EcoStruxure™ Panel Server

IoT for an intelligent power network

The EcoStruxure™ Panel Server is the next generation of gateway, providing a seamless connection of wired or unwired smart IoT devices to your edge control software or cloud-based applications and analytics. It is a foundational enabler for Schneider Electric EcoStruxure™ solutions.

Electrical safety

Panel Server is an integral part of Schneider Electric's continuous thermal monitoring application, helping reduce risk of electrical fires, increase people and assets protection. Implement the thermal monitoring of your electrical panel by connecting thermal and heat sensors to your Panel Server.

Power availability

Electrical distribution monitoring and power event analysis help avoid unplanned downtime caused by electrical failure. Panel Server collects real-time data and alarms, presenting information through embedded webpages, making it available to edge control software or cloud-based applications and analytics for electrical system diagnostics. Use embedded webpages for first-level monitoring or monitor from your edge or cloud control system.

Optimize energy efficiency

Improve your facility's energy efficiency and reduce energy consumption with energy usage analysis and performance tracking. Panel Server collects and shares energy data to help achieve your energy conservation initiatives. It is part of an energy data management system certified for compliance with ISO 50001, 50002, 50006 requirements.

Cybersecurity

Guarding your electrical assets and systems against cyber attacks is vital. Discover the enhanced cybersecurity benefits of Panel Server and its IEC62443-4-1 compliant development lifecycle. Explore its cybersecurity features through a dedicated guide, and discover how Panel Server empowers you to retrieve security logs, providing valuable insights into system security and activity.

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EcoStruxure Panel Server gives you access to the information you need to protect, maximize and optimize your power system.

- Help keep people and assets safer
- Maximize power availability
- Optimize energy efficiency
- Improve cybersecurity

All-in-one gateway

- Separates your OT network from your IT network
- Wireless data concentrator
- Modbus RS485 to Modbus TCP/IP
- Supports multiple Ethernet connections for serving information to edge control software and cloud applications

