Advanced power supplies

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Advanced power supplies

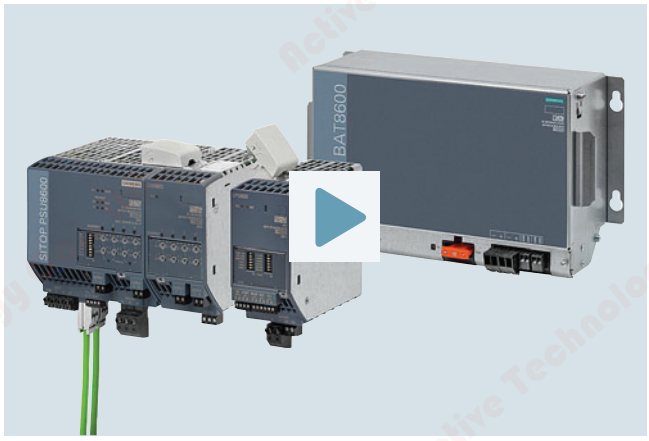
Introduction

Overview

The switched-mode power supply units in the Advanced performance class are the ideal choice for maximum reliability and functionality, qualities required in the process and automotive industries, in special-purpose machine manufacturing, or in harsh environments.

The SITOP PSU8200 product line meets the stringent requirements in these areas, e.g. thanks to its overload characteristics, efficiency, and compactness. Additionally, SITOP PSU8600 offers a power supply system with open communication for optimum integration in the world of digitalization.

Overview



As a unique power supply system with network integration, SITOP PSU8600 sets new standards in industrial power supplies. It can be fully integrated into Totally Integrated Automation (TIA) and networked via OPC UA and SITOP Manager with automation systems from different manufacturers.

Voltage and current response thresholds can be set individually for each output of the power supply system, and selective monitoring of each output for overload allows fast fault location. Depending on requirements, more modules from the modular system can be added without any wiring effort, for example to buffer against power failures ranging from seconds, minutes or hours, or for increasing the number of outputs.

SITOP PSU8600 can be easily configured in the TIA Portal: From the product selection through the network integration to the parameter assignment.

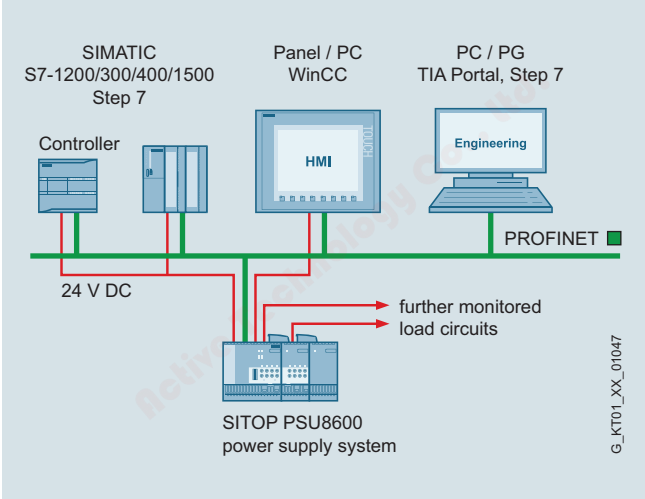
Comprehensive diagnostic and maintenance information is available via PROFINET. It can be evaluated directly in SIMATIC S7 and visualized in SIMATIC WinCC.

Benefits

- Space and cost savings through up to 36 integrated outputs with selective monitoring (no need for one or more additional selectivity modules)
- Individually parameterizable outputs (elimination of an additional power supply unit, e.g. for 5 V, 12 V or 15 V)
- Compensation for power losses can be set separately for each output
- Narrow width without lateral installation clearances
- Low temperature rise in the control cabinet due to very high efficiency
- Depending on requirements, modular expansion without any wiring effort (additional outputs, buffer module, UPS module)
- Reliable operation by bridging power failures in the second, minute or hour range
- Two integrated Ethernet/PROFINET ports (no external switch required)
- Integrated web server enables remote monitoring
- Convenient configuration in the TIA Portal
- SIMATIC S7 function blocks for easy integration in STEP 7 user programs
- Fast integration in operator control and monitoring with WinCC faceplates
- Direct integration in SIMATIC PCS 7 via SITOP library
- Easy configuration and monitoring in PC-based automation systems via SITOP Manager
- Preventive maintenance reduces downtimes
- Energy savings during breaks through targeted operation of outputs
- Easy integration in energy management systems (PROFIenergy protocol)

Application

SITOP PSU8600 power supply system is used as a central DC power supply in larger plants, or machines with networked automation systems. The PSU8600 can be directly integrated into the LAN infrastructure by means of the two integrated PROFINET ports.



An extremely high level of reliability is achieved for the DC voltage supply by monitoring the individual DC branches for overload and bridging short-term power failures (brownouts). Complete transparency and fast fault localization are achieved by providing comprehensive diagnostic and maintenance information (e.g. load states of the outputs, phase/network failure, overtemperature) via PROFINET.

Energy-optimized operation is supported by measuring the current power and voltage values of each output as well as the individual activation and deactivation of the DC outputs via PROFIenergy during idle times.

Design

- SITOP PSU8600, 1-phase power supply, 24 V DC/20 A/4 x 5 A with four outputs (max. 5 A per output) and two Ethernet/PROFINET ports
- SITOP PSU8600, 3-phase power supply, 24 V DC/20 A/4 x 5 A with four outputs (max. 5 A per output) and two Ethernet/PROFINET ports
- SITOP PSU8600, 3-phase power supply, 24 V DC/20 A with one output and two Ethernet/PROFINET ports
- SITOP PSU8600, 3-phase power supply, 24 V DC/40 A/4 x 10 A with four outputs (max. 10 A per output) and two Ethernet/PROFINET ports
- SITOP PSU8600, 3-phase power supply, 24 V DC/40 A with one output and two Ethernet/PROFINET ports

Modular system, consisting of:

- SITOP CNX8600 4 x 5 A (expansion module with 4 outputs, each 5 A)
- SITOP CNX8600 4 x 10 A (expansion module with 4 outputs, each 10 A)
- SITOP CNX8600 8 x 2.5 A (expansion module with 8 outputs, each 2.5 A)
- SITOP BUF8600 100 ms/40 A (buffer module for 100 ms at 40 A)
- SITOP BUF8600 300 ms/40 A (buffer module for 300 ms at 40 A)
- SITOP BUF8600 4 s/40 A (buffer module for 4 s at 40 A)
- SITOP BUF8600 10 s/40 A (buffer module for 10 s at 40 A)
- SITOP UPS8600 (UPS module) including external energy storage unit
  - SITOP BAT8600 Pb (battery module with lead-acid batteries for buffering in the event of a power failure for up to 10 min/960 W)
  - SITOP BAT8600 LiFePO4 (battery module with lithium iron phosphate batteries for buffering in the event of a power failure for up to 14 min/960 W)

Up to 4 CNX8600 expansion modules and up to 2 buffer components (BUF8600 or UPS8600) can be connected to a PSU8600 basic unit. The connection is made on top of the modules without any wiring effort using the System Clip Link, a connecting plug for system data and power supplies. Up to six additional modules can be added in random order; this means that existing configurations do not have to be altered if a module is added at a later stage. Up to 5 BAT8600 battery modules of the same type can be connected to a UPS8600 module. The connection between UPS8600 and BAT8600 via the energy storage link enables intelligent battery management for optimum battery life.

Function

Supply of connected loads

An individual supply voltage can be set at each output of the power supply system. This means you can supply loads with different rated voltages simultaneously with only one device. Plus the voltage drop caused by the different cable lengths can be compensated individually, which means each load can be supplied with the optimum voltage.

Monitoring of the outputs for overload

Each output of the power supply system is individually monitored for overload. If the load current exceeds the set response threshold, the output is shut down according to specified time-current characteristics. All other outputs continue to be supplied reaction-free.

Enabling and disabling the outputs

Each output can be manually enabled or disabled directly on the device (e.g. for commissioning or service) and an overload tripping can be reset. Outputs disabled due to overload can also be reset remotely using a remote reset signal (24 V input).

In addition, program-controlled enabling and disabling of the outputs is possible using the integrated Ethernet/PROFINET interface. This also means you can disable individual outputs by means of PROFIenergy during breaks to save energy.

Communication

Comprehensive diagnostic information can be queried and processed via the integrated Ethernet/PROFINET interface during operation for both the device status as well as the status of the individual outputs. This results in complete transparency, minimal downtimes and quick fault location. The integrated web server also permits remote monitoring of the power supply system.

Buffering

If brief voltage dips occur on the mains side, the buffer module provides the load current for supplying the outputs via its energy storage devices. Maintenance-free electrolytic capacitors or double-layer capacitors are used as energy-storage units.

UPS module UPS8600 can be used with the corresponding BAT8600 battery modules to protect against longer power failures. This allows power failures in the minutes to hours range to be bridged. These supplementary modules also make it possible to shut down the system in a specific and safe manner in the event of a power failure. For most power interruptions, however, the bridging time is sufficient so that the system can continue to run without malfunction.

Integration

Software for TIA-based automation systems

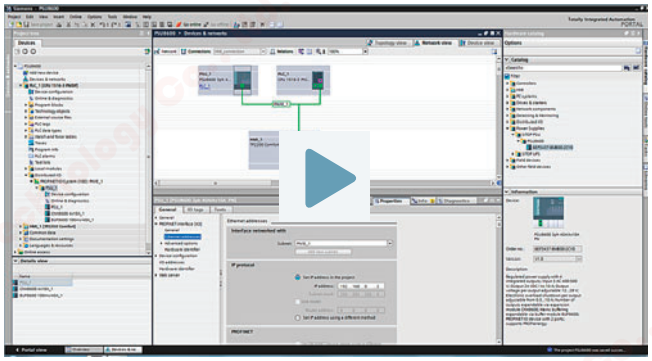
Different software components are available to facilitate easy integration of SITOP PSU8600 in the TIA environment.

Engineering is simple via the TIA Portal. Special function blocks for SIMATIC S7-300, S7-400, S7-1200 and S7-1500 also support integration in the STEP 7 user program.

The comprehensive operating and diagnostic data of the power supply system can be visualized using ready-to-use PSU8600 faceplates for WinCC.

TIA Portal

- User-friendly, fail-safe integration of SITOP PSU8600 into the PROFINET network by means of drag-and-drop
- Convenient configuration of the PSU8600 basic units and CNX8600, BUF8600, UPS8600 and BAT8600 add-on modules though simple selection from the hardware catalog
- Free HSPs (hardware support packages) available for the TIA Portal:
  http://support.automation.siemens.com/WW/view/en/102254062
- Free GSD file (Generic Station Description) for STEP 7 V 5
  http://support.automation.siemens.com/WW/view/en/102254061



Establishing the PROFINET connection between the SITOP PSU8600 and the controller is easy and fail-safe in the TIA Portal

STEP 7 function blocks

Function blocks are available for STEP 7 user programs on SIMATIC S7-300/400/1200/1500. They allow further processing of the PSU8600 operating data.

- Function blocks for STEP 7 V5.6
- Function blocks for STEP 7 in the TIA Portal as of version 15.1

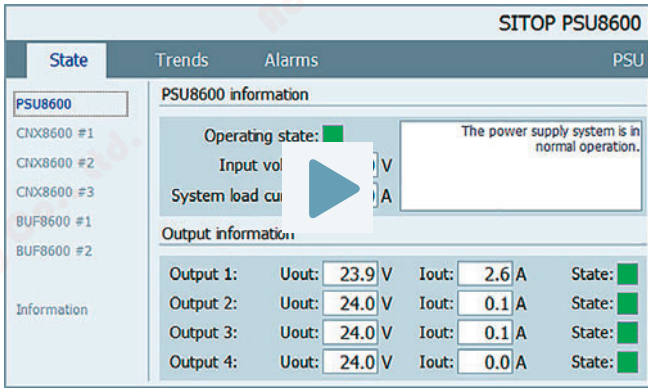
Free download at:
http://support.automation.siemens.com/WW/view/en/102379345

Faceplates for WinCC

Ready-to-use faceplates save programming time during visualization of the SITOP PSU8600. The faceplates show all relevant statuses and values of the power supply system and the individual outputs and are available for the following systems:

- Faceplates for WinCC from Version V7.4
- Faceplates for WinCC flexible 2008 SP5
- Faceplates for WinCC Comfort/Advanced/Professional in the TIA Portal

Free download at:
http://support.automation.siemens.com/WW/view/en/102379345



The pre-compiled WinCC faceplates show all the relevant data of the power supply system in an easy-to-understand display.

