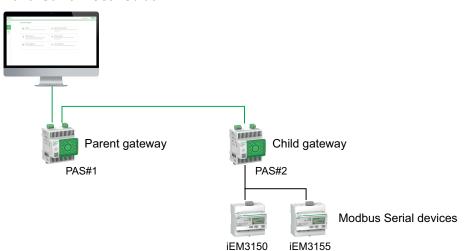
- Performance and limitations on Panel Server Universal:
  - Function to backup and restore Panel Server configuration not available.
  - Alarms not set in EcoStruxure Panel Server webpages.
  - No capability to collect data from a wireless end device connected to a child/downstream gateway of the Panel Server such as another Panel Server, a PowerTag Link, or a Smartlink SIB gateway).
  - The typical response time to Modbus TCP/IP request for a wireless IEEE 802.15.4 device is 30 ms.
  - The maximum response time to Modbus TCP/IP request for a wireless IEEE 802.15.4 device is 1 s, set up Modbus/TCP client time-out accordingly.
  - Typical Panel Server latency between Modbus TCP/IP request forwarded to the Modbus RS485 network is 10 ms.
  - Wi-Fi function available through a connection to a Wi-Fi infrastructure only.
     Access point function not available.
- · Limitations on Smartlink Modbus:
  - Commissioning through EcoStruxure Power Commission software, not through EcoStruxure Panel Server webpages.
  - Status of Smartlink Modbus inputs/outputs or counter available from the Modbus registers, not displayed on Panel Server webpages.
  - Alarms not displayed in Panel Server webpages.
  - No control of Smartlink Modbus through Panel Server webpages.
- Limitations on wireless devices: PowerTag Control are not supported by Panel Server Universal.

#### Firmware Version 001.003.001

#### **New Features**

- Addition of EcoStruxure Panel Server webpages for monitoring
- Enhancement of response time to Modbus TCP/IP request and operation for a wireless IEEE 802.15.4 device
- Addition of alarms for PowerTag and PowerLogic Tag wireless energy sensors:
  - 45% rated current alarm
  - 50% rated current alarm
  - 80% rated current alarm
  - Zero current alarm
- Wi-Fi infrastructure mode using internal antenna or external antenna (reference PASA-ANT1).
- Manual addition of Modbus Serial devices connected to a child/downstream gateway. For example, child/downstream gateways can be Panel Server, Link150 or third-party gateways.

**Example:** Two Modbus Serial devices are connected to a child/downstream Panel Server in a separate topology. The child/downstream Panel Server (PAS#2) is connected to one Ethernet port of the parent/upstream Panel Server (PAS#1). For more information, refer to DOCA0172EN *EcoStruxure Panel Server - User Guide*.



- Integration with Schneider Electric cloud applications EcoStruxure Asset Advisor, EcoStruxure Resource Advisor, and EcoStruxure Energy Hub with limited features. For more information, contact your local Schneider Electric representative.
- Ethernet diagnostics to help with validating the Panel Server integration into upstream communication.
- New languages supported in EcoStruxure Panel Server webpages: Italian, Spanish, German, Russian.
- For wireless devices, configuration of communication period per family (energy, ambient, control) on EcoStruxure Panel Server webpages and EcoStruxure Power Commission software.
- FDM128 display supported but need to update to last version of FDM128 firmware (version 8.0.30 or higher). For detailed information about supported wireless devices, refer to DOCA0151EN Enerlin'X FDM128– Ethernet Display for Eight Devices– Firmware Release Notes.

Acti9 Active, wireless indication auxiliaries for ComPacT and PowerPacT, and PowerLogic Tag are not displayed.

 Remote access (a local action is required to enable remote access to the EcoStruxure Panel Server webpages).

#### **Known Issues**

EcoStruxure Power Commission software version 2.24 does not use virtual server ID to access Modbus Serial devices.

When a *virtual server ID* different from the *physical Modbus address / server ID* is allocated to a Modbus Serial device, EcoStruxure Power Commission software version 2.24 uses the physical Modbus address / server ID to access the Modbus Serial device.

To avoid any issue during commissioning of Modbus Serial devices in EcoStruxure Power Commission software, ensure that the physical Modbus address / server ID and the virtual server ID of each downstream Modbus device under the Panel Server gateway are unique and have not been previously assigned as a physical Modbus address or virtual server ID to any wireless, Modbus Serial, or Modbus TCP/IP device.

To solve this issue, proceed as follows:

- Option 1 Change the physical Modbus address of the device on the Modbus Serial network as follows:
  - Set the physical Modbus address of the device to a value not assigned as virtual server ID to any other wireless, Modbus Serial, or Modbus TCP/IP device.
  - 2. Login to the Panel Server webpages and update accordingly the physical Modbus address / server ID of the device in the Panel Server.
- Option 2 Change the virtual server ID of the device in the Panel Server as follows:

Login to the Panel Server webpages and change the virtual server ID of the device to a value different from the physical Modbus address / server ID of any other device on the Modbus Serial network.