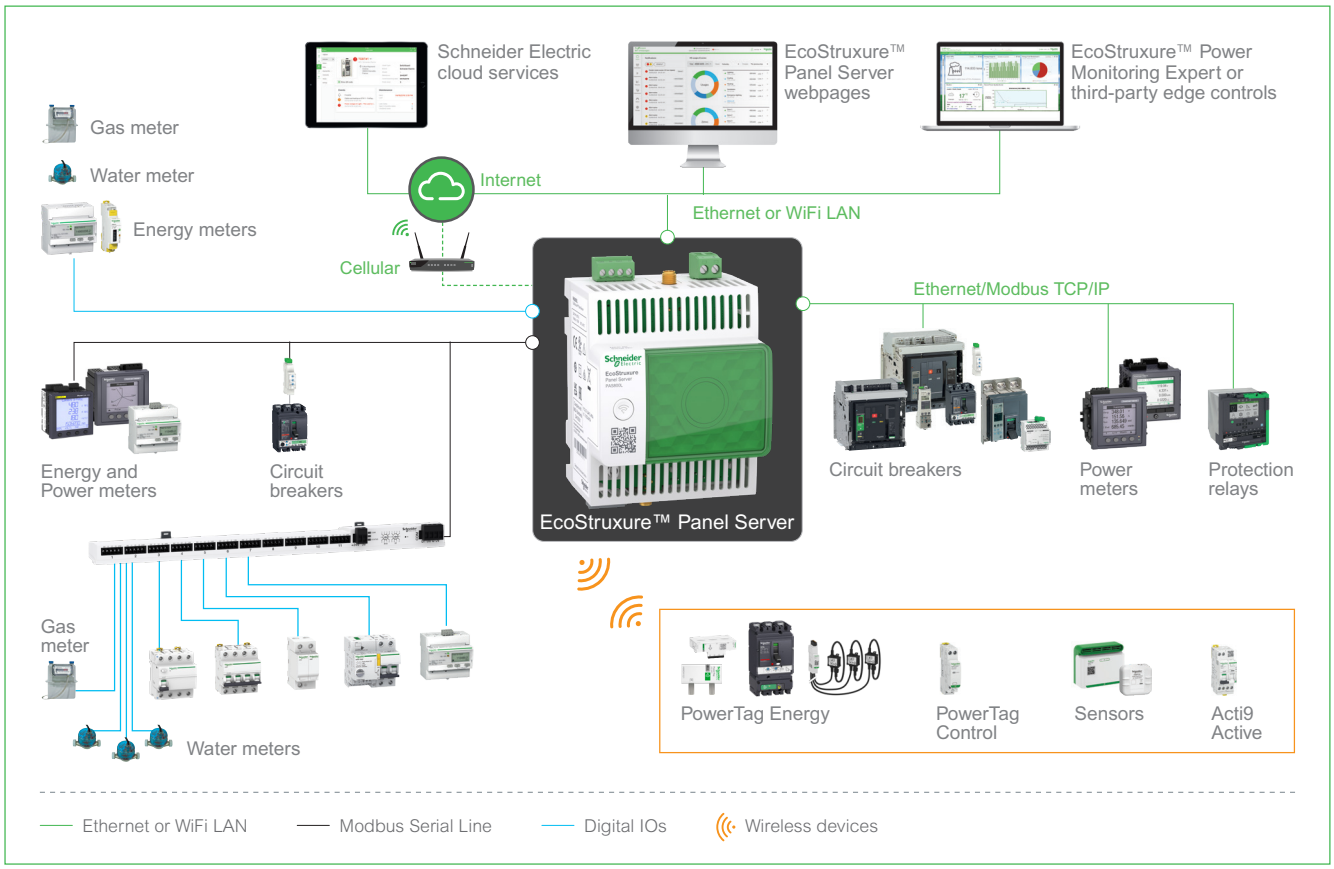
Simple commissioning

- EcoStruxure™ Power Commission software
- Device auto discovery
- Generation of acceptance reports to validate gateway configuration
- Commission via WiFi

Intuitive operation

- User-friendly webpages offer first-level monitoring
- Contextualized data and operational insights
- Simple alarm setup for email notification
- Standardized IEC 62974-1 compliant datalogger and energy server

Architecture overview



Panel Server Entry

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Panel Server Entry - Front ISO view

Standards & certifications

- IEC 61010-1
- IEC 61010-2-201
- UL 61010-1
- UL 61010-2-201
- IEC 62974-1
- ETSI EN 301 489-1 V.2.2.3
- ETSI EN 301 489-17 V.3.2.4
- IEC 61326-1
- IEC 62974-1
- EN50581
- EN 62321
- EN 62474
- ETSI EN 300 328 V2.2.2

Compatible with a large set of wireless sensors, PowerTag Energy, Heat Tag, and others. PAS400 is the perfect fit for small networks or installations where space is a challenge.

Functions

- Optimized gateway to retrieve data from your wireless devices.
- Connect to your monitoring and control software such as EcoStruxure™ Power Monitoring Expert, EcoStruxure™ Power Operation or to your Building Management System.
- Connect to Schneider Electric cloud applications such as EcoStruxure™ Energy Hub or Asset Advisor.
- Ease of commissioning with EcoStruxure™ Power Commission software or directly through the Panel Server webpages, enabling device plug-and-play and auto-discovery features.
- Ease of operation with user friendly embedded webpages, and data contextualization for more relevant analytics.

Main features

- Power Supply 110...277 V AC/DC
- Designed to match with electrical switchboard environment (temperature, humidity electromagnetic compatibility)
- One Ethernet 10Base-T/100Base-T port
- Wi-Fi
- IEEE 802.15.4 wireless communication
- Modbus TCP/IP server
- Support of HTTPS, NTP, SNTP, DHCP client with proxy management
- Wireless devices concentrator to Modbus TCP/IP
- Designed through a Secured Development Life Cycle in accordance to IEC 62443-4-1
- Commissioning through EcoStruxure™ Power Commission or through Embedded Web-Pages
- Speed-up commissioning through device list import and configuration export to the monitoring software
- Fully integrated in Cybersecurity Admin Expert tool to facilitate the management of cybersecurity in your electrical network's (Security features such as enabling/disabling communication means).
- Embedded web server for real-time measurement visualization, and power consumption
- Real-time alarm display