Software for SIMATIC PCS 7 process control system

The SITOP library is available with blocks and faceplates for direct integration into SIMATIC PCS 7. The SW blocks in the SIMATIC S7 supply the faceplate on the user interface of the process control system with operating and diagnostics data, generate messages and ensure connection to the maintenance system of PCS 7. This ensures constant transparency of the 24 V supply in the control system. The SITOP library is supported in SIMATIC PCS 7 as of version V8.2 with SP1.

Free download at:
https://support.industry.siemens.com/cs/ww/en/view/109476154

SITOP Manager - the tool for commissioning, engineering and monitoring of communication-capable SITOP power supplies

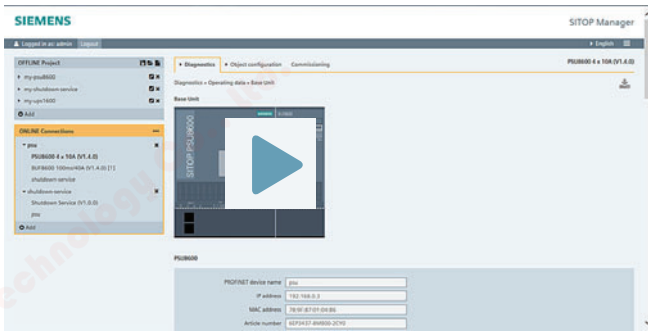
SITOP Manager is the medium for all users who do not work with SIMATIC STEP 7 in the TIA Portal or with SIMATIC PCS 7. It manages all communication-capable power supplies in a communication network and enables their commissioning, online and offline engineering, diagnostics as well as operator control and monitoring. With the help of the SITOP Shutdown Service (autonomous function of the SITOP Manager), for example, it also supports continuous monitoring and specific shutdown of one or more PCs in case of a power failure. SITOP Manager is available as a free download in SIOS. It supports the following SITOP devices:

- Requirement for the use of the SITOP Manager with SITOP PSU8600:
  - SITOP PSU8600 3 AC 40 A / 4 x 10 A
    as of product state (PS) "2" as of firmware V1.4.0
  - SITOP PSU8600 3 AC 20 A / 4 x 5 A, 20 A, 40 A
    as of product state (PS) "1" as of firmware V1.4.0
  - SITOP PSU8600 1 AC 20 A / 4 x 5 A
    as of product state (PS) "1" as of firmware V1.5.0

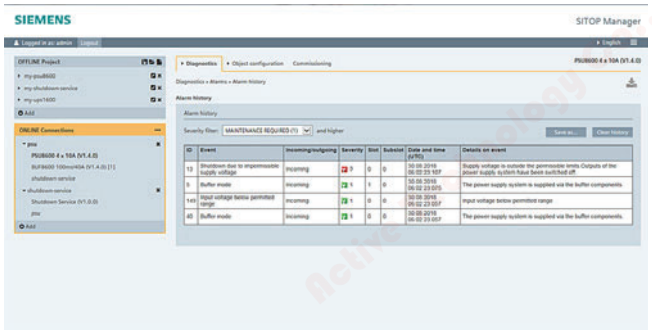
Integration (continued)

SITOP Manager functions

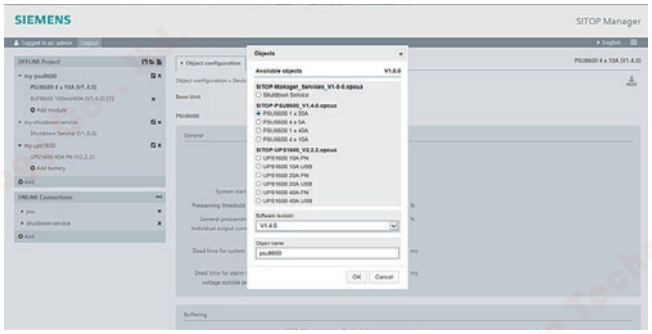
- Integrated engineering, monitoring, diagnostics and service functions save time and operating costs
- Usability via the web interface simplifies automation projects
- Stability and quality prevent plant failures
- Shutting down specific PCs prevents data loss in the event of a power failure
- Possibility to configure multiple SITOP PSU8600 PN/USBs via a single SITOP Manager project file reduces overhead and time, thus saving costs
- The option to make configuration changes during operation (CiR) reduces plant downtimes
- Firmware update option ensures that the SITOP PSU8600 is always up-to-date
- Since SITOP Manager supports Microsoft Windows and SIMATIC Industrial OS, it can be used on all common PCs
- Secure, encrypted communication according to the Siemens security concepts ('Security-in-depth' model)



Diagnostics via SITOP Manager



Alarm history in SITOP Manager



SITOP Manager PSU8600 offline, including saving of offline project to a project file

Free download at:
https://support.industry.siemens.com/cs/ww/en/view/109760607

Web server

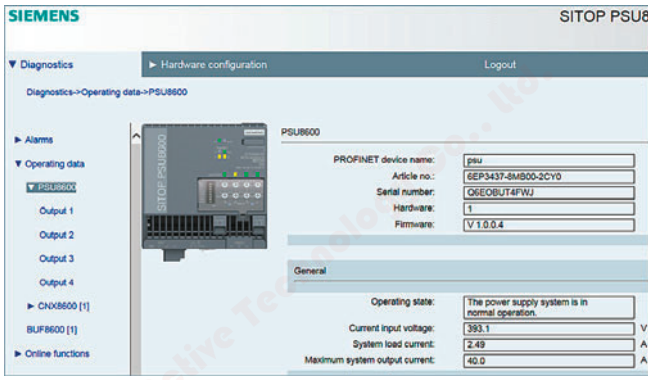
A web server is integrated in the PSU8600 basic unit for remote monitoring of the power supply system.

Remote monitoring of

- Hardware configuration data
- Operating data of the basic unit, all connected additional modules and the individual outputs
- Alarm messages

Remote access via:

- Internet Explorer 10, 11, Firefox as of V45, Google Chrome as of V50, Microsoft Edge as of V25
- IP address
- User name and password



The password-protected web server offers a view of the configuration and operating data.

More information

TIA Selection Tool for quick and easy configuration of the PSU8600 power supply system:

http://www.siemens.com/tst

Overview

Despite their compact overall width, the 1-phase and 3-phase basic units of the SITOP PSU8600 power supply system include one Ethernet/PROFINET interface, as well as one or four configurable outputs (voltage and current threshold) with selective monitoring. If needed, additional modules from the modular system can be added to the basic unit without any wiring effort in order to increase the number of outputs (CNX8600) or to extend the power buffering time (BUF8600, UPS8600). Comprehensive diagnostic and maintenance information is available via PROFINET. It can be evaluated directly in SIMATIC S7 and visualized in SIMATIC WinCC. Energy management is also optimally supported through the acquisition of energy data for each output as well as individual activation and deactivation of the outputs via PROFIenergy.

Multi-vendor transfer of parameters and diagnostic data is also possible via the open communications interface OPC UA.

Product highlights

- Extremely slim design with very high efficiency of up to 94%
- Voltage and current threshold can be set separately and are infinitely adjustable for each output
- Extra power with 1.5 times the rated current (5 s/min) for brief, operational overload
- Integrated Ethernet/PROFINET interface (2 ports)
- Easy configuration in the TIA Portal
- Integrated web server for remote diagnostics
- Outputs can be deactivated and activated in a targeted manner with PROFIenergy

Ordering data

	Article No.
SITOP PSU8600 1- and 2-phase, 24 V DC/20 A/4 x 5 A with PN/IE connection Stabilized power supply Input: 100 … 240 V AC Output: 24 V DC/20 A/4 x 5 A	**6EP3336-8MB00-2CY0**
SITOP PSU8600 3-phase, 24 V DC/20 A with PN/IE connection Stabilized power supply Input: 400 ... 500 V 3 AC Output: 24 V DC/20 A	**6EP3436-8SB00-2AY0**
SITOP PSU8600 3-phase, 24 V DC/40 A with PN/IE connection Stabilized power supply Input: 400 ... 500 V 3 AC Output: 24 V DC/40 A	**6EP3437-8SB00-2AY0**
SITOP PSU8600 3-phase, 24 V DC/20 A/4 x 5 A with PN/IE connection Stabilized power supply Input: 400 ... 500 V 3 AC Output: 24 V DC/20 A/4 x 5 A	**6EP3436-8MB00-2CY0**
SITOP PSU8600 3-phase, 24 V DC/40 A/4 x 10 A with PN/IE connection Stabilized power supply Input: 400 ... 500 V 3 AC Output: 24 V DC/40 A/4 x 10 A	**6EP3437-8MB00-2CY0**
Accessories	
SITOP CNX8600 4 x 5 A expansion module For SITOP PSU8600 Output: 24 V DC/4 x 5 A	**6EP4436-8XB00-0CY0**
SITOP CNX8600 4 x 10 A expansion module For SITOP PSU8600 Output: 24 V DC/4 x 10 A	**6EP4437-8XB00-0CY0**
SITOP CNX8600 8 x 2.5 A expansion module For SITOP PSU8600 Output: 24 V DC/8 x 2.5 A	**6EP4436-8XB00-0DY0**
SITOP BUF8600 100 ms buffer module For SITOP PSU8600 Buffer capacity 100 ms/40 A	**6EP4297-8HB00-0XY0**
SITOP BUF8600 300 ms buffer module For SITOP PSU8600 Buffer capacity 300 ms/40 A	**6EP4297-8HB10-0XY0**
SITOP BUF8600 4 s buffer module For SITOP PSU8600 Buffer capacity 4 s/40 A	**6EP4293-8HB00-0XY0**
SITOP BUF8600 10 s buffer module For SITOP PSU8600 Buffer capacity 10 s/40 A	**6EP4295-8HB00-0XY0**
SITOP UPS8600 UPS module For SITOP PSU8600 Rated buffer power 960 W	**6EP4197-8AB00-0XY0**
SITOP BAT8600 battery module 380 Wh For SITOP UPS8600 With lead-acid batteries (Pb technology)	**6EP4145-8GB00-0XY0**
SITOP BAT8600 battery module 264 Wh For SITOP UPS8600 With LiFePO4 batteries	**6EP4143-8JB00-0XY0**
Unit labeling plates	**3RT2900-1SB20**