#### **Issues Fixed**

All known issues in firmware version 001.002.000 are fixed.

## **Features**

The following table presents the availability of features on EcoStruxure Panel Server Universal in firmware version 001.003.001.

- Available
- Not available

Features		Availability				
Functionality	Separated network topology	•				
	Switched network topology	•				
	Connection to Edge Control (EcoStruxure Power Monitoring Expert, EcoStruxure Power Operation, EcoStruxure Building Operation, any Building Management System, or third-party monitoring or supervision system)	•				
	Embedded webpages for diagnostic	•				
	Embedded webpages for monitoring all the supported devices (see commercial references in Supported Devices, page 38).	•				
Wi-Fi	2.4 GHz	•				
	External Wi-Fi antenna (reference: PASA-ANT1)	•				
IEEE 802.15.4	Maximum number of wireless devices:					
communication						
	<ul> <li>20 PowerTag or PowerLogic Tag energy sensors, or Acti9 Active</li> </ul>					
	3 PowerLogic HeatTag					
	<ul> <li>6 wireless indication auxiliaries for ComPacT and PowerPacT circuit breakers</li> </ul>					
	or up to 65 environmental sensors Easergy TH110/ CL110					
Digital inputs (PAS600L)	Commissioning with EcoStruxure Power Commission software	•				
	Commissioning with EcoStruxure Panel Server webpages	•				
	Monitoring with EcoStruxure Power Commission software and EcoStruxure Panel Server webpages	•				
Human Machine Interface (HMI)	FDM128 Ethernet display	•				
michaec (Fivil)	PowerTag Link display	•				
Configuration	EcoStruxure Power Commission software	•				
	Embedded webpages for Ethernet settings for upstream communication	•				
	Embedded webpages for Modbus settings of Modbus TCP/IP and Modbus Serial devices	•				
	User management by single user account	•				
	User management by multiple users with Role-Based Access Control (RBAC)	•				

Features		Availability
Protocols	Modbus TCP/IP server	•
	Modbus TCP/IP client	•
	DHCP client	•
	DHCP server	•
	DPWS	•
	HTTPS	•

#### **Performance and Limitations**

- Performance and limitations on EcoStruxure Panel Server Universal:
  - Function to backup and restore Panel Server configuration not available.
  - Alarms not set and not displayed in EcoStruxure Panel Server webpages.
  - No capability to collect data from a wireless end device connected to a child/downstream gateway of the Panel Server such as another Panel Server, a PowerTag Link, or a Smartlink SIB gateway).
  - The typical response time to Modbus TCP/IP request for a wireless IEEE 802.15.4 device is 30 ms.
  - The maximum response time to Modbus TCP/IP request for a wireless IEEE 802.15.4 device is 1 s, set up Modbus/TCP client time-out accordingly.
  - Typical Panel Server latency between Modbus TCP/IP request forwarded to the Modbus RS485 network is 10 ms.
  - Wi-Fi function available through a connection to a Wi-Fi infrastructure only.
     Access point function not available.
- Limitations on Smartlink Modbus:
  - Commissioning through EcoStruxure Power Commission software, not through EcoStruxure Panel Server webpages.
  - Status of Smartlink Modbus inputs/outputs or counter available from the Modbus registers, not displayed on EcoStruxure Panel Server webpages.
  - Alarms not displayed in EcoStruxure Panel Server webpages.
  - No control of Smartlink Modbus through EcoStruxure Panel Server webpages.
- Limitations on wireless devices: PowerTag Control are not supported by EcoStruxure Panel Server Universal.

## Firmware Version 001.002.000

#### **New Features**

- · Addition of supported devices:
  - HeatTag sensors
  - Wireless indication auxiliaries for ComPacT and PowerPacT circuit breakers
  - PowerLogic Tag 2P energy sensors
  - Wireless CO<sub>2</sub> sensors
  - Wireless temperature and humidity sensors
  - PowerTag A (EwSenseTemp) sensor
  - PowerTag Ambient wireless temperature sensors
- · Addition of separated network topology
- · Addition of Modbus TCP/IP client protocol
- Addition of digital inputs to monitor the state of external contacts or as pulse counter
- Addition of EcoStruxure Panel Server webpages for monitoring
- Enhancement of typical response time to Modbus/TCP IP request for a wireless IEEE 802.15.4 device
- Enhancement of maximum response time to Modbus/TCP IP request for a wireless IEEE 802.15.4 device

#### **Known Issues**

The separated mode is configured to segregate downstream Modbus TCP/IP devices connected on ETH1 port from upstream communication systems connected on ETH2 port. With the current firmware version, it is only possible to access the downstream Modbus TCP/IP devices data from the EcoStruxure Panel Server embedded webpages. A monitoring software connected on ETH1 port using Modbus TCP/IP will not be able to access the Modbus TCP/IP devices connected on ETH2 port. For such applications, use only the switched mode.