Comm. Reference	Description
PAS400	Panel Server Entry 110...277 V AC/DC

Panel Server Entry

Panel Server Entry technical specification

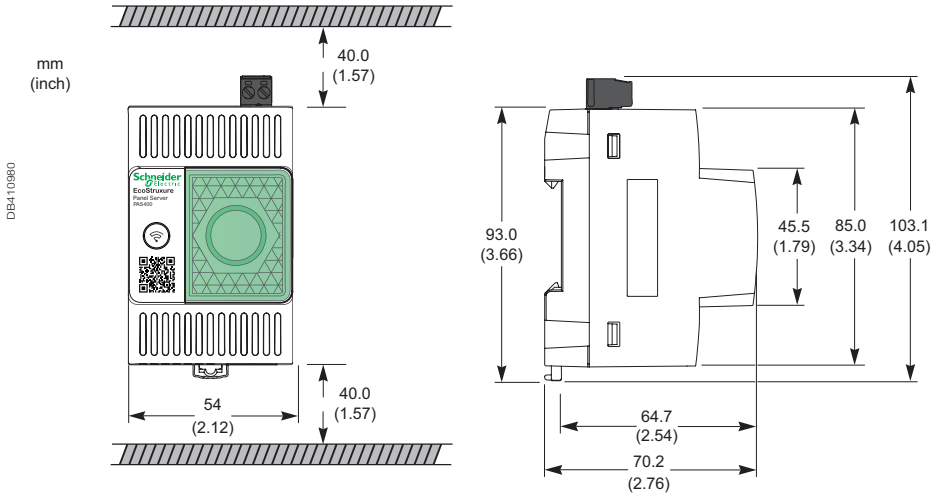
Technical data		EcoStruxure™ Panel Server Entry
Commercial Reference		PAS400
Power Supply		
Voltage		110...277 V AC/DC
Tolerance		± 10%
Frequency		45...65 Hz
Maximum consumption		3 W, 10 VA
Ethernet & Wi-Fi		
Ethernet 10/100base T	Number of Ports	Single RJ45 Port
	PoE 802.3af & 802.3at Class 0	NA
Wi-Fi	Supported Frequency	2.4 & 5 GHz
TCP/IP		Yes
IP V4/IP V6		Yes
DPWS		Yes
DHCP	Client	Yes
	Server (Separate Nework)	No
Modbus TCP/IP Server	Max. number of client connection	64
Modbus TCP/IP Client	Max. number of Modbus TCP/IP devices	NA
Schneider Electric Cloud Services		Yes
HTTPS		Yes
External Wi-Fi/Antenna		No
Wireless Devices (IEEE 802.15.4)		
Number of devices	Total for mixed network	20 devices
	PowerTag Energy & Easergy TH110/CL110	20 devices
	Other type of devices (+1)	20 devices
External IEEE 802.15.4 Antenna		No
Serial Ports		
Modbus RS485 Client	Max. number of devices w/o repeater	NA
	Max. number of devices with repeater	NA
	Maximum Length	NA
	Baud Rate	NA
Functionality		
Data Buffering for cloud applications		1 month
Data Logger and Web-Server	Data Logging	No
	Event logging	Yes (+2)
	Simple Monitoring Web-Pages	Yes
	Monitoring Web-Pages with historical data	No
Time Management	RTC (with battery)	Yes
	TimeUpdate (NTP & SNTP)	Yes
Digital inputs		
Two DI	WAGES & Dry-Contact	No
Environmental		
Protection Degree	Front Face	IP40
	Others	IP20
Overvoltage Category		OVC III
Polution Degree		2
Temperature	Operation	-25...+60 °C
	Storage	-40...+85 °C
Altitude Max.		< 2000 m
Relative Humidity		5...95 %
Mechanical		
Form factor		Acti9
Installation		Din Rail
Width		54 mm
Weight		163 g
Standard & Certification		
Certifications		CE, CULus, CB, RCM, UKCA, FCC, IC, RF, Marine certification (DNV)
Standards		EN/ IEC 61010-1, EN/IEC 61010-2-201, UL 61010-1, UL 61010-2-201, CSA C22.2 No 61010-1-12, CAN/ CSA C22.2 No 61010-2-201, EN IEC 62974-1, EN/IEC 61326-1, ETSI EN 301-489-1, ETSI EN 301-489-17, ETSI EN 300-328, IEEE 802.15.4, IEEE 802.11b/g/n, IEEE 802.3 af/at, EN 301-893, 47 CFR FCC Part 15, Subpart B, Class A, EN IEC 62311, ANSI C63, IACS UR E10, DNVGL-CG-0339

(+1) *Consult the User Manual or other documentations to check the limit applicable to your wireless device.*

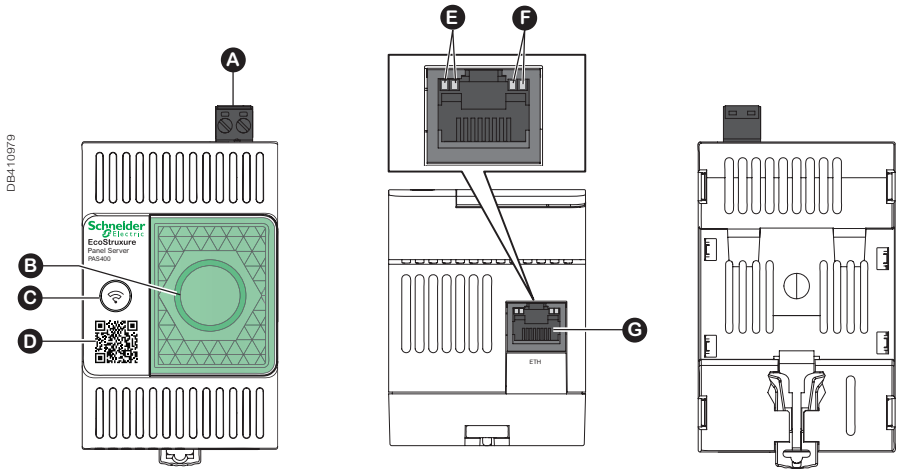
(+2) *Lower limits may apply depending on the firmware version, the serial line length, and the type of device(s). Consult the User Manual, Release Notes or other documentations.*