Technical specifications

Article number	6EP3336-8MB00-2CY0	6EP3436-8MB00-2CY0	6EP3436-8SB00-2AY0	6EP3437-8MB00-2CY0	6EP3437-8SB00-2AY0
Product	**SITOP PSU8600**	**SITOP PSU8600**	**SITOP PSU8600**	**SITOP PSU8600**	**SITOP PSU8600**
Power supply, type	**24 V/20 A/4x 5 A**	**24 V/20 A/4x 5 A**	**24 V/20 A**	**24 V/40 A/4x 10 A**	**24 V/40 A**
Input					
Input	**1-phase and 2-phase AC or DC**	**3-phase AC**	**3-phase AC**	**3-phase AC**	**3-phase AC**
Rated voltage value $V_{in\ rated}$	**100 ... 240 V**	**400 ... 500 V**	**400 ... 500 V**	**400 ... 500 V**	**400 ... 500 V**
Voltage range AC	**85 ... 275 V**	**320 ... 575 V**	**320 ... 575 V**	**320 ... 575 V**	**320 ... 575 V**
• Note	**-**	**Derating 320 … 360 and 530 … 575 V**	**Derating 320 … 360 and 530 … 575 V**	**Derating 320 … 360 and 530 … 575 V**	**Derating 320 … 360 and 530 … 575 V**
supply voltage					
• at DC	**110 ... 220 V**	**-**	**-**	**-**	**-**
input voltage					
• at DC	**93 ... 275 V**	**-**	**-**	**-**	**-**
Wide-range input	Yes	Yes	Yes	Yes	Yes
Mains buffering	**at V_{in} = 100 V; Prioritized supply Output 1 at power failure can be selected via DIP switch**	**at V_{in} = 400 V; Prioritized supply Output 1 at power failure can be selected via DIP switch**	**at V_{in} = 400 V; Prioritized supply to the output on power failure via DIP switch can be selected (only with expansion module CNX8600)**	**at V_{in} = 400 V; Prioritized supply Output 1 at power failure can be selected via DIP switch**	**at V_{in} = 400 V; Prioritized supply to the output on power failure via DIP switch can be selected (only with expansion module CNX8600)**
Mains buffering at $I_{out\ rated}$, min.	**20 ms; at V_{in} = 100 V; Prioritized supply Output 1 at power failure can be selected via DIP switch**	**15 ms; at V_{in} = 400 V; Prioritized supply Output 1 at power failure can be selected via DIP switch**	**15 ms; at V_{in} = 400 V; Prioritized supply to the output on power failure via DIP switch can be selected (only with expansion module CNX8600)**	**15 ms; at V_{in} = 400 V; Prioritized supply Output 1 at power failure can be selected via DIP switch**	**15 ms; at V_{in} = 400 V; Prioritized supply to the output on power failure via DIP switch can be selected (only with expansion module CNX8600)**
Rated line frequency 1	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz
Rated line frequency 2	60 Hz	60 Hz	60 Hz	60 Hz	60 Hz
Rated line range	47 ... 63 Hz	47 ... 63 Hz	47 ... 63 Hz	47 ... 63 Hz	47 ... 63 Hz
input current					
• at rated input voltage 100 V	**5.4 A**	**-**	**-**	**-**	**-**
• at rated input voltage 120 V	**4.5 A**	**-**	**-**	**-**	**-**
• at rated input voltage 230 V	**2.5 A**	**-**	**-**	**-**	**-**
• at rated input voltage 240 V	**2.4 A**	**-**	**-**	**-**	**-**
• at rated input voltage 110 V	**4.8 A**	**-**	**-**	**-**	**-**
• at rated input voltage 220 V	**2.4 A**	**-**	**-**	**-**	**-**
• at rated input voltage 400 V	**-**	**1.4 A**	**1.4 A**	**2.75 A**	**2.75 A**
• at rated input voltage 500 V	**-**	**1.1 A**	**1.1 A**	**2.2 A**	**2.2 A**
Switch-on current limiting (+25 °C), max.	**15 A**	**14 A**	**14 A**	**14 A**	**14 A**
I^2t, max.	**4.33 $A^2 \cdot s$**	**1.2 $A^2 \cdot s$**	**1.2 $A^2 \cdot s$**	**2.24 $A^2 \cdot s$**	**2.24 $A^2 \cdot s$**
Built-in incoming fuse	**internal**	**none**	**none**	**none**	**none**
Protection in the mains power input (IEC 898)	**required: circuit breaker (for UL: UL489-listed/DIVQ) characteristic C, 10-32 A, alternatively slow-response fuses (for UL: UL248-listed)**	**Required: 3-pole connected miniature circuit breaker 6 ... 16 A characteristic C or circuit breaker 3RV2011-1DA10 (setting 3 A) or 3RV2711-1DD10 (UL 489)**	**Required: 3-pole connected miniature circuit breaker 6 ... 16 A characteristic C or circuit breaker 3RV2011-1DA10 (setting 3 A) or 3RV2711-1DD10 (UL 489)**	**Required: 3-pole connected miniature circuit breaker 10 ... 16 A characteristic C or circuit breaker 3RV2011-1DA10 (setting 3 A) or 3RV2711-1DD10 (UL 489)**	**Required: 3-pole connected miniature circuit breaker 10 ... 16 A characteristic C or circuit breaker 3RV2011-1DA10 (setting 3 A) or 3RV2711-1DD10 (UL 489)**

Technical specifications (continued)

Article number	6EP3336-8MB00-2CY0	6EP3436-8MB00-2CY0	6EP3436-8SB00-2AY0	6EP3437-8MB00-2CY0	6EP3437-8SB00-2AY0
Product	**SITOP PSU8600**	**SITOP PSU8600**	**SITOP PSU8600**	**SITOP PSU8600**	**SITOP PSU8600**
Power supply, type	**24 V/20 A/4x 5 A**	**24 V/20 A/4x 5 A**	**24 V/20 A**	**24 V/40 A/4x 10 A**	**24 V/40 A**
Output					
Output	Controlled, isolated DC voltage	Controlled, isolated DC voltage	Controlled, isolated DC voltage	Controlled, isolated DC voltage	Controlled, isolated DC voltage
number of outputs	**4**	**4**	**1**	**4**	**1**
Rated voltage V_{out} DC	24 V	24 V	24 V	24 V	24 V
• output voltage at output 1 at DC rated value	24 V	24 V	24 V	24 V	24 V
• output voltage at output 2 at DC rated value	**24 V**	**24 V**	**-**	**24 V**	**-**
• output voltage at output 3 at DC rated value	**24 V**	**24 V**	**-**	**24 V**	**-**
• output voltage at output 4 at DC rated value	**24 V**	**24 V**	**-**	**24 V**	**-**
Total tolerance, static ±	3 %	3 %	3 %	3 %	3 %
Static mains compensation, approx.	0.2 %	0.2 %	0.2 %	0.2 %	0.2 %
Static load balancing, approx.	0.1 %	0.1 %	0.1 %	0.1 %	0.1 %
Residual ripple peak-peak, max.	100 mV	100 mV	100 mV	100 mV	100 mV
Spikes peak-peak, max. (bandwidth: 20 MHz)	200 mV	200 mV	200 mV	200 mV	200 mV
Adjustment range	4 ... 28 V	4 ... 28 V	4 ... 28 V	4 ... 28 V	4 ... 28 V
product function output voltage adjustable	Yes	Yes	Yes	Yes	Yes
Output voltage setting	**via potentiometer or IE/PN interface; Derating > 24 V: 4%/V; max. 120 W per output, max. 480 W overall system**	**via potentiometer or IE/PN interface; Derating > 24 V: 4%/V; max. 120 W per output, max. 480 W overall system**	**via potentiometer or IE/PN interface; Derating > 24 V: 4%/V; max. 480 W overall system**	**via potentiometer or IE/PN interface; Derating > 24 V: 4%/V; max. 240 W per output, max. 960 W overall system**	**via potentiometer or IE/PN interface; Derating > 24 V: 4%/V; max. 960 W overall system**
Status display	**3-color LED for operating state device; LED for operating mode manual/remote; 4 LEDs for communication PROFINET; 3-color LED per output for operating state output; LED green for parallel operation Output 1 and 2 / 3 and 4**	**3-color LED for operating state device; LED for operating mode manual/remote; 4 LEDs for communication PROFINET; 3-color LED per output for operating state output; LED green for parallel operation Output 1 and 2 / 3 and 4**	**3-color LED for operating state device; LED for operating mode manual/remote; 4 LEDs for communication PROFINET; 3-color LED for operating state output**	**3-color LED for operating state device; LED for operating mode manual/remote; 4 LEDs for communication PROFINET; 3-color LED per output for operating state output; LED green for parallel operation Output 1 and 2 / 3 and 4**	**3-color LED for operating state device; LED for operating mode manual/remote; 4 LEDs for communication PROFINET; 3-color LED for operating state output**
Signaling	Relay contact (changeover contact, contact current capacity DC 60 V/0.3 A) for "Operating state OK"	Relay contact (changeover contact, contact current capacity DC 60 V/0.3 A) for "Operating state OK"	Relay contact (changeover contact, contact current capacity DC 60 V/0.3 A) for "Operating state OK"	Relay contact (changeover contact, contact current capacity DC 60 V/0.3 A) for "Operating state OK"	Relay contact (changeover contact, contact current capacity DC 60 V/0.3 A) for "Operating state OK"
On/off behavior	No overshoot of V_{out} (soft start)	No overshoot of V_{out} (soft start)	No overshoot of V_{out} (soft start)	No overshoot of V_{out} (soft start)	No overshoot of V_{out} (soft start)
Startup delay, max.	**1 s; Without on-delay of the outputs**	**1 s; Without on-delay of the outputs**	**1 s**	**1 s; Without on-delay of the outputs**	**1 s**
connection of outputs operating	**Simultaneous connecting-in of all outputs after device booting or delay time of 25 ms, 100 ms or "load-optimized" for sequential cutting-in of the outputs via DIP switches can be set**	**Simultaneous connecting-in of all outputs after device booting or delay time of 25 ms, 100 ms or "load-optimized" for sequential cutting-in of the outputs via DIP switches can be set**	**Simultaneous connecting-in of all outputs after device booting or delay time of 25 ms, 100 ms or "load-optimized" for sequential cutting-in of the outputs via DIP switches can be set (only with expansion module CNX8600)**	**Simultaneous connecting-in of all outputs after device booting or delay time of 25 ms, 100 ms or "load-optimized" for sequential cutting-in of the outputs via DIP switches can be set**	**Simultaneous connecting-in of all outputs after device booting or delay time of 25 ms, 100 ms or "load-optimized" for sequential cutting-in of the outputs via DIP switches can be set (only with expansion module CNX8600)**
voltage increase time of the output voltage maximum	500 ms	500 ms	500 ms	500 ms	500 ms
Rated current value $I_{out\ rated}$	**20 A**	**20 A**	**20 A**	**40 A**	**40 A**

Technical specifications (continued)

Article number	6EP3336-8MB00-2CY0	6EP3436-8MB00-2CY0	6EP3436-8SB00-2AY0	6EP3437-8MB00-2CY0	6EP3437-8SB00-2AY0
Product	**SITOP PSU8600**	**SITOP PSU8600**	**SITOP PSU8600**	**SITOP PSU8600**	**SITOP PSU8600**
Power supply, type	**24 V/20 A/4x 5 A**	**24 V/20 A/4x 5 A**	**24 V/20 A**	**24 V/40 A/4x 10 A**	**24 V/40 A**
output current					
• per output	**5 A**	**5 A**	**20 A**	**10 A**	**40 A**
• at output 1 rated value	**5 A**	**5 A**	**20 A**	**10 A**	**40 A**
• at output 2 rated value	**5 A**	**5 A**	**-**	**10 A**	**-**
• at output 3 rated value	**5 A**	**5 A**	**-**	**10 A**	**-**
• at output 4 rated value	**5 A**	**5 A**	**-**	**10 A**	**-**
Current range	**0 ... 20 A**	**0 ... 20 A**	**0 ... 20 A**	**0 ... 40 A**	**0 ... 40 A**
• Note	**-**	**+50 ... +60 °C: Derating 2.5%/K; no derating in connection with expansion module CNX8600 and total load of the outputs at the basic device max. 240 W**	**+50 ... +60 °C: Derating 2.5%/K; no derating in connection with expansion module CNX8600 and total load of the outputs at the basic device max. 240 W**	**+50 ... +60 °C: Derating 2.5%/K; no derating in connection with expansion module CNX8600 and total load of the outputs at the basic device max. 480 W**	**+50 ... +60 °C: Derating 2.5%/K; no derating in connection with expansion module CNX8600 and total load of the outputs at the basic device max. 480 W**
supplied active power typical	**480 W**	**480 W**	**480 W**	**960 W**	**960 W**
short-term overload current					
• at short-circuit during operation typical	**-**	**-**	**60 A**	**-**	**120 A**
• note	**-**	**-**	**only in operation without CNX8600 extension module**	**-**	**only in operation without CNX8600 extension module**
duration of overloading capability for excess current					
• at short-circuit during operation	**-**	**-**	**25 ms**	**-**	**25 ms**
product feature parallel switching of outputs	**Yes; Parallel circuit Output 1 with 2 or Output 3 with 4 can be selected via DIP switch**	**Yes; Parallel circuit Output 1 with 2 or Output 3 with 4 can be selected via DIP switch**	**-**	**Yes; Parallel circuit Output 1 with 2 or Output 3 with 4 can be selected via DIP switch**	**-**
Parallel switching for enhanced performance	**No**	**No**	**Yes; suitable output characteristics via DIP switch can be selected**	**No**	**Yes; suitable output characteristics via DIP switch can be selected**
Numbers of parallel switchable units for enhanced performance	**-**	**-**	**2**	**-**	**2**
Efficiency					
Efficiency at $V_{out\ rated}$, $I_{out\ rated}$, approx.	**92 %**	**93 %**	**93 %**	**93 %**	**93 %**
Power loss at $V_{out\ rated}$, $I_{out\ rated}$, approx.	**39 W**	**34 W**	**34 W**	**72 W**	**72 W**
power loss [W] during no-load operation maximum	**14 W**	**12 W**	**12 W**	**20 W**	**20 W**
Closed-loop control					
Dynamic mains compensation (V_{in} rated ±15 %), max.	0.1 %	0.1 %	0.1 %	0.1 %	0.1 %
Dynamic load smoothing (I_{out}: 50/100/50 %), U_{out} ± typ.	0.4 %	0.4 %	0.4 %	0.4 %	0.4 %
setting time maximum	10 ms	10 ms	10 ms	10 ms	10 ms
Protection and monitoring					
Output overvoltage protection	max. 35 V (max. 500 ms)	max. 35 V (max. 500 ms)	max. 35 V (max. 500 ms)	max. 35 V (max. 500 ms)	max. 35 V (max. 500 ms)
property of the output short-circuit proof	Yes	Yes	Yes	Yes	Yes
Short-circuit protection	**electronic overload cut-off; optionally constant current operation can be selected for Output 4 via DIP switches**	**electronic overload cut-off; optionally constant current operation can be selected for Output 4 via DIP switches**	**Electronic overload shutdown; optional constant-current operation can be selected via DIP switch**	**electronic overload cut-off; optionally constant current operation can be selected for Output 4 via DIP switches**	**Electronic overload shutdown; optional constant-current operation can be selected via DIP switch**
adjustable response value current of current-dependent overload trip	**0.5 ... 5 A**	**0.5 ... 5 A**	**2 ... 20 A**	**0.5 ... 10 A**	**4 ... 40 A**
type of threshold value setting	via potentiometer or IE/PN interface	via potentiometer or IE/PN interface	via potentiometer or IE/PN interface	via potentiometer or IE/PN interface	via potentiometer or IE/PN interface