When an active alarm is present (as reported in the Modbus register) for a PowerTag Energy M250/M630 for ComPacT NSX 3-pole circuit breaker, a PowerTag Energy F160, a PowerTag Rope, or a PowerLogic Tag Rope (see commercial references in the table below), the alarm is still active although the value of the ENVT (External Neutral Voltage Tap) setting is changed by using the EcoStruxure Panel Server webpages or EcoStruxure Power Commission software.

To work around this issue, restart the EcoStruxure Panel Server Universal (see DOCA0172EN *EcoStruxure Panel Server - User Guide* for detailed procedure).

The alarm for phase-to-neutral voltage protection is one of the following:

- 80% Undervoltage on phase-to-neutral
- 120% Overvoltage on phase-to-neutral

The following table lists the devices concerned by the issue:

Devices	Commercial reference
PowerTag M250 3P 250A	LV434020
PowerTag M250 3P+N 250A	LV434021
PowerTag M630 3P 630A	LV434022
PowerTag M630 3P+N 630A	LV434023
PowerTag F160 3P/3P+N	A9MEM1580
PowerTag Rope 200 A 3P/3P+N	A9MEM1590
PowerTag Rope 600 A 3P/3P+N	A9MEM1591
PowerTag Rope 1000 A 3P/3P+N	A9MEM1592
PowerTag Rope 2000 A 3P/3P+N	A9MEM1593
PowerLogic Tag Rope 120A 3P	PLTR1203P
PowerLogic Tag Rope 600A 3P	PLTR6003P
PowerLogic Tag Rope 1000A 3P	PLTR10003P
PowerLogic Tag Rope 2000A 3P	PLTR20003P

When an active alarm is present (as reported in the Modbus register) for a
 PowerTag Energy 1P+N, a PowerLogic Tag 1 P or 2P, or an Acti9 Active iC40
 or iC60, the alarm is still active although the value of the **Phase Sequence** setting is changed by using the EcoStruxure Panel Server webpages or
 EcoStruxure Power Commission software.

To work around this issue, restart the EcoStruxure Panel Server Universal (see DOCA0172EN *EcoStruxure Panel Server - User Guide* for detailed procedure).

The alarm about phase sequence is one of the following:

- 80% Undervoltage
- 120% Overvoltage
- Overcurrent over 45%, 50%, or 80% of nominal current
- Load current is 0 A

The following table lists the devices concerned by the issue:

Devices	Commercial reference
PowerTag A9 P63 1P+N Top	A9MEM1560
PowerTag A9 P63 1P+N Top	A9MEM1561
PowerTag A9 P63 1P+N Bottom	A9MEM1562
PowerTag A9 P63 1P+N Bottom RCBO	A9MEM1563
PowerTag A9 F63 1P+N 110V	A9MEM1564
PowerLogic Tag QO 10-30A 1P+N	PLTQO301P
PowerLogic Tag QO 35-60A 1P+N	PLTQO601P
PowerLogic Tag E-Frame 10-60A 1P+N	PLTE601P
PowerLogic Tag QO 10-30A 2P	PLTQO302P
PowerLogic Tag QO 35-60A 2P	PLTQO602P
PowerLogic Tag E-Frame 10-60A 2P	PLTE602P
Acti9 Active iC40 and iC60	A9TAA••••, A9TAB••••, A9TDEC•••, A9TDFC•••, A9TDFD•••, A9TPDD•••, A9TPED•••, A9TYAE•••, A9TYBE•••

 On systems with both Modbus devices and wireless devices, the table view of measurements may display in some rare cases the same measurements value for the wireless devices as for the Modbus device as shown below:



This issue is only within this page and does not affect the measurements reported on the Modbus register to the upstream system nor the measurements reported in the single device webpage.

This issue does not affect systems with only wireless devices or only Modbus devices.

Follow this procedure to resolve the issue:

- For systems with more wireless devices than Modbus devices (for example, 10 wireless devices and 5 Modbus devices):
  - 1. Remove all devices from the project.
  - 2. Add all Modbus devices.
  - 3. Add all wireless devices.
  - 4. Remove the wireless devices only again.
  - 5. Add all the wireless devices again.
- For systems with more Modbus devices than wireless devices (for example, 10 Modbus devices and 5 wireless devices):
  - 1. Remove all devices from the project.
- 2. Add all wireless devices.
- 3. Add all Modbus devices.
- 4. Remove the Modbus devices only again.
- 5. Add all the Modbus devices.
- For systems with same number of Modbus devices as wireless devices (for example, 5 Modbus devices and 5 wireless devices):
- 1. Remove all devices from the project.
- 2. Add all wireless devices.
- 3. Add all Modbus devices.
- 4. Remove the Modbus devices only again.
- 5. Add all the Modbus devices.

## **Features**

The following table presents the availability of features on EcoStruxure Panel Server Universal in firmware version 001.002.000.