Panel Server Entry

Panel Server Entry dimensions



Panel Server Entry physical descriptions



- A Power supply terminal block
- B EcoStruxure™ Panel Server status LED
- C Restart button
- D QR code to product information
- E Ethernet LED 1: Speed
- F Ethernet LED 2: Activity
- G Ethernet communication port

*Please see the appropriate **Installation Guide** for accurate and complete information on the installation of this product.*

Panel Server Universal

Panel Server Universal - Front ISO view

Standards & certifications

- IEC 61010-1
- IEC 61010-2-201
- UL 61010-1
- UL 61010-2-201
- IEC 62974-1
- ETSI EN 301 489-1 V.2.2.3
- ETSI EN 301 489-17 V.3.2.4
- IEC 61326-1
- IEC 62974-1
- EN50581
- EN 62321
- EN 62474
- ETSI EN 300 328 V2.2.2

Comm. Reference	Description
PAS600	Panel Server Universal with 110...277 V AC/DC power supply
PAS600L	Panel Server Universal with 24 V DC power supply
PAS600LWD	Wired by Design Panel Server Universal with 24 V DC Power
PAS600PWD	Wired by Design Panel Server Universal with PoE power supply

All-in-one and Wired by Design Panel Server

- The All-in-one Panel Server Universal is designed to retrieve data from wireless, Modbus, and Ethernet based protocols to offer versatility and adaptability.
- Panel Server Universal Wired by Design is designed for specific cybersecure sensitive installations, dedicated to wired communication protocols (Modbus, Ethernet) and PAS embedded digital inputs.(PAS600LWD).

Functions

- Connect to your monitoring and control software such as EcoStruxure™ Power Monitoring Expert, EcoStruxure™ Power Operation or to your Building Management System.
- Connect to Schneider Electric cloud applications such as EcoStruxure™ Energy Hub or Asset Advisor.
- Ease of commissioning with EcoStruxure™ Power Commission software or directly through the Panel Server webpages, enabling device plug-and-play and auto-discovery features.
- Ease of operation with user friendly embedded webpages, and data contextualization for more relevant analytics.

Main features

- Power Supply 24 V DC, 110...277 V AC/DC, PoE-PD (CLASS 0, IEEE 802.3af/at)
- Designed to match demanding electrical switchboard environment (temperature, humidity electromagnetic compatibility)
- Two Ethernet 10Base-T/100Base-T port (supporting switched or separated network topology)
- Wi-Fi (All-in-one Panel Server Universal)
- Modbus RS485 serial communication
- IEEE 802.15.4 wireless communication (All-in-one Panel Server Universal)
- Modbus TCP/IP server and client
- Support of HTTPS, NTP, SNTP, DHCP client and server with proxy management
- Modbus RS485 to Modbus TCP/IP Gateway
- Wireless devices concentrator to Modbus TCP/IP (All-in-one Panel Server Universal)
- Two digital inputs (24 V DC version only) for contact information or WAGES pulse meter
- Designed through a Secured Development Life Cycle in accordance to IEC 62443-4-1
- Commissioning through EcoStruxure™ Power Commission or through Embedded Web-Pages
- Speed-up commissioning through device list import and configuration export to the monitoring software
- Fully integrated in Cybersecurity Admin Expert tool to facilitate the management of cybersecurity in your electrical network's (Security features and measures such as enabling/disabling communication means or implementation of two Wired by Design models)
- Embedded web server for real-time measurement visualization, and power consumption
- Real-time alarm display