Technical specifications (continued)

Article number	**6EP3336-8MB00-2CY0**	**6EP3436-8MB00-2CY0**	**6EP3436-8SB00-2AY0**	**6EP3437-8MB00-2CY0**	**6EP3437-8SB00-2AY0**
Product	**SITOP PSU8600**	**SITOP PSU8600**	**SITOP PSU8600**	**SITOP PSU8600**	**SITOP PSU8600**
Power supply, type	**24 V/20 A/4x 5 A**	**24 V/20 A/4x 5 A**	**24 V/20 A**	**24 V/40 A/4x 10 A**	**24 V/40 A**
characteristics of electronic overload switch-off	I_a >1.0…<1.5 x I_a threshold permissible for 5 s; $I_{a\ limit}$ (= 1.5 x $I_{a\ threshold}$) permissible for 200 ms	I_a >1.0…<1.5 x I_a threshold permissible for 5 s; $I_{a\ limit}$ (= 1.5 x $I_{a\ threshold}$) permissible for 200 ms	I_a >1.0…<1.5 x I_a threshold permissible for 5 s; $I_{a\ limit}$ (= 1.5 x $I_{a\ threshold}$) permissible for 200 ms	I_a >1.0…<1.5 x I_a threshold permissible for 5 s; $I_{a\ limit}$ (= 1.5 x $I_{a\ threshold}$) permissible for 200 ms	I_a >1.0…<1.5 x I_a threshold permissible for 5 s; $I_{a\ limit}$ (= 1.5 x $I_{a\ threshold}$) permissible for 200 ms
characteristics of constant current operation	$I_{a\ limit}$ (= 1.5 x I_a threshold) permissible for 5 s, afterwards I_a threshold continuous	$I_{a\ limit}$ (= 1.5 x I_a threshold) permissible for 5 s, afterwards I_a threshold continuous	$I_{a\ limit}$ (= 1.5 x I_a threshold) permissible for 5 s, afterwards I_a threshold continuous	$I_{a\ limit}$ (= 1.5 x I_a threshold) permissible for 5 s, afterwards I_a threshold continuous	$I_{a\ limit}$ (= 1.5 x I_a threshold) permissible for 5 s, afterwards I_a threshold continuous
Reset	**via sensor per output or IE/PN interface**	**via sensor per output or IE/PN interface**	**via sensor or IE/PN interface**	**via sensor per output or IE/PN interface**	**via sensor or IE/PN interface**
Remote reset	Non-electrically isolated 24 V input (signal level "high" at > 15 V)	Non-electrically isolated 24 V input (signal level "high" at > 15 V)	Non-electrically isolated 24 V input (signal level "high" at > 15 V)	Non-electrically isolated 24 V input (signal level "high" at > 15 V)	Non-electrically isolated 24 V input (signal level "high" at > 15 V)
overcurrent overload capability in normal operation	Total system overloadable 150% I_a rated to 5 s/min	Total system overloadable 150% I_a rated to 5 s/min	Total system overloadable 150% I_a rated to 5 s/min	Total system overloadable 150% I_a rated to 5 s/min	Total system overloadable 150% I_a rated to 5 s/min
Overload/short-circuit indicator	**3-color LED for operating state device; 3-color LED per output for operating state output**	**3-color LED for operating state device; 3-color LED per output for operating state output**	**3-color LED for operating state device; 3-color LED for operating state output**	**3-color LED for operating state device; 3-color LED per output for operating state output**	**3-color LED for operating state device; 3-color LED for operating state output**
Interface					
Specification interface	Ethernet/PROFINET	Ethernet/PROFINET	Ethernet/PROFINET	Ethernet/PROFINET	Ethernet/PROFINET
design of the interface PROFINET protocol	Yes	Yes	Yes	Yes	Yes
protocol is supported OPC UA	Yes	Yes	Yes	Yes	Yes
Safety					
Primary/secondary isolation	Yes	Yes	Yes	Yes	Yes
galvanic isolation	Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178	Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178	Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178	Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178	Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178
Protection class	Class I	Class I	Class I	Class I	Class I
leakage current					
• maximum	3.5 mA	3.5 mA	3.5 mA	3.5 mA	3.5 mA
Degree of protection (EN 60529)	IP20	IP20	IP20	IP20	IP20
Approvals					
CE mark	Yes	Yes	Yes	Yes	Yes
UL/cUL (CSA) approval	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)
certificate of suitability NEC Class 2	No	No	No	No	No
CB approval	Yes	Yes	Yes	Yes	Yes
certificate of suitability EAC approval	Yes	Yes	Yes	Yes	Yes
Marine approval	**-**	**ABS, DNV GL**	**ABS, DNV GL**	**ABS, DNV GL**	**ABS, DNV GL**
EMC					
Emitted interference	EN 55022 Class B	EN 55022 Class B	EN 55022 Class B	EN 55022 Class B	EN 55022 Class B
Supply harmonics limitation	EN 61000-3-2	EN 61000-3-2	EN 61000-3-2	EN 61000-3-2	EN 61000-3-2
Noise immunity	EN 61000-6-2	EN 61000-6-2	EN 61000-6-2	EN 61000-6-2	EN 61000-6-2
environmental conditions					
ambient temperature					
• during operation	-25 ... +60 °C	-25 ... +60 °C	-25 ... +60 °C	-25 ... +60 °C	-25 ... +60 °C
- Note	with natural convection	with natural convection	with natural convection	with natural convection	with natural convection
• during transport	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C

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Technical specifications (continued)

Article number	6EP3336-8MB00-2CY0	6EP3436-8MB00-2CY0	6EP3436-8SB00-2AY0	6EP3437-8MB00-2CY0	6EP3437-8SB00-2AY0
Product	**SITOP PSU8600**	**SITOP PSU8600**	**SITOP PSU8600**	**SITOP PSU8600**	**SITOP PSU8600**
Power supply, type	**24 V/20 A/4x 5 A**	**24 V/20 A/4x 5 A**	**24 V/20 A**	**24 V/40 A/4x 10 A**	**24 V/40 A**
Humidity class according to EN 60721	Climate class 3K3, 5 … 95% no condensation	Climate class 3K3, 5 … 95% no condensation	Climate class 3K3, 5 … 95% no condensation	Climate class 3K3, 5 … 95% no condensation	Climate class 3K3, 5 … 95% no condensation
Mechanics					
Connection technology	Plug-in terminals with screwed connection	Plug-in terminals with screwed connection	Plug-in terminals with screwed connection	Plug-in terminals with screwed connection	Plug-in terminals with screwed connection
Connections					
• Supply input	**L1/+, N/L2/-, PE: Plug-in terminal with 1 screwed connection each for 0.2 ... 4 mm² single-wire / fine stranded**	**L1, L2, L3, PE: Plug-in terminal with 1 screwed connection each for 0.2 ... 4 mm² single-wire / fine stranded**	**L1, L2, L3, PE: Plug-in terminal with 1 screwed connection each for 0.2 ... 4 mm² single-wire / fine stranded**	**L1, L2, L3, PE: Plug-in terminal with 1 screwed connection each for 0.2 ... 4 mm² single-wire / fine stranded**	**L1, L2, L3, PE: Plug-in terminal with 1 screwed connection each for 0.2 ... 4 mm² single-wire / fine stranded**
• Output	**1, 2, 3, 4: Two plug-in terminals (1, 2 and 3, 4) with 2 screwed connections each for 0.2 ... 2.5 mm²; 0 V: Plug-in terminal with 3 screwed connections for 0.2 ... 4 mm²**	**1, 2, 3, 4: Two plug-in terminals (1, 2 and 3, 4) with 2 screwed connections each for 0.2 ... 2.5 mm²; 0 V: Plug-in terminal with 3 screwed connections for 0.2 ... 4 mm²**	**Output: plug-in terminals with 2 screw connectors for 0.2 ... 4 mm²; 0 V: screw terminal with 3 screw connectors for 0.2 ... 4 mm²**	**1, 2, 3, 4: Two plug-in terminals (1, 2 and 3, 4) with 2 screwed connections each for 0.2 ... 2.5 mm²; 0 V: Plug-in terminal with 3 screwed connections for 0.2 ... 10 mm²**	**Output: plug-in terminals with 2 screw connectors for 0.2 ... 4 mm²; 0 V: screw terminal with 3 screw connectors for 0.2 ... 4 mm²**
• Auxiliary	RST (Reset): Plug-in terminal (together with alarm signal) with 1 screwed connection for 0.2 ... 1.5 mm²	RST (Reset): Plug-in terminal (together with alarm signal) with 1 screwed connection for 0.2 ... 1.5 mm²	RST (Reset): Plug-in terminal (together with alarm signal) with 1 screwed connection for 0.2 ... 1.5 mm²	RST (Reset): Plug-in terminal (together with alarm signal) with 1 screwed connection for 0.2 ... 1.5 mm²	RST (Reset): Plug-in terminal (together with alarm signal) with 1 screwed connection for 0.2 ... 1.5 mm²
• signaling contact	11, 12, 14 (alarm signal): Plug-in terminal (together with Reset) with 1 screwed connection each for 0.2 ... 1.5 mm²	11, 12, 14 (alarm signal): Plug-in terminal (together with Reset) with 1 screwed connection each for 0.2 ... 1.5 mm²	11, 12, 14 (alarm signal): Plug-in terminal (together with Reset) with 1 screwed connection each for 0.2 ... 1.5 mm²	11, 12, 14 (alarm signal): Plug-in terminal (together with Reset) with 1 screwed connection each for 0.2 ... 1.5 mm²	11, 12, 14 (alarm signal): Plug-in terminal (together with Reset) with 1 screwed connection each for 0.2 ... 1.5 mm²
product function					
• removable terminal at input	Yes	Yes	Yes	Yes	Yes
• removable terminal at output	Yes	Yes	Yes	Yes	Yes
design of the interface for communication	PROFINET/Ethernet: two RJ45 sockets (2-port switch)	PROFINET/Ethernet: two RJ45 sockets (2-port switch)	PROFINET/Ethernet: two RJ45 sockets (2-port switch)	PROFINET/Ethernet: two RJ45 sockets (2-port switch)	PROFINET/Ethernet: two RJ45 sockets (2-port switch)
suitability for interaction modular system	Yes	Yes	Yes	Yes	Yes
width of the enclosure	**125 mm**	**100 mm**	**80 mm**	**125 mm**	**125 mm**
height of the enclosure	125 mm	125 mm	125 mm	125 mm	125 mm
depth of the enclosure	150 mm	150 mm	150 mm	150 mm	150 mm
required spacing					
• top	50 mm	50 mm	50 mm	50 mm	50 mm
• bottom	50 mm	50 mm	50 mm	50 mm	50 mm
• left	0 mm	0 mm	0 mm	0 mm	0 mm
• right	0 mm	0 mm	0 mm	0 mm	0 mm
Weight, approx.	**2.6 kg**	**2 kg**	**1.8 kg**	**2.6 kg**	**2.6 kg**
product feature of the enclosure housing can be lined up	Yes	Yes	Yes	Yes	Yes
Installation	Snaps onto DIN rail EN 60715 35x15	Snaps onto DIN rail EN 60715 35x15	Snaps onto DIN rail EN 60715 35x15	Snaps onto DIN rail EN 60715 35x15	Snaps onto DIN rail EN 60715 35x15
electrical accessories	Expansion modules CNX8600, buffer modules BUF8600, module UPS8600	Expansion modules CNX8600, buffer modules BUF8600, module UPS8600	Expansion modules CNX8600, buffer modules BUF8600, module UPS8600	Expansion modules CNX8600, buffer modules BUF8600, module UPS8600	Expansion modules CNX8600, buffer modules BUF8600, module UPS8600
mechanical accessories	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20
MTBF at 40 °C	**186 700 h**	**243 178 h**	**298 979 h**	**207 612 h**	**235 118 h**
other information	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)				

Overview

The CNX8600 expansion modules are part of the SITOP PSU8600 modular system and expand the basic unit by increasing the number of selectively monitored outputs.