- Available
- Not available

Features		Availability			
Functionality	Separated network topology	•			
	Switched network topology	•			
	Connection to Edge Control (EcoStruxure Power Monitoring Expert, EcoStruxure Power Operation, EcoStruxure Building Operation, any Building Management System, or third-party monitoring or supervision system)	•			
	Embedded webpages for diagnostic	•			
	Embedded webpages for monitoring all the supported devices (see commercial references in chapter Supported Devices, page 38).	•			
Wi-Fi	2.4 GHz	•			
	5 GHz	•			
	External Wi-Fi antenna	•			
IEEE 802.15.4	Maximum number of wireless devices:	•			
	<ul> <li>Up to 30 wireless devices as combination of PowerTag Energy sensors, PowerLogic Tag energy sensors, Acti9 Active, wireless indication auxiliaries for ComPacT and PowerPacT circuit breakers, wireless CO<sub>2</sub> sensors, wireless temperature and humidity sensors, PowerTag A, PowerTag Ambient, environmental sensors Easergy TH110/CL110, and PowerLogic HeatTag sensors, with a maximum of:</li> </ul>				
	<ul> <li>20 PowerTag or PowerLogic Tag energy sensors, or Acti9 Active</li> </ul>				
	3 PowerLogic HeatTag				
	<ul> <li>6 wireless indication auxiliaries for ComPacT and PowerPacT circuit breakers</li> </ul>				
	or up to 65 environmental sensors Easergy TH110/ CL110				
Digital inputs		•			
Configuration	EcoStruxure Power Commission software	•			
	Embedded webpages for configuration of Ethernet and Modbus settings	•			
	User management: single user	•			
Protocols	Modbus TCP/IP server	•			
	Modbus TCP/IP client	•			
	DHCP client	•			
	DHCP server	•			
	DPWS	•			
	HTTPS	•			

## **Performances and Limitations**

- The typical response time to Modbus/TCP IP request for a wireless IEEE 802.15.4 device is 30 ms.
- The maximum response time to Modbus/TCP IP request for a wireless IEEE 802.15.4 device is 1 s, set-up Modbus/TCP client time-out accordingly.
- Typical EcoStruxure Panel Server latency between Modbus TCP/IP request forwarded to the Modbus RS485 network is 10 ms.
- The maximum number of Modbus/TCP concurrent connections is 32.

# Firmware Version 001.001.000

# **Description**

Firmware initial version for EcoStruxure Panel Server Universal.

# **Supported Devices**

# **Wireless Devices**

The following table shows the minimum Panel Server Universal firmware version and the minimum firmware version of the wireless device required to enable communication with wireless devices.

Available

Not available

Device family	Device		_	nel Se nware		Unive	ersal	Comments
			001.003.002	001.004.000	001.005.000	001.005.001	001.006.000	
Power meter	PowerTag A9 M63 1P+W	A9MEM1520	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link
Power meter	PowerTag A9 M63 1P+N Top	A9MEM1521	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link
Power meter	PowerTag A9 M63 1P+N Bottom	A9MEM1522	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link
Power meter	PowerTag A9 M63 3P	A9MEM1540	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link
Power meter	PowerTag A9 M63 3P+N Top	A9MEM1541	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link
Power meter	PowerTag A9 M63 3P+N Bottom	A9MEM1542	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link
Power meter	PowerTag A9MEM 1543	A9MEM1543	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link
Power meter	PowerTag M250 3P 250A	LV434020	•	•	•	•	•	FW v001.003.002 Modbus mapping identical to PowerTag Link
Power meter	PowerTag M630 3P 630A	LV434022	•	•	•	•	•	FW v001.003.002 Modbus mapping identical to PowerTag Link
Power meter	PowerTag M250 3P+N 250A	LV434021	•	•	•	•	•	FW v001.003.002 Modbus mapping identical to PowerTag Link
Power meter	PowerTag M630 3P+N 630A	LV434023	•	•	•	•	•	FW v001.003.002 Modbus mapping identical to PowerTag Link
Power meter	PowerTag A9 P63 1P+N Top	A9MEM1560	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link
Power meter	PowerTag A9 P63 1P+N Top	A9MEM1561	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link
Power meter	PowerTag A9 P63 1P+N Bottom	A9MEM1562	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link
Power meter	PowerTag A9 P63 1P+N Bottom RCBO	A9MEM1563	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link
Power meter	PowerTag A9 F63 1P+N 110V	A9MEM1564	•			•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link