Accessories for All-in-one Panel Server Universal

- Wi-Fi external antenna (PASA-ANT1) for PAS600 and PAS600L

Panel Server Universal

Panel Server Universal technical specification

Technical data		EcoStruxure™ Panel Server Universal			
Commercial Reference		PAS600	PAS600L	PAS600LWD	PAS600PWD
Power Supply					
Voltage		110...277 V AC/DC	24 V DC	24 V DC	via POE
Tolerance		± 10%		± 10%	NA
Frequency		45...65 Hz	NA		
Maximum consumption		3 W/10 VA	3 W	3.5 W	
Ethernet & Wi-Fi					
Ethernet 10/100base T	Number of Ports	Two RJ45 ports			
	PoE 802.3af & 802.3at Class 0	No			1 port (PD)
Wi-Fi	Supported Frequency	2.4 GHz		-	-
TCP/IP		Yes			
IP V4/IP V6		Yes			
DPWS		Yes			
DHCP	Client	Yes			
	Server (Separate Nework)	Yes			
Modbus TCP/IP Server	Max. number of client connection	64			
Modbus TCP/IP Client	Max. number of Modbus TCP/IP devices	128 (+2)			
Schneider Electric Cloud Services		Yes			
HTTPS		Yes			
External Wi-Fi/Antenna		PASA-ANT1		-	-
Wireless Devices (IEEE 802.15.4)					
Number of devices	Total for mixed network	up to 40 devices (+2)		NA	
	PowerTag Energy & Easergy TH110/CL110	up to 85 devices (+2)		NA	
	Other type of devices (+1)	40 devices (+2)		NA	
Serial Ports					
Modbus RS485 Client	Max. number of devices w/o repeater	32 devices			
	Max. number of devices with repeater	128 devices			
	Maximum Length	1000 m			
	Baud Rate	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200			
Functionality					
Data Buffering for cloud applications		1 month			
Data Logger and Web-Server	Data Logging	No			
	Event logging	Yes (+2)			
	Simple Monitoring Web-Pages	Yes			
	Monitoring Web-Pages with historical data	No			
Time Management	RTC (with battery)	Yes			
	TimeUpdate (NTP & SNTP)	Yes			
Digital inputs					
Two DI	WAGES & Dry-Contact	No	Yes	Yes	No
Environmental					
Protection Degree	Front Face	IP40			
	Others	IP20			
OverVoltage Category		OVC III			
Polution Degree		2	3	3	2
Temperature	Operation	-25...+70 °C			
	Storage	-40...+85 °C			
Altitude Max.		< 2000 m	< 4000 m (+3)		< 2000 m
Relative Humidity		0...93%	5...95%	5...95%	0...93%
Mechanical					
Form factor		Acti9			
Installation		Din Rail			
Width		72 mm			
Weight		201 g	181 g	180 g	182 g
Standard & Certification					
Certifications		CE, CULus, CB, RCM, UKCA, FCC, IC, RF, Marine certification (DNV)		CE, CULus, CB, RCM, UKCA, FCC, IC, Marine certification (DNV)	
Standards		EN/ IEC 61010-1, EN/IEC 61010-2-201, UL 61010-1, UL 61010-2-201, CSA C22.2 No 61010-1-12, CAN/CSA C22.2 No 61010-2-201, EN IEC 62974-1, EN/IEC 61326-1, ETSI EN 301-489-1, ETSI EN 301-489-17, ETSI EN 300-328, IEEE 802.15.4, IEEE 802.11b/g/n, IEEE 802.3 af/at, IEC 60945, 47 CFR FCC Part 15, Subpart B, Class A, EN IEC 62311, ANSI C63, IACS UR E10, DNVGL-CG-0339, IEC62443-3-3 (PAS600L)		EN/ IEC 61010-1, EN/IEC 61010-2-201, UL 61010-1, UL 61010-2-201, CSA C22.2 No 61010-1-12, CAN/CSA C22.2 No 61010-2-201, EN IEC 62974-1, EN/IEC 61326-1, IEC 60945, 47 CFR FCC Part 15, Subpart B, Class A, IACS UR E10, DNVGL-CG-0339, EN 62947-1	

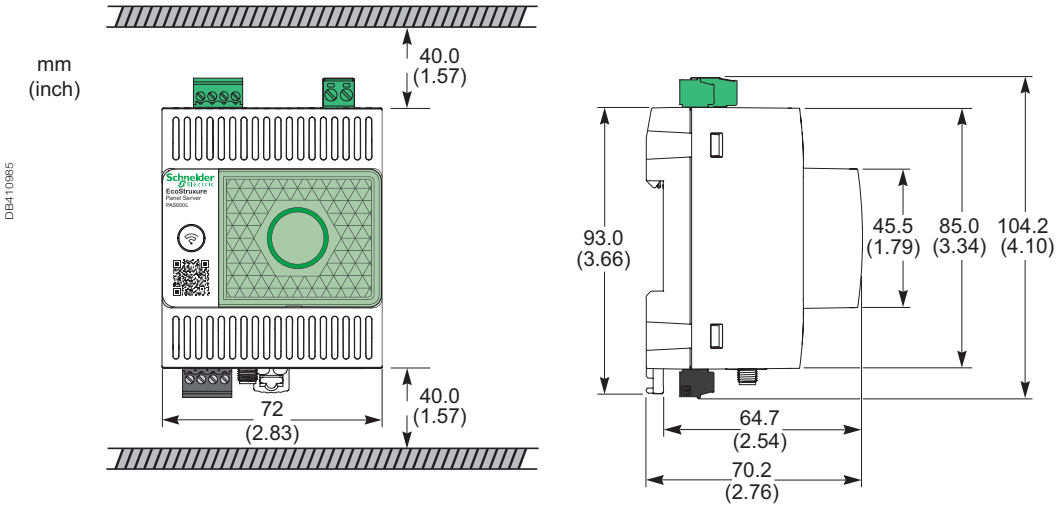
(+1) *Consult the User Manual or other documentations to check the limit applicable to your wireless device.*