Up to four CNX8600 expansion modules can be connected to the PSU8600 basic device. The connection is made on top of the modules without any wiring effort using the System Clip Link, a connecting plug for system data and power supplies.

Product highlights

- Available modules:
  - Four integrated outputs with up to 5 A each and selective monitoring
  - Four integrated outputs with up to 10 A each and selective monitoring
  - Eight integrated outputs with up to 2.5 A each and selective monitoring
- Voltage and current threshold can be set separately and are infinitely adjustable for each output
- NEC Class 2 approval for 2.5 A outputs
- Comprehensive diagnostic information during operation via the PSU8600 basic unit
- Outputs can be activated and deactivated in a targeted manner with PROFIenergy via the PSU8600 basic unit

User-friendly connection system without any wiring effort thanks to System Clip Link.

Ordering data

	Article No.
SITOP CNX8600 4 x 5 A expansion module For SITOP PSU8600 Output: 24 V DC/4 x 5 A	**6EP4436-8XB00-0CY0**
SITOP CNX8600 4 x 10 A expansion module For SITOP PSU8600 Output: 24 V DC/4 x 10 A	**6EP4437-8XB00-0CY0**
SITOP CNX8600 8 x 2.5 A expansion module For SITOP PSU8600 Output: 24 V DC/8 x 2.5 A	**6EP4436-8XB00-0DY0**
Accessories	
Unit labeling plates	**3RT2900-1SB20**

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Technical specifications

Article number	**6EP4436-8XB00-0CY0**	**6EP4437-8XB00-0CY0**	**6EP4436-8XB00-0DY0**
Product	**SITOP CNX8600**	**SITOP CNX8600**	**SITOP CNX8600**
Power supply, type	**4x 5 A**	**4x 10 A**	**8x 2.5 A**
Output			
Output	Controlled, isolated DC voltage	Controlled, isolated DC voltage	Controlled, isolated DC voltage
number of outputs	**4**	**4**	**8**
Rated voltage V_{out} DC	24 V	24 V	24 V
• output voltage at output 1 at DC rated value	24 V	24 V	24 V
• output voltage at output 2 at DC rated value	24 V	24 V	24 V
• output voltage at output 3 at DC rated value	24 V	24 V	24 V
• output voltage at output 4 at DC rated value	24 V	24 V	24 V
• output voltage at output 5 at DC rated value	**-**	**-**	**24 V**
• output voltage at output 6 at DC rated value	**-**	**-**	**24 V**
• output voltage at output 7 at DC rated value	**-**	**-**	**24 V**
• output voltage at output 8 at DC rated value	**-**	**-**	**24 V**
Total tolerance, static ±	3 %	3 %	3 %
Static mains compensation, approx.	0.2 %	0.2 %	0.2 %
Static load balancing, approx.	0.1 %	0.1 %	0.1 %
Residual ripple peak-peak, max.	100 mV	100 mV	100 mV
Spikes peak-peak, max. (bandwidth: 20 MHz)	200 mV	200 mV	200 mV
Adjustment range	4 ... 28 V	4 ... 28 V	4 ... 28 V
product function output voltage adjustable	Yes	Yes	Yes
Output voltage setting	**via potentiometer or IE/PN interface; Derating > 24 V: 4%/V; max. 120 W per output**	**via potentiometer or IE/PN interface; Derating > 24 V: 4%/V; max. 240 W per output**	**via potentiometer or IE/PN interface; Derating > 24 V: 4%/V; max. 60 W per output**
Status display	3-color LED for operating state module; 3-color LED per output for operating state output	3-color LED for operating state module; 3-color LED per output for operating state output	3-color LED for operating state module; 3-color LED per output for operating state output
Signaling	Relay contact (changeover contact, contact current capacity DC 60 V/0.3 A) for "Operating state OK" at power supply unit PSU8600	Relay contact (changeover contact, contact current capacity DC 60 V/0.3 A) for "Operating state OK" at power supply unit PSU8600	Relay contact (changeover contact, contact current capacity DC 60 V/0.3 A) for "Operating state OK" at power supply unit PSU8600
On/off behavior	No overshoot of V_{out} (soft start)	No overshoot of V_{out} (soft start)	No overshoot of V_{out} (soft start)
Startup delay, max.	1.5 s; Without on-delay of the outputs	1.5 s; Without on-delay of the outputs	1.5 s; Without on-delay of the outputs
connection of outputs operating	Simultaneous connecting-in of all outputs after device booting or delay time of 25 ms, 100 ms or "load-optimized" for sequential cutting-in of the outputs via DIP switches at power supply unit PSU8600 can be set	Simultaneous connecting-in of all outputs after device booting or delay time of 25 ms, 100 ms or "load-optimized" for sequential cutting-in of the outputs via DIP switches at power supply unit PSU8600 can be set	Simultaneous connecting-in of all outputs after device booting or delay time of 25 ms, 100 ms or "load-optimized" for sequential cutting-in of the outputs via DIP switches at power supply unit PSU8600 can be set
voltage increase time of the output voltage maximum	500 ms	500 ms	500 ms
Rated current value $I_{out\ rated}$	**20 A**	**40 A**	**20 A**
output current			
• per output	**5 A**	**10 A**	**2.5 A**
• at output 1 rated value	**5 A**	**10 A**	**2.5 A**
• at output 2 rated value	**5 A**	**10 A**	**2.5 A**
• at output 3 rated value	**5 A**	**10 A**	**2.5 A**
• at output 4 rated value	**5 A**	**10 A**	**2.5 A**
• at output 5 rated value	**-**	**-**	**2.5 A**
• at output 6 rated value	**-**	**-**	**2.5 A**
• at output 7 rated value	**-**	**-**	**2.5 A**
• at output 8 rated value	**-**	**-**	**2.5 A**

Technical specifications (continued)

Article number	6EP4436-8XB00-0CY0	6EP4437-8XB00-0CY0	6EP4436-8XB00-0DY0
Product	**SITOP CNX8600**	**SITOP CNX8600**	**SITOP CNX8600**
Power supply, type	**4x 5 A**	**4x 10 A**	**8x 2.5 A**
Current range	**0 ... 20 A**	**0 ... 40 A**	**0 ... 20 A**
• Note	**No increase in the maximum output power of the overall system SITOP PSU8600 via the expansion module SITOP CNX8600 possible**	**No increase in the maximum output power of the overall system SITOP PSU8600 via the expansion module SITOP CNX8600 possible**	**Outputs meet requirements to NEC Class 2; an increase of the maximum output power of the SITOP PSU8600 overall system is not possible over the SITOP CNX8600 expansion module**
supplied active power typical	**480 W**	**960 W**	**480 W**
product feature parallel switching of outputs	No	No	No
Parallel switching for enhanced performance	No	No	No
Efficiency			
Efficiency at $V_{out\ rated}$, $I_{out\ rated}$, approx.	97 %	97 %	97 %
Power loss at $V_{out\ rated}$, $I_{out\ rated}$, approx.	**15 W**	**30 W**	**15 W**
Closed-loop control			
Dynamic mains compensation (V_{in} rated ±15 %), max.	0.1 %	0.1 %	0.1 %
Dynamic load smoothing (I_{out}: 50/100/50 %), U_{out} ± typ.	0.4 %	0.4 %	0.4 %
setting time maximum	10 ms	10 ms	10 ms
Protection and monitoring			
Output overvoltage protection	max. 35 V (max. 500 ms)	max. 35 V (max. 500 ms)	max. 35 V (max. 500 ms)
property of the output short-circuit proof	Yes	Yes	Yes
Short-circuit protection	electronic overload cut-off	electronic overload cut-off	electronic overload cut-off
adjustable response value current of current-dependent overload trip	**0.5 ... 5 A**	**0.5 ... 10 A**	**0.5 ... 2.5 A**
type of threshold value setting	via potentiometer or IE/PN interface	via potentiometer or IE/PN interface	via potentiometer or IE/PN interface
characteristics of electronic overload switch-off	I_a >1.0…<1.5 x $I_{a\ threshold}$ permissible for 5 s; $I_{a\ limit}$ (= 1.5 x $I_{a\ threshold}$) permissible for 200 ms	I_a >1.0…<1.5 x $I_{a\ threshold}$ permissible for 5 s; $I_{a\ limit}$ (= 1.5 x $I_{a\ threshold}$) permissible for 200 ms	I_a >1.0…<1.5 x $I_{a\ threshold}$ permissible for 5 s; $I_{a\ limit}$ (= 1.5 x $I_{a\ threshold}$) permissible for 200 ms
Reset	via sensor per output or IE/PN interface	via sensor per output or IE/PN interface	via sensor per output or IE/PN interface
Remote reset	Non-electrically isolated 24 V input (signal level "high" at > 15 V) at power supply unit PSU8600	Non-electrically isolated 24 V input (signal level "high" at > 15 V) at power supply unit PSU8600	Non-electrically isolated 24 V input (signal level "high" at > 15 V) at power supply unit PSU8600
Overload/short-circuit indicator	3-color LED for operating state module; 3-color LED per output for operating state output	3-color LED for operating state module; 3-color LED per output for operating state output	3-color LED for operating state module; 3-color LED per output for operating state output
Interface			
Specification interface	Ethernet/PROFINET via power supply unit PSU8600	Ethernet/PROFINET via power supply unit PSU8600	Ethernet/PROFINET via power supply unit PSU8600
Safety			
Primary/secondary isolation	Yes	Yes	Yes
galvanic isolation	Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178	Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178	Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178
Protection class	Class III	Class III	Class III
Degree of protection (EN 60529)	IP20	IP20	IP20
Approvals			
CE mark	Yes	Yes	Yes
UL/cUL (CSA) approval	**cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)**	**cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)**	**cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1), NEC class 2**
certificate of suitability NEC Class 2	**No**	**No**	**Yes**
CB approval	Yes	Yes	Yes
certificate of suitability EAC approval	Yes	Yes	Yes
Regulatory Compliance Mark (RCM)	**-**	**-**	**Yes**
Marine approval	ABS, DNV GL	ABS, DNV GL	ABS, DNV GL

Modular system, expansion of outputs (CNX8600)

Technical specifications (continued)

Article number	6EP4436-8XB00-0CY0	6EP4437-8XB00-0CY0	6EP4436-8XB00-0DY0
Product	**SITOP CNX8600**	**SITOP CNX8600**	**SITOP CNX8600**
Power supply, type	**4x 5 A**	**4x 10 A**	**8x 2.5 A**
EMC			
Emitted interference	EN 55022 Class B	EN 55022 Class B	EN 55022 Class B
Noise immunity	EN 61000-6-2	EN 61000-6-2	EN 61000-6-2
environmental conditions			
ambient temperature			
• during operation	-25 ... +60 °C	-25 ... +60 °C	-25 ... +60 °C
- Note	with natural convection	with natural convection	with natural convection
• during transport	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
Humidity class according to EN 60721	Climate class 3K3, 5 … 95% no condensation	Climate class 3K3, 5 … 95% no condensation	Climate class 3K3, 5 … 95% no condensation
Mechanics			
Connection technology	Plug-in terminals with screwed connection	Plug-in terminals with screwed connection	Plug-in terminals with screwed connection
Connections			
• Output	**1, 2, 3, 4: Two plug-in terminals (1, 2 and 3, 4) with 2 screwed connections each for 0.2 ... 2.5 mm²; Ground: Plug-in terminal with 3 screwed connections for 0.2 ... 2.5 mm²**	**1, 2, 3, 4: Two plug-in terminals (1, 2 and 3, 4) with 2 screwed connections each for 0.2 ... 2.5 mm²; Ground: Plug-in terminal with 3 screwed connections for 0.2 ... 2.5 mm²**	**1, 2, 3, 4, 5, 6, 7, 8: Two plug-in terminals (1…4 and 5…8) with 1 screwed connection each for 0.2 ... 2.5 mm²; Ground: Plug-in terminal with 3 screwed connections for 0.2 ... 2.5 mm²**
product function			
• removable terminal at output	Yes	Yes	Yes
suitability for interaction modular system	Yes	Yes	Yes
type of connection to system components	Via integrated connector	Via integrated connector	Via integrated connector
width of the enclosure	**60 mm**	**60 mm**	**100 mm**
height of the enclosure	125 mm	125 mm	125 mm
depth of the enclosure	150 mm	150 mm	150 mm
required spacing			
• top	50 mm	50 mm	50 mm
• bottom	50 mm	50 mm	50 mm
• left	0 mm	0 mm	0 mm
• right	0 mm	0 mm	0 mm
Weight, approx.	**1.15 kg**	**1.15 kg**	**1.29 kg**
product feature of the enclosure housing can be lined up	Yes	Yes	Yes
Installation	Snaps onto DIN rail EN 60715 35x15	Snaps onto DIN rail EN 60715 35x15	Snaps onto DIN rail EN 60715 35x15
mechanical accessories	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20
MTBF at 40 °C	**358 372 h**	**358 372 h**	**327 369 h**
other information	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)		

Overview

SITOP BUF8600 for buffering brief power interruptions

The BUF8600 buffer modules with maintenance free energy storage units are part of the SITOP PSU8600 modular system and are designed to bridge short-term power failures. They automatically take over the DC power supply in case of a line voltage failure. You can connect up to two BUF8600 buffer modules to the PSU8600 basic unit. The connection is made on top of the modules without any wiring effort using the System Clip Link, a connecting plug for system data and power supplies.