Device family	Device				erver e vers		niversal Comments		
			001.003.002	001.004.000	001.005.000	001.005.001	001.006.000		
Power meter	PowerTag A9 F63 3P+N	A9MEM1570	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link	
Power meter	PowerTag A9 P63 3P+N Top	A9MEM1571	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link	
Power meter	PowerTag A9 P63 3P+N Bottom	A9MEM1572	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link	
Power meter	PowerTag A9 F63 3P	A9MEM1573	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link	
Power meter	PowerTag A9 F63 3P+N 110/230V	A9MEM1574	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link	
Power meter	PowerTag F160 3P/3P+N	A9MEM1580	•	•	•	•	•	FW v001.001.0000 Modbus mapping identical to PowerTag Link	
Power meter	PowerTag Rope 200 A 3P/3P+N	A9MEM1590	•	•	•	•	•	FW v001.001.000	
Power meter	PowerTag Rope 600 A 3P/3P+N	A9MEM1591	•	•	•	•		FW v001.001.000	
Power meter	PowerTag Rope 1000 A 3P/3P+N	A9MEM1592	•	•	•	•	•	FW v001.001.000	
Power meter	PowerTag Rope 2000 A 3P/3P+N	A9MEM1593	•	•	•	•	•	FW v001.001.000	
Power meter	PowerLogic Tag Rope 120A 3P	PLTR1203P	•	•	•	•	•	FW v001.001.000	
Power meter	PowerLogic Tag Rope 600A 3P	PLTR6003P	•		•	•	•	FW v001.001.000	
Power meter	PowerLogic Tag Rope 1000A 3P	PLTR10003P	•	•	•	•	•	FW v001.001.000	
Power meter	PowerLogic Tag Rope 2000A 3P	PLTR20003P	•	•	•	•	•	FW v001.001.000	
Power meter	PowerLogic Tag QO 10-30A 1P+N	PLTQO301P	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link	
Power meter	PowerLogic Tag QO 35-60A 1P+N	PLTQO601P	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link	
Power meter	PowerLogic Tag QO 10-30A 3P	PLTQO303P	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link	
Power meter	PowerLogic Tag QO 35-60A 3P	PLTQO603P	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link	
Power meter	PowerLogic Tag QO 10-30A 2P	PLTQO302P	•	•	•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link	
Power meter	PowerLogic Tag QO 35-60A 2P	PLTQO602P	•			•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link	
Power meter	PowerLogic Tag E-Frame 10-60A 1P+N	PLTE601P	•		•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link	
Power meter	PowerLogic Tag E-Frame 10-60A 2P	PLTE602P	•					FW v004.000.424 Modbus mapping identical to PowerTag Link	
Power meter	PowerLogic Tag E-Frame 10-60A 3P	PLTE603P			•	•	•	FW v004.000.424 Modbus mapping identical to PowerTag Link	

Device family	Device		_	el Se		Unive	ersal	Comments
			001.003.002	001.004.000	001.005.000	001.005.001	001.006.000	
Ambient sensor	Easergy TH110 wireless thermal sensor	EMS59440		•	•	•	•	FW v001.000.003 Modbus mapping identical to PowerTag Link
Ambient sensor	Easergy CL110 wireless environmental sensor	EMS59443	•	•	•	•	•	FW v002.001.003 Modbus mapping identical to PowerTag Link
Ambient sensor	ZBRTT1 wireless environmental sensor	ZBRTT1	•		•			FW v002.001.003 Modbus mapping identical to PowerTag Link
Ambient sensor	Wireless CO <sub>2</sub> sensor	SED-CO2-G-5045						FW v001.001.004
Ambient sensor	Wireless temperature and humidity sensor	SED-TRH-G-5045	•	•	•	•	•	FW v001.001.004
Ambient sensor	PowerTag A (EwSenseTemp)	ESST010B0400	•	•	•	•	•	FW v001.001.004
Ambient sensor	PowerTag Ambient wireless temperature sensor	A9XST114	•			•	•	FW v001.001.005
Ambient sensor	PowerLogic HeatTag	SMT10020						FW v002.002.009
Circuit breaker	Wireless indication auxiliary for ComPacT NSXm and PowerPacT B-frame	LV429453	•	•	•	•		FW v001.000.000
Circuit breaker	Wireless indication auxiliary for ComPacT NSX, PowerPacT H-, J-, and L- Frame, ComPacT NS, and PowerPacT M-, P-frame	LV429454	•	•	•	•	•	FW v001.000.000
Circuit breaker	Acti9 Active iC40 and iC60	A9TAA••••						FW v001.000.001
		A9TAB••••				•		FW v001.000.001
		A9TDEC•••		•		•	•	FW v001.000.001
		A9TDFC•••						FW v001.000.001
		A9TDFD•••				•		FW v001.000.001
		A9TPDD•••						FW v001.000.001
		A9TPED•••						FW v001.000.001
		A9TYAE•••						FW v001.000.001
		A9TYBE•••						FW v001.000.001
Circuit breaker	Acti9 Vigi iDT40 25 A 1P+N	A9Y6E625	•					FW v001.000.001
Circuit breaker	Acti9 Vigi iDT40 40 A 1P+N	A9Y6E640						FW v001.000.001
Circuit breaker	Acti9 Vigi iC40 25 A 1P+N	A9Y8E625						FW v001.000.001
Circuit breaker	Acti9 Vigi iC40 40 A 1P+N	A9Y8E640						FW v001.000.001
Circuit breaker	Acti9 Vigi iC60 25 A 2P	A9V6E225	•	•				FW v001.000.001
Circuit breaker	Acti9 Vigi iC60 40 A 2P	A9V6E240	•			•		FW v001.000.001
Circuit breaker	Acti9 Vigi iC60 25 A 2P	A9V8E225	•					FW v001.000.001
Circuit breaker	Acti9 Vigi iC60 40 A 2P	A9V8E240						FW v001.000.001
IO module	PowerTag C IO 230V digital input output module	A9XMC1D3	•	•		•	•	FW v002.000.000
IO module	PowerTag C 2DI 230V digital input module	A9XMC2D3	•	•	•	•	•	FW v002.000.000
Condition monitoring	PowerLogic PD100 Partial discharge monitoring sensor	PD100X001	•					FW v002.000.000