(+2) *Lower limits may apply depending on the firmware version, the serial line length, and the type of device(s). Consult the User Manual, Release Notes or other documentations.*

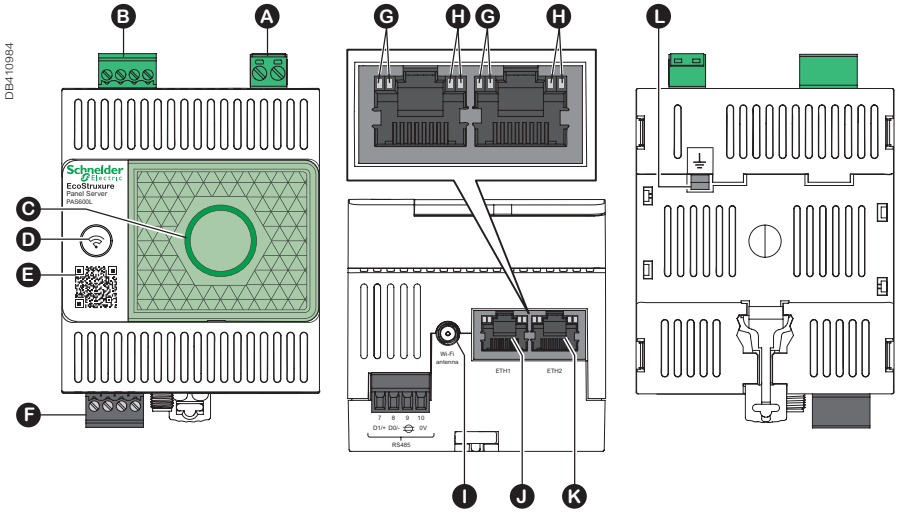
(+3) *The maximum altitude can be less than 4000 m with an operating temperature of -25...+60 °C between 2000 m and 4000 m.*

Panel Server Universal

Panel Server Universal dimensions



Panel Server Universal physical descriptions



- A Power supply terminal block (PAS600, PAS600L, PAS600LWD)
- B Digital input terminal block (PAS600L and PAS600LWD)
- C EcoStruxure™ Panel Server status LED
- D Restart button
- E QR code to product information
- F RS-485 Modbus communication port
- G Ethernet LED 1: Speed
- H Ethernet LED 2: Activity
- I Wi-Fi external antenna port (PAS600 and PAS600L)
- J Ethernet 1 communication port
- K Ethernet 2 communication port (PAS600, PAS600L, and PAS600LWD)/Ethernet 2 communication port - PoE (PAS600PWD only)
- L Grounding connection

*Please see the appropriate **Installation Guide** for accurate and complete information on the installation of this product.*

Panel Server Advanced

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Panel Server Advanced- Front ISO view

Panel Server has Data Logger and Local Energy Server capabilities. It embodies the first step into energy monitoring.
Follow, analyze and compare your loads consumption to enable energy savings.

Functions

- An all-in-one gateway to retrieve data from both your wireless IEEE 802.15.4 devices and Modbus devices.
- Monitor up to three years historized data and analyze your energy consumption directly through the Panel Server Advanced embedded webpages.
- Connect to your monitoring and control software such as EcoStruxure™ Power Monitoring Expert, EcoStruxure™ Power Operation or to your Building Management System.
- Connect to Schneider Electric cloud applications such as **EcoStruxure™ Energy Hub** or Asset Advisor.
- Ease of commissioning with EcoStruxure™ Power Commission software or directly through the Panel Server webpages, enabling device plug-and-play and auto-discovery features.
- Ease of operation with user friendly embedded webpages, and data contextualization for more relevant analytics.

Main features

- Power Supply 24 V DC, 110...277 V AC/DC, PoE-PD (CLASS 0, IEEE802.3af/at)
- Designed to match demanding electrical switchboard environment (temperature, humidity electromagnetic compatibility)
- Two Ethernet 10Base-T/100Base-T port (supporting switched or separated network topology)
- Wi-Fi
- Modbus RS485 serial communication
- IEEE 802.15.4 wireless communication
- Modbus TCP/IP server and client
- Support of HTTPS, NTP, SNTP, DHCP client and server with proxy management
- Modbus RS485 to Modbus TCP/IP Gateway
- Wireless devices concentrator to Modbus TCP/IP
- Two digital inputs (24 V DC version only) for contact information or WAGES pulse meter
- Designed through a Secured Development Life Cycle in accordance to IEC 62443-4-1
- Commissioning through EcoStruxure™ Power Commission or though Embedded Web-Pages
- Speed-up commissioning through device list import and configuration export to the monitoring software
- Fully integrated in Cybersecurity Admin Expert tool for security settings (Security features such as enabling/disabling communication means)
- Embedded web server for real-time measurement and alarm visualization, energy & power consumption by usage and location, 3 years historical trending and dashboarding
- 3 years Data Logger with 32 GB memory
- Real-time alarm display and e-mail notification
- Event and alarm historization and dashboarding