Product highlights

- Reliable bridging of short-term power failures up to max. 20 s for an output power of 960 W
- Buffer modules with maintenance-free electrolytic capacitors for bridging short-term power failures (brownouts) between 100 ms and max. 600 ms (at 24 V DC/40 A)
- Buffer modules with maintenance-free double-layer capacitors for bridging longer power failures between 4 s and max. 20 s (at 24 V DC/40 A)
- The two buffer modules can be combined as required
- Easy connection without any wiring effort

Ordering data

	Article No.
SITOP BUF8600 100 ms buffer module For SITOP PSU8600 Buffer capacity 100 ms/40 A	**6EP4297-8HB00-0XY0**
SITOP BUF8600 300 ms buffer module For SITOP PSU8600 Buffer capacity 300 ms/40 A	**6EP4297-8HB10-0XY0**
SITOP BUF8600 4 s buffer module For SITOP PSU8600 Buffer capacity 4 s/40 A	**6EP4293-8HB00-0XY0**
SITOP BUF8600 10 s buffer module For SITOP PSU8600 Buffer capacity 10 s/40 A	**6EP4295-8HB00-0XY0**
Accessories	
Unit labeling plates	**3RT2900-1SB20**

Modular system, buffer modules for brief power failure (BUF8600)

Technical specifications

Article number	6EP4297-8HB00-0XY0	6EP4297-8HB10-0XY0	6EP4293-8HB00-0XY0	6EP4295-8HB00-0XY0
product brand name	**SITOP BUF8600**	**SITOP BUF8600**	**SITOP BUF8600**	**SITOP BUF8600**
type of current supply	**100 ms/40 A**	**300 ms/40 A**	**4 s/40 A**	**10 s/40 A**
Mains buffering				
type of energy storage	**electrolytic capacitors**	**electrolytic capacitors**	**Double-layer capacitors**	**Double-layer capacitors**
design of the mains power cut bridging-connection	**Backup time with 40 A load current: 100 ms**	**Backup time with 40 A load current: 300 ms**	**Backup time with 40 A load current: 4 s**	**Backup time with 40 A load current: 10 s**
buffering time for rated value of the output current in the event of power failure	**100 ms**	**300 ms**	**4 000 ms**	**10 000 ms**
Output				
output current				
• rated value	40 A	40 A	40 A	40 A
Signaling				
display version	3-color LED for operating state module	3-color LED for operating state module	3-color LED for operating state module	3-color LED for operating state module
• for normal operation	LED green for "buffer standby exist"	LED green for "buffer standby exist"	LED green for "buffer standby exist"	LED green for "buffer standby exist"
• in buffering mode	LED yellow for "buffered mode"	LED yellow for "buffered mode"	LED yellow for "buffered mode"	LED yellow for "buffered mode"
Interface				
design of the interface	Ethernet/PROFINET via power supply unit PSU8600	Ethernet/PROFINET via power supply unit PSU8600	Ethernet/PROFINET via power supply unit PSU8600	Ethernet/PROFINET via power supply unit PSU8600
Safety				
operating resource protection class	Class III	Class III	Class III	Class III
protection class IP	IP20	IP20	IP20	IP20
Approvals				
certificate of suitability				
• CE marking	Yes	Yes	Yes	Yes
• as approval for USA	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)
• C-Tick	No	No	No	No
type of certification CB-certificate	Yes	Yes	Yes	Yes
shipbuilding approval	ABS, DNV GL	ABS, DNV GL	ABS, DNV GL	ABS, DNV GL
EMC				
standard				
• for emitted interference	EN 55022 Class B	EN 55022 Class B	EN 55022 Class B	EN 55022 Class B
• for interference immunity	EN 61000-6-2	EN 61000-6-2	EN 61000-6-2	EN 61000-6-2
environmental conditions				
ambient temperature				
• during operation	-25 ... +60 °C; with natural convection	-25 ... +60 °C; with natural convection	-25 ... +60 °C; with natural convection	-25 ... +60 °C; with natural convection
• during transport	-40 ... +70 °C	-40 ... +70 °C	-40 ... +70 °C	-40 ... +70 °C
• during storage	-40 ... +70 °C	-40 ... +70 °C	-40 ... +70 °C	-40 ... +70 °C
environmental category acc. to IEC 60721	Climate class 3K3, 5 … 95% no condensation	Climate class 3K3, 5 … 95% no condensation	Climate class 3K3, 5 … 95% no condensation	Climate class 3K3, 5 … 95% no condensation

Technical specifications (continued)

Article number	**6EP4297-8HB00-0XY0**	**6EP4297-8HB10-0XY0**	**6EP4293-8HB00-0XY0**	**6EP4295-8HB00-0XY0**
product brand name	**SITOP BUF8600**	**SITOP BUF8600**	**SITOP BUF8600**	**SITOP BUF8600**
type of current supply	**100 ms/40 A**	**300 ms/40 A**	**4 s/40 A**	**10 s/40 A**
Mechanics				
type of electrical connection	**-**	**-**	**Plug-in terminal with screw connectors**	**Plug-in terminal with screw connectors**
• at input	-	-	-	-
• at output	-	-	-	-
• for control circuit and status message	**-**	**-**	**X1, X2 (control contact) and 13,14, 23, 24 (message signals): 1 screw terminal each for 0.2 ... 1.5 mm²**	**X1, X2 (control contact) and 13,14, 23, 24 (message signals): 1 screw terminal each for 0.2 ... 1.5 mm²**
type of connection to system components	Via integrated connector	Via integrated connector	Via integrated connector	Via integrated connector
width of the enclosure	**60 mm**	**125 mm**	**60 mm**	**125 mm**
height of the enclosure	125 mm	125 mm	125 mm	125 mm
depth of the enclosure	150 mm	150 mm	150 mm	150 mm
required spacing				
• top	50 mm	50 mm	50 mm	50 mm
• bottom	50 mm	50 mm	50 mm	50 mm
• left	0 mm	0 mm	0 mm	0 mm
• right	0 mm	0 mm	0 mm	0 mm
net weight	**1.33 kg**	**2.26 kg**	**1.25 kg**	**1.95 kg**
product feature of the enclosure housing can be lined up	Yes	Yes	Yes	Yes
fastening method	Snaps onto DIN rail EN 60715 35x15	Snaps onto DIN rail EN 60715 35x15	Snaps onto DIN rail EN 60715 35x15	Snaps onto DIN rail EN 60715 35x15
mechanical accessories	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20
MTBF at 40 °C	**4 505 531 h**	**4 505 531 h**	**1 374 707 h**	**1 190 747 h**
reference code acc. to IEC 81346-2	T	T	T	T
other information	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)			

Modular system, UPS module for longer power failure (UPS8600, BAT8600)

Overview

SITOP UPS8600 for buffering longer power failures

UPS module UPS8600 is part of the SITOP PSU8600 modular system and is used to bridge power failures in the range of minutes to hours. It can be supplemented with a maximum of five SITOP BAT8600 battery modules of the same type as the external energy storage. The lithium iron phosphate (LiFePO4) battery modules have a typical buffer time of 14 minutes at full load (960 W) and ensure an especially long service life.
The lead-acid batteries (Pb) offer a typical buffer time of 10 minutes at full load (960 W).

Product highlights

- Power failure bridging in the hours range facilitates continuous system operation
- Prioritized output buffering of the PSU8600 power supply system possible
- Automatic recognition of BAT8600 "Pb" and BAT8600 "LiFePO4" battery modules
- Intelligent battery managementfor optimum charging and monitoring via the energy storage link
- Complete system integration into the TIA or OPC UA environment for engineering and diagnostic functions
- Selective shutdown of IPCs via Ethernet interface (PROFINET/OPC UA protocol)
- User-friendly connection system without any wiring effort thanks to System Clip Link (UPS8600)

Ordering data

	Article No.
SITOP UPS8600 UPS module For SITOP PSU8600 Rated buffer power 960 W	**6EP4197-8AB00-0XY0**
SITOP BAT8600 battery module 380 Wh For SITOP UPS8600 With lead batteries (Pb technology)	**6EP4145-8GB00-0XY0**
SITOP BAT8600 battery module 264 Wh For SITOP UPS8600 With LiFePO4 batteries	**6EP4143-8JB00-0XY0**
Accessories	
Unit labeling plates	**3RT2900-1SB20**

Technical specifications

The following table shows the maximum possible buffer times of the SITOP BAT8600 battery modules at different loads as well as the required charging times until full charge is achieved.

Buffering and charging times		
	6EP4143-8JB00-0XY0 (LiFePO4, 264 Wh)	**6EP4145-8GB00-0XY0 (Pb, 380 Wh)**
Buffer time with 1x BAT8600		
Load 120 W	typ. 1 h 56 min	typ. 2 h 04 min
Load 240 W	typ. 60 min	typ. 57 min
Load 480 W	typ. 29 min	typ. 25 min
Load 720 W	typ. 19 min	typ. 14 min
Load 960 W	typ. 14 min	typ. 10 min
Buffer time with 5x BAT8600 (maximum configuration)		
Load 120 W	typ. 9 h 30 min	typ. 12 h 37 min
Load 240 W	typ. 5 h 03 min	typ. 6 h 19 min
Load 480 W	typ. 2 h 33 min	typ. 2 h 56 min
Load 720 W	typ. 1 h 41 min	typ. 1 h 50 min
Load 960 W	typ. 1 h 15 min	typ. 1 h 17 min
Charging time until the 85% charging threshold is reached.		
Charging capacity 60 W	typ. 5 h 15 min	typ. 3 h 10 min
Charging capacity 120 W	typ. 2 h 15 min	typ. 1 h 35 min
Charging time until full charge is reached		
Charging capacity 60 W	typ. 6 h 10 min	typ. 4 h 20 min
Charging capacity 120 W	typ. 2 h 40 min	typ. 2 h 45 min

Note:

Buffer and charging times were determined on the basis of unaged and fully charged or discharged battery modules with a battery temperature of +25 °C. Due to aging of the rechargeable batteries, the remaining battery capacity is reduced to 80% of the original capacity value when new by the end of the service life (definition of service life according to EUROBAT). To achieve the desired buffer time even at the end of service life, a higher battery capacity may therefore have to be selected during project planning.