# **Modbus TCP/IP Devices**

The following table shows the minimum Panel Server firmware version required to enable Ethernet communication with devices for real-time measurement monitoring in Panel Server webpages.

Available

Not available

Device family	Device				Panel Server Universal firmware version					
			001.003.002	001.004.000	001.005.000	001.005.001	001.006.000			
Power meter	PowerLogic CM3250 circuit monitor		•				•			
Power meter	PowerLogic CM3350 circuit monitor		•				•			
Power meter	PowerLogic CM4000 circuit monitor		•				•			
Power meter	PowerLogic PM5320 power meter	METSEPM5320	•				•			
Power meter	PowerLogic PM5340 power meter	METSEPM5340	•				•			
Power meter	PowerLogic PM5341 power meter	METSEPM5341	•				•			
Power meter	PowerLogic PM5560 power meter	METSEPM5560	•				•			
Power meter	PowerLogic PM5561 power meter	METSEPM5561	•				•			
Power meter	PowerLogic PM5563 power meter	METSEPM5563	•				•			
Power meter	PowerLogic PM5570 power meter	METSEPM5570					•			
Power meter	PowerLogic PM5580 power meter	METSEPM5580					•			
Power meter	PowerLogic PM5650 power meter	METSEPM5650					•			
Power meter	PowerLogic PM5660 power meter	METSEPM5660					•			
Power meter	PowerLogic PM5661 power meter	METSEPM5661	•				•			
Power meter	PowerLogic PM5760 power meter	METSEPM5760	•				•			
Power meter	PowerLogic PM5761 power meter	METSEPM5761					•			
Power meter	PowerLogic PM810 power meter						•			
Power meter	PowerLogic PM820 power meter						•			
Power meter	PowerLogic PM850 power meter		•							
Power meter	PowerLogic PM870 power meter			•	•					

Device family	Device		Panel Server Universal firmware version					
			001.003.002	001.004.000	001.005.000	001.005.001	001.006.000	
Power meter	PowerLogic PM8000 power meter	METSEPM8240						
		METSEPM8243						
		METSEPM8244						
		METSEPM8210						
		METSEPM8213						
		METSEPM8214						
		METSEPM82101						
		METSEPM82103						
		METSEPM82104						
		METSEPM82143						
		METSEPM82144						
		METSEPM82401				•		
		METSEPM82403				•		
		METSEPM82404	•	•		•	•	
		METSEPM82443		•			•	
		METSEPM82444						
Circuit breaker	ComPacT NS with MicroLogic A connected to an IFE Ethernet interface							
Circuit breaker	ComPacT NS with MicroLogic E connected to an IFE Ethernet interface							
Circuit breaker	ComPacT NS with MicroLogic H connected to an IFE Ethernet interface		•	•		•	•	
Circuit breaker	ComPacT NS with MicroLogic P connected to an IFE Ethernet interface		•	•		•	•	
Circuit breaker	ComPacT NSX with MicroLogic A connected to an IFE Ethernet interface		•	•	•	•	•	
Circuit breaker	ComPacT NSX with MicroLogic E connected to an IFE Ethernet interface		•	•		•	•	
Circuit breaker	MasterPacT NT/NW with MicroLogic A connected to an IFE Ethernet interface		•	•	•	•	•	
Circuit breaker	MasterPacT NT/NW with MicroLogic E connected to an IFE Ethernet interface		•	•	•	•	•	
Circuit breaker	MasterPacT NT/NW with MicroLogic H connects interface	ed to an IFE Ethernet	•	•	•	•	•	
Circuit breaker	MasterPacT NT/NW with MicroLogic P connecte interface		•	•	•	•	•	
Circuit breaker	MasterPacT MTZ with MicroLogic X connected to interface		•	•		•		
Circuit breaker	MasterPacT MTZ with MicroLogic X connected to interface		•	•	•	•	•	
Circuit breaker	PowerPacT P- and R-frame with MicroLogic A connected to an IFE Ethernet interface		•	•	•	•	•	
Circuit breaker	PowerPacT P- and R-frame with MicroLogic E connected to an IFE Ethernet interface		•	•	•	•	•	
Circuit breaker	PowerPacT P- and R-frame with MicroLogic H connected to an IFE Ethernet interface		•					
Circuit breaker	PowerPacT P- and R-frame with MicroLogic P connected to an IFE Ethernet interface				•			
Circuit breaker	PowerPact H-, J-, and L-frame with MicroLogic A connected to an IFE Ethernet interface		•		•	•		
Circuit breaker	PowerPact H-, J-, and L-frame with MicroLogic E connected to an IFE Ethernet interface				•	•	•	
Transformer monitoring	NT935 ETH							