Compatible accessories

- Wi-Fi external antenna (PASA-ANT1)
- IEEE 802.15.4 external antenna (PASA-ANT1)

Standards & certifications

- IEC 61010-1
- IEC 61010-2-201
- UL 61010-1
- UL 61010-2-201
- IEC 62974-1
- ETSI EN 301 489-1 V.2.2.3
- ETSI EN 301 489-17 V.3.2.4
- IEC 61326-1
- IEC 62974-1
- EN50581
- EN 62321
- EN 62474
- ETSI EN 300 328 V2.2.2

Comm. Reference	Description
PAS800L	Panel Server Advanced with 24 V DC power supply
PAS800P	Panel Server Advanced with PoE power supply
PAS800	Panel Server Advanced with 110...277 V AC/ DC power supply

Panel Server Advanced

Panel Server Advanced technical specification

Technical data			EcoStruxure™ Panel Server Advanced	
Commercial Reference		PAS800	PAS800L	PAS800P
Power Supply				
Voltage		110...277 V AC/DC	24 V DC	PoE
Tolerance		± 10 %	± 10 %	
Frequency		45...65 Hz	NA	
Maximum consumption		3 W/10 VA	3 W	3.5 W
Ethernet & Wi-Fi				
Ethernet 10/100base T	Number of Ports	Two RJ45 ports		
	PoE 802.3af & 802.3at Class 0	No		1 port (PD)
Wi-Fi	Supported Frequency	2.4 & 5 GHz		
TCP/IP		Yes		
IP V4/IP V6		Yes		
DPWS		Yes		
DHCP	Client	Yes		
	Server (Separate Nework)	Yes		
Modbus TCP/IP Server	Max. number of client connection	64		
Modbus TCP/IP Client	Max. number of Modbus TCP/IP devices	128 (+2)		
Schneider Electric Cloud Services		Yes		
HTTPS		Yes		
External Wi-Fi/Antenna		PASA-ANT1		
Wireless Devices (IEEE 802.15.4)				
Number of devices	Total for mixed network	up to 40 devices (+2)		
	PowerTag Energy & Easergy TH110/CL110	up to 85 devices (+2)		
	Other type of devices (+1)	40 devices (+2)		
External IEEE 802.15.4 Antenna		PASA-ANT1		
Serial Ports				
Modbus RS485 Client	Max. number of devices w/o repeater	32 devices		
	Max. number of devices with repeater	128 devices		
	Maximum Length	1000 m		
	Baud Rate	1200, 4800, 9600, 19200, 38400, 57600, 115200		
Functionality				
Data Buffering for cloud applications		3 months		
Data Logger and Web-Server	Data Logging	3 years		
	Event logging	Yes (+2)		
	Simple Monitoring Web-Pages	Yes		
	Monitoring Web-Pages with historical data	Yes		
Time Management	RTC (with battery)	Yes		
	TimeUpdate (NTP & SNTP)	Yes		
Digital inputs				
Two DI	WAGES & Dry-Contact	No	Yes	No
Environmental				
Protection Degree	Front Face	IP40		
	Others	IP20		
OverVoltage Category		OVC III		
Polution Degree		2	3	2
Temperature	Operation	-25...70 °C		
	Storage	-40...85 °C		
Altitude Max.		< 2000 m	< 4000 m (+3)	< 2000 m
Relative Humidity		5...95%		
Mechanical				
Form factor		Acti9		
Installation		Din Rail		
Width		72 mm		
Weight		206 g	186 g	184 g
Standard & Certification				
Certifications		CE, CULus, CB, RCM, UKCA, FCC, IC, RF, Marine certification (DNV)		
Standards		EN/ IEC 61010-1, EN/IEC 61010-2-201, UL 61010-1, UL 61010-2-201, CSA C22.2 No 61010-1-12, CAN/CSA C22.2 No 61010-2-201, EN IEC 62974-1, EN/IEC 61326-1, ETSI EN 301-489-1, ETSI EN 301-489-17, ETSI EN 300-328, IEEE 802.15.4, IEEE 802.11b/g/n, IEEE 802.3 af/at, EN 301-893, IEC 60945, 47 CFR FCC Part 15, Subpart B, Class A, EN IEC 62311		