Technical specifications (continued)

Article number	6EP4197-8AB00-0XY0
product brand name	SITOP UPS8600
type of current supply	960 W
Mains buffering	
type of energy storage	External battery module
design of the mains power cut bridging-connection	Buffer time limit 1 ... 88 min. can be set with DIP switches or until the connected battery modules are discharged
charging current	1.25 A - 2.5 A
adjustable charging current maximum note	Charging capacity 60 W/120 W, can be set with DIP switches
Output	
output voltage	
• in normal operation at DC rated value	48 V
property of the output short-circuit proof	Yes
supplied active power typical	960 W
Efficiency	
efficiency in percent	
• in case of operation on rechargeable battery typical	99 %
power loss [W]	
• in case of operation on rechargeable battery typical	10 W
Protection and monitoring	
product function	
• reverse polarity protection against energy storage unit polarity reversal	Yes
Signaling	
display version	Three-color LED for operating state of module, three-color LED for status of battery circuit
• for normal operation	LED green for "buffer standby exist"
• in buffering mode	LED yellow for "buffered mode"
Interface	
design of the interface	Ethernet/PROFINET via power supply unit PSU8600
Safety	
operating resource protection class	Class III
protection class IP	IP20
Approvals	
certificate of suitability	
• CE marking	Yes
• as approval for USA	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)
type of certification CB-certificate	Yes
shipbuilding approval	ABS, DNV GL

Article number	6EP4197-8AB00-0XY0
product brand name	SITOP UPS8600
type of current supply	960 W
EMC	
standard	
• for emitted interference	EN 55022 Class B
• for interference immunity	EN 61000-6-2
environmental conditions	
ambient temperature	
• during operation	-25 ... +70 °C; with natural convection
• during transport	-40 ... +85 °C
• during storage	-40 ... +85 °C
environmental category acc. to IEC 60721	Climate class 3K3, 5 … 95% no condensation
Mechanics	
type of electrical connection	Plug-in terminals with screwed connection
• for rechargeable battery module	+, -: Plug-in terminal with 1 screwed connection each for 0.2 ... 10 mm^2
type of connection to system components	Via integrated connector
width of the enclosure	60 mm
height of the enclosure	125 mm
depth of the enclosure	150 mm
required spacing	
• top	50 mm
• bottom	50 mm
• left	0 mm
• right	0 mm
net weight	0.9 kg
product feature of the enclosure housing can be lined up	Yes
fastening method	Snaps onto DIN rail EN 60715 35x15
electrical accessories	Battery module BAT8600
mechanical accessories	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20
MTBF at 40 °C	405 763 h
reference code acc. to IEC 81346-2	T
other information	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)

Technical specifications (continued)

Article number	6EP4145-8GB00-0XY0	6EP4143-8JB00-0XY0
Product	**SITOP BAT8600 Pb**	**SITOP BAT8600 LiFePO4**
Product type	**Battery module 380 Wh**	**Battery module 264 Wh**
Output		
energy content of energy storage	**380 W·h**	**264 W·h**
Rated current value $I_{out\ rated}$	20 A	20 A
Rated voltage V_{out} DC	48 V	48 V
Numbers of parallel switchable units for enhanced performance	5	5
Safety		
Short-circuit protection	Blade-type fuse 40 A, 58 V DC	Blade-type fuse 40 A, 58 V DC
design of the overload protection	Valve control	Valve control
Safety		
Protection class	Class III	Class III
Degree of protection (EN 60529)	IP20	IP20
Approvals		
CE mark	**Yes**	**-**
UL/cUL (CSA) approval	**cURus-Recognized (UL 1778, CSA C22.2 No. 107.1), File E219627; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)**	**cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)**
Marine approval	ABS, DNV GL	ABS, DNV GL
environmental conditions		
Operating data note	For storage, mounting and operation of batteries, the relevant DIN/VDE regulations or country-specific regulations (e.g. VDE 0510 Part 2/EN 50272-2) must be observed.	For storage, mounting and operation of batteries, the relevant DIN/VDE regulations or country-specific regulations (e.g. VDE 0510 Part 2/EN 50272-2) must be observed.
ambient temperature		
• during operation	-10 ... +50 °C	-10 ... +50 °C
• during transport	**-40 ... +60 °C**	**-40 ... +80 °C**
• during storage	**-15 ... +40 °C**	**-40 ... +35 °C**
Service life		
service life of energy storage		
• typical note	capacity falls to 80 % of original capacity (according to EUROBAT)	capacity falls to 80 % of original capacity (according to EUROBAT)
• at 20 °C typical	**4 y**	**15 y**
• at 30 °C typical	**2 y**	**10 y**
• at 40 °C typical	**1 y**	**9 y**
• at 50 °C typical	**0.5 y**	**2 y**
ambient temperature during storage note	In addition to the storage temperature, additional factors, such as storage duration and charging status during storage, have a major impact on the potential service life. This means batteries should preferably be stored fully charged for short periods of time in a dry, cool and frost-proof (temperature range 0 to +20 °C) location.	
Mechanics		
Connection technology	Plug-in terminals with screwed connection	Plug-in terminals with screwed connection
Connection for power supply unit	+, -: 2 plug-in terminals with 1 screwed connection each for 0.2 ... 10 mm^2	+, -: 2 plug-in terminals with 1 screwed connection each for 0.2 ... 10 mm^2
product component included	2x blade-type fuse 40 A, 58 V DC	2x blade-type fuse 40 A, 58 V DC
width of the enclosure	322 mm	322 mm
height of the enclosure	187 mm	187 mm
depth of the enclosure	110 mm	110 mm
installation width	322 mm	322 mm
Installation height	207 mm	207 mm
required spacing		
• top	20 mm	20 mm
• bottom	0 mm	0 mm
• left	0 mm	0 mm
• right	0 mm	0 mm
fastening method		
• wall mounting	Yes	Yes
• standard rail mounting	No	No
• S7 rail mounting	No	No
Installation	Keyhole mounting for hooking in to M4 screws	Keyhole mounting for hooking in to M4 screws
Weight, approx.	**13 kg**	**6.5 kg**
number of batteries	4	4
other information	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)	

Overview

The technology power supply for demanding solutions

The single-phase, two-phase and three-phase SITOP PSU8200/PSU200M are the technology power supplies for challenging solutions. They offer maximum functionality for use in complex plants and machines. The wide-range input allows a connection to almost any electricity supply network worldwide and ensures a high degree of safety even if there are large voltage fluctuations. They offer outstanding overload characteristics: Power boost delivers up to three-times the rated current for short periods of time, and with extra power of 150%, loads with high power consumption can be connected without any problems. And in the event of an overload, you can choose between constant current or automatic restart. The extremely high efficiency keeps energy consumption and heat buildup in the control cabinet low, and the compact metal enclosure also saves space.

To further increase the 24 V availability, the power supplies can be combined with **buffer**, **DC UPS**, **redundancy** and **selectivity modules**.

Product highlights of the product line

- Extremely slim design – no lateral installation clearances required
- Power boost with 3 times rated current (for 25 ms) for tripping protective devices
- Extra power with 1.5 times rated current (5 s/min) for brief functional overload
- Choice of constant current characteristic or latching shutdown
- Symmetrical load distribution can be selected for parallel operation
- Operating state on 3 LEDs
- Extremely high efficiency up to 94%
- Wide temperature range from -25 to +70 °C

More information

Select the appropriate power supply quickly and easily with the SITOP Selection Tool:

http://www.siemens.com/tst

Overview

The single-phase SITOP PSU8200 are technology power supplies for challenging solutions. The version with wide-range input allows a connection to almost any electricity supply network worldwide and ensures a high degree of safety even if there are large voltage fluctuations.

To further increase the 24 V availability, the SITOP power supplies can be combined with **buffer**, **DC UPS**, **redundancy** and **selectivity modules**.

Product highlights

- Single-phase, 24 V DC/ 5 A, 10 A, 20 A and 40 A
- Wide-range input, input voltage 85 … 132 V AC, 170 ... 264 V AC or 88 … 350 V DC
- Up to 94% efficiency
- cULus, cCSAus, ABS and DNV GL certifications

Ordering data

	Article No.
SITOP PSU8200 1-phase, 24 V DC/5 A Stabilized power supply Input: 120/230 V AC Output: 24 V DC/5 A	**6EP3333-8SB00-0AY0**
SITOP PSU8200 1-phase, 24 V DC/10 A Stabilized power supply Input: 120/230 V AC Output: 24 V DC/10 A	**6EP3334-8SB00-0AY0**
SITOP PSU8200 1-phase, 24 V DC/20 A Stabilized power supply Input: 120 … 230 V AC/ 110–220 V DC Output: 24 V DC/20 A	**6EP1336-3BA10**
SITOP PSU8200 1-phase, 24 V DC/40 A Stabilized power supply Input: 120/230 V AC Output: 24 V DC/40 A	**6EP3337-8SB00-0AY0**
Add-on modules	
SITOP redundancy modules[1]	See page 9/3
SITOP selectivity modules[2]	See page 9/6
SITOP buffer modules[3]	See page 9/17
Accessories	
Unit labeling plate	**3RT2900-1SB20**

[1] For more information, visit: https://www.siemens.com/sitop-redundancy/mall

[2] For more information, visit: https://www.siemens.com/sitop-selectivity/mall

[3] For more information, visit: https://www.siemens.com/sitop-buffering/mall

Technical specifications

Article number	**6EP3333-8SB00-0AY0**	**6EP3334-8SB00-0AY0**	**6EP1336-3BA10**	**6EP3337-8SB00-0AY0**
Product	**SITOP PSU8200**	**SITOP PSU8200**	**SITOP PSU8200**	**SITOP PSU8200**
Power supply, type	**24 V/5 A**	**24 V/10 A**	**24 V/20 A**	**24 V/40 A**
Input				
Input	**1-phase AC**	**1-phase AC**	**1-phase and 2-phase AC or DC**	**1-phase and 2-phase AC**
Rated voltage value $V_{in\ rated}$	**-**	**-**	**120 ... 230 V**	**-**
Voltage range AC	**-**	**-**	**85 ... 275 V**	**-**
• Note	**Automatic range selection**	**Automatic range selection**	**Derating of temperature necessary down to 50 °C at V_{in} < 100 V AC or DC**	**Automatic selection; startup starting from $U_e \geq$ 90/180 V**
supply voltage				
• 1 at AC rated value	**120 V**	**120 V**	**-**	**120 V**
• 2 at AC rated value	**230 V**	**230 V**	**-**	**230 V**
• at DC	**-**	**-**	**110 ... 220 V**	**-**
input voltage				
• 1 at AC	**85 ... 132 V**	**85 ... 132 V**	**-**	**85 ... 132 V**
• 2 at AC	**170 ... 264 V**	**170 ... 264 V**	**-**	**170 ... 264 V**
• at DC	**-**	**-**	**88 ... 350 V**	**-**
Wide-range input	**No**	**No**	**Yes**	**No**
Mains buffering	**at V_{in} = 120/230 V**	**at V_{in} = 120/230 V**	**at V_{in} = 230 V**	**at V_{in} = 230 V**
Mains buffering at $I_{out\ rated}$, min.	**35 ms; at V_{in} = 120/230 V**	**35 ms; at V_{in} = 120/230 V**	**20 ms; at V_{in} = 230 V**	**25 ms; at V_{in} = 230 V**
Rated line frequency 1	50 Hz	50 Hz	50 Hz	50 Hz
Rated line frequency 2	60 Hz	60 Hz	60 Hz	60 Hz
Rated line range	**47 ... 63 Hz**	**47 ... 63 Hz**	**45 ... 65 Hz**	**45 ... 65 Hz**

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Technical specifications (continued)