# **Modbus Serial Devices**

The following table shows the minimum Panel Server firmware version required to enable Modbus communication with devices for real-time measurement monitoring in Panel Server webpages.

For third-party devices not part of the listed devices, data of this device can be accessed by reading the different Modbus registers. All data available from the Modbus registers will not be accessible and displayed in the Panel Server webpages.

Available

Not available

Device family	Device			Panel Server Universal firmware version					
			001.003.002	001.004.000	001.005.000	001.005.001	001.006.000		
Power meter	PowerLogic CM3250 circuit monitor		•			•			
Power meter	PowerLogic CM3350 circuit monitor		•			•			
Power meter	PowerLogic CM4000 circuit monitor								
Power meter	PowerLogic EM3550 energy meter		•			•			
Power meter	PowerLogic EM3550A energy meter		•		•	•			
Power meter	PowerLogic EM3555 power and energy	meter	•						
Power meter	PowerLogic EM3555A energy meter		•						
Power meter	PowerLogic EM4200 Enercept power ar	d energy meter							
Power meter	PowerLogic EM6400NG energy meter	METSEEM6400NGRSCL2							
		METSEEM6400NGRSCL5							
		METSEEM6400NGRSCL1							
Power meter	PowerLogic EM6433H energy meter	METSEEM6433HCL10RS							
		METSEEM6433HCL05RS							
Power meter	PowerLogic EM6436H energy meter	METSEEM6436HCL10RS							
		METSEEM6436HCL05RS							
Power meter	PowerLogic EM7200 power and energy meter	30002055							
		30002198							
		30002975							
Power meter	EasyLogic PM1130H meter	METSEPM1130HCL05RS							
		METSEPM1130HCL05RD		•					
Power meter	EasyLogic PM2130 meter	METSEPM2130D							
Power meter	EasyLogic PM2220 meter	METSEPM2220D							
Power meter	EasyLogic PM2230 meter	METSEPM2230D				•			
Power meter	Acti9 iEM2050 energy meter	A9MEM2050	•			•			
Power meter	Acti9 iEM2055 energy meter	A9MEM2055	•			•			
Power meter	Acti9 iEM2150 energy meter	A9MEM2150							
Power meter	Acti9 iEM2155 energy meter	A9MEM2155							
Power meter	Acti9 iEM3150 energy meter	A9MEM3150							
Power meter	Acti9 iEM3155 energy meter	A9MEM3155							
Power meter	Acti9 iEM3250 energy meter	A9MEM3250							