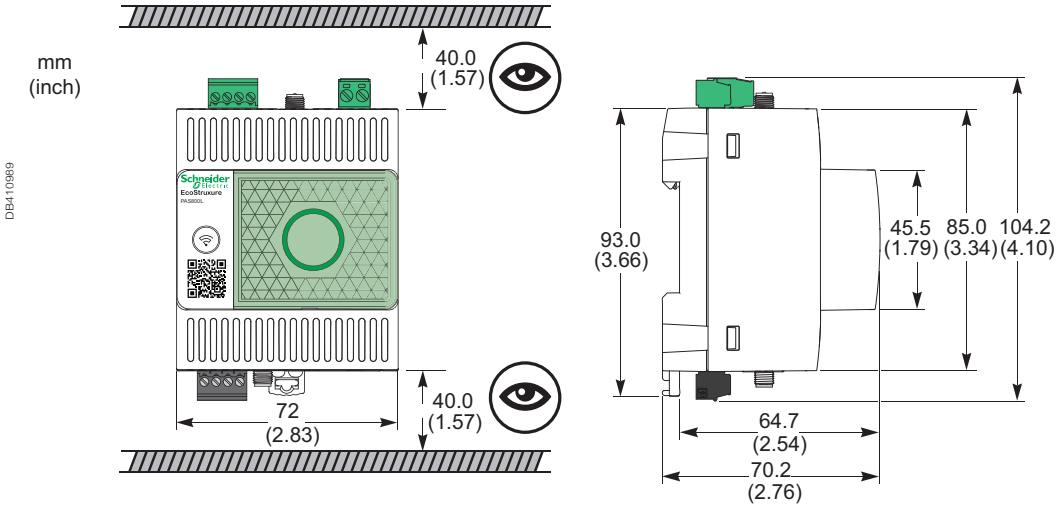
(+1) *Consult the User Manual or other documentations to check the limit applicable to your wireless device.*

(+2) *Lower limits may apply depending on the firmware version, the serial line length, and the type of device(s). Consult the User Manual, Release Notes or other documentations.*

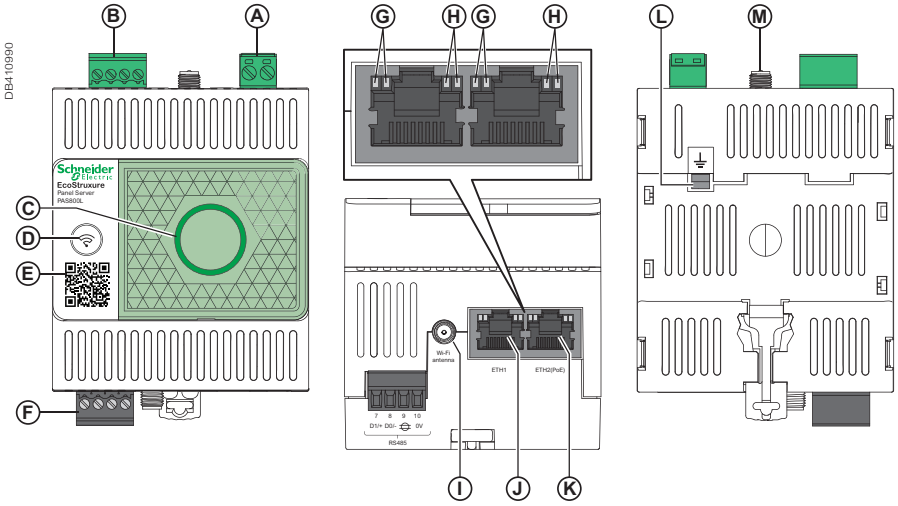
(+3) *The maximum altitude can be less than 4000 m with an operating temperature of -25...+60 °C between 2000 m and 4000 m.*

Panel Server Advanced

Panel Server Advanced dimensions



Panel Server Advanced physical descriptions



- Ⓐ Power supply terminal block (PAS800 & PAS800L only)
- Ⓑ Digital input terminal block (PAS800L only)
- Ⓒ EcoStruxure™ Panel Server status LED
- Ⓓ Restart button
- Ⓔ QR code to product information
- Ⓕ RS-485 Modbus communication port
- Ⓖ Ethernet LED 1: Speed
- Ⓗ Ethernet LED 2: Activity
- Ⓘ Wi-Fi external antenna port
- Ⓙ Ethernet 1 communication port
- Ⓚ Ethernet 2 communication port (PAS800 & PAS800L only)/Ethernet 2 communication port - PoE (PAS800P only)
- Ⓛ Grounding connection
- Ⓜ IEEE802.15.4 external antenna port

*Please see the appropriate **Installation Guide** for accurate and complete information on the installation of this product.*

www.se.com

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Ecostruxure™ Panel Server
PLSED310196EN

As standards, specifications and designs develop from time to time, please ask for confirmation of the information given in this document.

Over 75% of Schneider Electric products have been awarded the Green Premium ecolabel.

Green Premium™