Device family	Device	Device		Panel Server Universal firmware version					
			001.003.002	001.004.000	001.005.000	001.005.001	001.006.000		
Power meter	Acti9 iEM3255 energy meter	A9MEM3255		•					
Power meter	Acti9 iEM3350 energy meter	A9MEM3350							
Power meter	Acti9 iEM3355 energy meter	A9MEM3355							
Power meter	Acti9 iEM3455 energy meter	A9MEM3455							
Power meter	Acti9 iEM3555 energy meter	A9MEM3555							
Power meter	PowerLogic PM3250 power meter								
Power meter	PowerLogic PM3255 power meter								
Power meter	PowerLogic PM5110 power meter								
Power meter	PowerLogic PM5111 power meter								
Power meter	PowerLogic PM5310 power meter								
Power meter	PowerLogic PM5330 power meter	PowerLogic PM5330 power meter				•	•		
Power meter	PowerLogic PM5331 power meter								
Power meter	PowerLogic PM5560 power meter	PowerLogic PM5560 power meter					•		
Power meter	PowerLogic PM5561 power meter								
Power meter	PowerLogic PM5563 power meter					•			
Power meter	PowerLogic PM5570 power meter	METSEPM5570		•		•			
Power meter	PowerLogic PM5580 power meter	METSEPM5580		•		•			
Power meter	PowerLogic PM5650 power meter	METSEPM5650							
Power meter	PowerLogic PM5660 power meter	METSEPM5660							
Power meter	PowerLogic PM5661 power meter	METSEPM5661							
Power meter	PowerLogic PM5760 power meter	METSEPM5760							
Power meter	PowerLogic PM5761 power meter	METSEPM5761							
Power meter	PowerLogic PM810 power meter	PowerLogic PM810 power meter							
Power meter	PowerLogic PM820 power meter								
Power meter	PowerLogic PM850 power meter								
Power meter	PowerLogic PM870 power meter								
Power meter	PowerLogic PM8000 power meter								
Circuit breaker	ComPacT NS with MicroLogic A cont	nected to an IFM Modbus interface							
Circuit breaker	ComPacT NS with MicroLogic E con	nected to an IFM Modbus interface							
Circuit breaker	ComPacT NS with MicroLogic H con	nected to an IFM Modbus interface							
Circuit breaker	ComPacT NS with MicroLogic P con	ComPacT NS with MicroLogic P connected to an IFM Modbus interface							
Circuit breaker	ComPacT NSX with MicroLogic A co	nnected to an IFM Modbus interface							
Circuit breaker	ComPacT NSX with MicroLogic E co	ComPacT NSX with MicroLogic E connected to an IFM Modbus interface							
Circuit breaker	MasterPacT NT/NW with MicroLogic interface	MasterPacT NT/NW with MicroLogic A connected to an IFM Modbus		•	•	•	•		
Circuit breaker	MasterPacT NT/NW with MicroLogic interface	MasterPacT NT/NW with MicroLogic E connected to an IFM Modbus interface		•	•	•	•		
Circuit breaker	MasterPacT NT/NW with MicroLogic interface	MasterPacT NT/NW with MicroLogic H connected to an IFM Modbus interface			•	•	•		
Circuit breaker	interface	MasterPacT NT/NW with MicroLogic P connected to an IFM Modbus interface		•	•	•	•		
Circuit breaker	Modbus interface	PowerPacT P- and R-frame with MicroLogic E connected to an IFM Modbus interface		•	•	•	•		
Circuit breaker	PowerPacT P- and R-frame with Mic Modbus interface	PowerPacT P- and R-frame with MicroLogic H connected to an IFM							

Device family	Device		Panel Server Universal firmware version					
			001.003.002	001.004.000	001.005.000	001.005.001	001.006.000	
Circuit breaker	PowerPacT P- and R-frame with MicroLo Modbus interface	PowerPacT P- and R-frame with MicroLogic P connected to an IFM Modbus interface		•	•	•	•	
Circuit breaker	PowerPact H-, J-, and L-frame with MicroLogic A connected to an IFM Modbus interface		•	•	•	•	•	
Circuit breaker	PowerPact H-, J-, and L-frame with Micro Modbus interface	oLogic E connected to an IFM	•	•	•	•	•	
Circuit breaker	MasterPacT MTZ with MicroLogic X coninterface	nected to an IFM Modbus	•	•	•	•	•	
Circuit breaker	PowerPacT P- and R-frame with MicroLo Modbus interface	ogic A connected to an IFM	•	•	•	•	•	
I/O module	I/O Smart Link Modbus	A9XMSB11 with FW v001.003.007	•	•	•	•	•	
I/O module	I/O Smart Link Modbus	A9XMSB11 with FW v003.00X.00Y	•	•	•	•	•	
Protection relay	Easergy Sepam Series 20 B protection relay							
Protection relay	Easergy Sepam Series 20 STM protection relay							
Protection relay	Easergy Sepam Series 40 protection relay							
Transformer monitoring	NT935							
Passive power correction	PowerLogic power factor controller VarPlus Logic VL6		•					
Passive power correction	PowerLogic power factor controller VarPlus Logic VL12							
Insulation monitoring	Vigilohm IM20 insulation monitoring device <sup>1</sup>	IMD-IM20	•	•	•	•	•	
Insulation monitoring	Vigilohm IM20H insulation monitoring device <sup>1</sup>	IMD-IM20-H	•	•	•	•	•	
Insulation monitoring	Vigilohm IM400 insulation monitoring device <sup>1</sup>	IMD-IM400	•	•	•	•	•	
Insulation monitoring	Vigilohm IM400C insulation monitoring device <sup>1</sup>	IMD-IM400C	•	•	•	•	•	
Insulation monitoring	Vigilohm IM400L insulation monitoring device <sup>1</sup>	IMDIM400L	•	•	•	•	•	
Insulation monitoring	Vigilohm IM400N insulation monitoring device <sup>1</sup>	IMDIM400N	•	•		•	•	
Insulation monitoring	Vigilohm IM400LTHR insulation monitoring device <sup>1</sup>	IMDIM400LTHR						
Insulation monitoring	Vigilohm IM400THR insulation monitoring device <sup>1</sup>	IMDIM400THR	•	•	•	•	•	
Insulation monitoring	Vigilohm IM400THRN insulation monitoring device <sup>1</sup>	IMDIM400THRN	•	•	•	•	•	
Insulation monitoring	Insulation monitoring Vigilohm IMDIFL12MCT insulation fault locator¹			•		•		

<sup>1.</sup> Device integrated only for data publication not for alarms

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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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