Article number	6EP3333-8SB00-0AY0	6EP3334-8SB00-0AY0	6EP1336-3BA10	6EP3337-8SB00-0AY0
Product	**SITOP PSU8200**	**SITOP PSU8200**	**SITOP PSU8200**	**SITOP PSU8200**
Power supply, type	**24 V/5 A**	**24 V/10 A**	**24 V/20 A**	**24 V/40 A**
input current				
• at rated input voltage 120 V	**2.1 A**	**4 A**	**4.6 A**	**15 A**
• at rated input voltage 230 V	**1.2 A**	**1.9 A**	**2.5 A**	**9 A**
Switch-on current limiting (+25 °C), max.	**10 A**	**10 A**	**20 A**	**50 A**
I^2t, max.	**0.2 A^2·s**	**0.3 A^2·s**	**5 A^2·s**	**8 A^2·s**
Built-in incoming fuse	**T 3.15 A (not accessible)**	**T 6.3 A (not accessible)**	**Yes**	**Yes**
Protection in the mains power input (IEC 898)	**Recommended miniature circuit breaker at 1-phase operation: from 6 A (10 A) characteristic C (B); required at 2-phase operation: circuit breaker 2-pole connected or circuit breaker 3RV2011-1EA10 (setting 3.8 A) or 3RV2711-1ED10 (UL 489) at 230 V; 3RV2011-1DA10 (setting 3 A) or 3RV2711-1DD10 (UL 489) at 400/500 V**	**Recommended miniature circuit breaker at 1-phase operation: from 6 A (10 A) characteristic C (B); required at 2-phase operation: circuit breaker 2-pole connected or circuit breaker 3RV2011-1EA10 (setting 3.8 A) or 3RV2711-1ED10 (UL 489) at 230 V; 3RV2011-1DA10 (setting 3 A) or 3RV2711-1DD10 (UL 489) at 400/500 V**	**Recommended miniature circuit breaker at 1-phase operation: 10 A characteristic C; required at 2-phase operation: circuit breaker 2-pole connected or circuit breaker 3RV2711-1HD10 (UL 489) at 120 V or 3RV2711-1ED10 (UL 489) at 230 V**	**Recommended miniature circuit breaker at 1-phase operation: 16 A characteristic C; required at 2-phase operation: circuit breaker 2-pole connected or circuit breaker 3RV2421-4BA10 (120 V) or 3RV2411-1JA10 (230 V)**
Output				
Output	Controlled, isolated DC voltage	Controlled, isolated bDC voltage	Controlled, isolated DC voltage	Controlled, isolated DC voltage
Rated voltage V_{out} DC	24 V	24 V	24 V	24 V
• output voltage at output 1 at DC rated value	24 V	24 V	24 V	24 V
Total tolerance, static ±	3 %	3 %	3 %	3 %
Static mains compensation, approx.	0.1 %	0.1 %	0.1 %	0.1 %
Static load balancing, approx.	**0.2 %**	**0.3 %**	**0.3 %**	**0.1 %**
Residual ripple peak-peak, max.	**50 mV**	**50 mV**	**100 mV**	**100 mV**
Residual ripple peak-peak, typ.	**-**	**-**	**80 mV**	**50 mV**
Spikes peak-peak, max. (bandwidth: 20 MHz)	**200 mV**	**200 mV**	**200 mV**	**240 mV**
Spikes peak-peak, typ. (bandwidth: 20 MHz)	**-**	**-**	**100 mV**	**220 mV**
Adjustment range	**24 ... 28.8 V**	**24 ... 28.8 V**	**24 ... 28.8 V**	**24 ... 28 V**
product function output voltage adjustable	Yes	Yes	Yes	Yes
Output voltage setting	**via potentiometer; max. 120 W**	**via potentiometer; max. 240 W**	**via potentiometer**	**via potentiometer; max. 960 W**
Status display	**Green LED for 24 V OK**	**Green LED for 24 V OK**	**Green LED for 24 V OK**	**Green LED for 24 V OK; LED yellow for overload; LED red for short-circuit or latching shutdown**
Signaling	Relay contact (NO contact, rating 60 V DC/ 0.3 A) for "24 V OK"			
On/off behavior	**Overshoot of V_{out} approx. 3 %**	**Overshoot of V_{out} approx. 3 %**	**No overshoot of V_{out} (soft start)**	**Overshoot of V_{out} approx. 3 %**
Startup delay, max.	1.5 s	1.5 s	1.5 s	1.5 s
Voltage rise, typ.	**30 ms**	**70 ms**	**50 ms**	**30 ms**
Rated current value $I_{out\ rated}$	**5 A**	**10 A**	**20 A**	**40 A**
Current range	**0 ... 5 A**	**0 ... 10 A**	**0 ... 20 A**	**0 ... 40 A**
• Note	**As of U_a>24 V: 4% [I_a]/V [U_a]; at U_e<100 V/ <200 V: 80% I_a rated**	**+60 ... +70 °C: Derating 2%/K; as of U_a>24 V: 4% [I_a]/V [U_a]; at U_e<100 V/ <200 V: 80% I_a rated**	**+60 ... +70 °C: Derating 3%/K**	**+60 ... +70 °C: Derating 3%/K**
supplied active power typical	**120 W**	**240 W**	**480 W**	**960 W**
short-term overload current				
• on short-circuiting during the start-up typical	**-**	**-**	**-**	**120 A**
• at short-circuit during operation typical	**15 A**	**30 A**	**60 A**	**120 A**
duration of overloading capability for excess current				
• on short-circuiting during the start-up	**-**	**-**	**-**	**25 ms**
• at short-circuit during operation	25 ms	25 ms	25 ms	25 ms

Technical specifications (continued)

Article number	6EP3333-8SB00-0AY0	6EP3334-8SB00-0AY0	6EP1336-3BA10	6EP3337-8SB00-0AY0
Product	**SITOP PSU8200**	**SITOP PSU8200**	**SITOP PSU8200**	**SITOP PSU8200**
Power supply, type	**24 V/5 A**	**24 V/10 A**	**24 V/20 A**	**24 V/40 A**
constant overload current				
• on short-circuiting during the start-up typical	**6 A**	**12 A**	**30 A**	**60 A**
Parallel switching for enhanced performance	Yes; switchable characteristic	Yes; switchable characteristic	Yes; switchable characteristic	Yes; switchable characteristic
Numbers of parallel switchable units for enhanced performance	2	2	2	2
Efficiency				
Efficiency at $V_{out\ rated}$, $I_{out\ rated}$, approx.	**93 %**	**94 %**	**93 %**	**92 %**
Power loss at $V_{out\ rated}$, $I_{out\ rated}$, approx.	**9 W**	**18 W**	**42 W**	**82 W**
power loss [W] during no-load operation maximum	**1.5 W**	**1.5 W**	**-**	**6.8 W**
Closed-loop control				
Dynamic mains compensation (V_{in} rated ±15 %), max.	**0.1 %**	**0.1 %**	**0.5 %**	**1 %**
Dynamic load smoothing (I_{out}: 50/100/50 %), U_{out} ± typ.	**2 %**	**4 %**	**1 %**	**1.9 %**
Load step setting time 50 to 100%, typ.	**0.25 ms**	**0.25 ms**	**1 ms**	**2 ms**
Load step setting time 100 to 50%, typ.	**0.5 ms**	**0.5 ms**	**1 ms**	**2 ms**
Dynamic load smoothing (I_{out}: 10/90/10 %), U_{out} ± typ.	**2 %**	**4 %**	**-**	**3.8 %**
Load step setting time 10 to 90%, typ.	**0.25 ms**	**0.25 ms**	**-**	**1 ms**
Load step setting time 90 to 10%, typ.	**0.5 ms**	**0.5 ms**	**-**	**1 ms**
setting time maximum	**1 ms**	**1 ms**	**5 ms**	**1 ms**
Protection and monitoring				
Output overvoltage protection	**< 33 V**	**< 33 V**	**< 33 V**	**< 32 V**
Current limitation, typ.	**6 A**	**12 A**	**21.5 A**	**41 A**
property of the output short-circuit proof	Yes	Yes	Yes	Yes
Short-circuit protection	**Alternatively, constant current characteristic approx. 6 A or latching shutdown**	**Alternatively, constant current characteristic approx. 12 A or latching shutdown**	**Alternatively, constant current characteristic approx. 23 A or latching shutdown**	**Alternatively, constant current characteristic approx. 41 A or latching shutdown**
enduring short circuit current RMS value				
• typical	**6 A**	**12 A**	**23 A**	**41 A**
overcurrent overload capability in normal operation	**overload capability 150 % $I_{out\ rated}$ up to 5 s/min**	**overload capability 150 % $I_{out\ rated}$ up to 5 s/min**	**overload capability 150 % $I_{out\ rated}$ up to 5 s/min**	**250% $I_{out\ rated}$ up to 25 ms, 150% $I_{out\ rated}$ up to 5 s/min**
Overload/short-circuit indicator	**LED yellow for "overload", LED red for "latching shutdown"**	**LED yellow for "overload", LED red for "latching shutdown"**	**LED yellow for "overload", LED red for "latching shutdown"**	**LED yellow for "overload", LED red for "latching shutdown" or "short-circuit"**
Safety				
Primary/secondary isolation	Yes	Yes	Yes	Yes
galvanic isolation	Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178	Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178	Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178	Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178
Protection class	Class I	Class I	Class I	Class I
leakage current				
• maximum	**3.5 mA**	**3.5 mA**	**3.5 mA**	**0.1 mA**
• typical	**1 mA**	**1 mA**	**1 mA**	**0.1 mA**
Degree of protection (EN 60529)	IP20	IP20	IP20	IP20

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Technical specifications (continued)

Article number	6EP3333-8SB00-0AY0	6EP3334-8SB00-0AY0	6EP1336-3BA10	6EP3337-8SB00-0AY0
Product	**SITOP PSU8200**	**SITOP PSU8200**	**SITOP PSU8200**	**SITOP PSU8200**
Power supply, type	**24 V/5 A**	**24 V/10 A**	**24 V/20 A**	**24 V/40 A**
Approvals				
CE mark	Yes	Yes	Yes	Yes
UL/cUL (CSA) approval	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)
certificate of suitability NEC Class 2	No	No	No	No
CB approval	Yes	Yes	Yes	Yes
certificate of suitability EAC approval	Yes	Yes	Yes	Yes
Marine approval	ABS, DNV GL	ABS, DNV GL	ABS, DNV GL	ABS, DNV GL
EMC				
Emitted interference	EN 55022 Class B	EN 55022 Class B	EN 55022 Class B	EN 55022 Class B
Supply harmonics limitation	**EN 61000-3-2**	**EN 61000-3-2**	**EN 61000-3-2**	**-**
Noise immunity	EN 61000-6-2	EN 61000-6-2	EN 61000-6-2	EN 61000-6-2
environmental conditions				
ambient temperature				
• during operation	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C
- Note	**With natural convection; startup tested starting from -40 °C nominal voltage**	**With natural convection; startup tested starting from -40 °C nominal voltage**	**With natural convection; startup tested starting from -40 °C nominal voltage**	**with natural convection**
• during transport	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
Humidity class according to EN 60721	Climate class 3K3, 5 … 95% no condensation	Climate class 3K3, 5 … 95% no condensation	Climate class 3K3, 5 … 95% no condensation	Climate class 3K3, 5 … 95% no condensation
Mechanics				
Connection technology	screw-type terminals	screw-type terminals	screw-type terminals	screw-type terminals
Connections				
• Supply input	**L, N, PE: 1 screw terminal each for 0.2 ... 2.5 mm² single-core/finely stranded**	**L, N, PE: 1 screw terminal each for 0.2 ... 2.5 mm² single-core/finely stranded**	**L, N, PE: 1 screw terminal each for 0.2 ... 4 mm² single-core/finely stranded**	**L, N, PE: 1 screw terminal each for 0.2 ... 4 mm² single-core/finely stranded**
• Output	**+, -: 2 screw terminals each for 0.2 ... 2.5 mm²**	**+, -: 2 screw terminals each for 0.2 ... 2.5 mm²**	**+, -: 2 screw terminals each for 0.2 ... 4 mm²**	**+, -: 2 screw terminals each for 0.5 ... 10 mm²**
• Auxiliary	**13, 14 (alarm signal): 1 screw terminal each for 0.14 ... 1.5 mm²; 15, 16 (Remote): 1 screw terminal each for 0.14 ... 1.5 mm²**	**13, 14 (alarm signal): 1 screw terminal each for 0.14 ... 1.5 mm²; 15, 16 (Remote): 1 screw terminal each for 0.14 ... 1.5 mm²**	**13, 14 (alarm signal): 1 screw terminal each for 0.14 ... 1.5 mm²**	**13, 14 (alarm signal): 1 screw terminal each for 0.14 ... 1.5 mm²**
width of the enclosure	**45 mm**	**55 mm**	**90 mm**	**145 mm**
height of the enclosure	**125 mm**	**125 mm**	**125 mm**	**145 mm**
depth of the enclosure	**125 mm**	**125 mm**	**125 mm**	**150 mm**
required spacing				
• top	**50 mm**	**50 mm**	**50 mm**	**40 mm**
• bottom	**50 mm**	**50 mm**	**50 mm**	**40 mm**
• left	0 mm	0 mm	0 mm	0 mm
• right	0 mm	0 mm	0 mm	0 mm
Weight, approx.	**0.8 kg**	**1 kg**	**1.2 kg**	**3.1 kg**
product feature of the enclosure housing can be lined up	Yes	Yes	Yes	Yes
Installation	**Snaps onto DIN rail EN 60715 35x7.5/15**	**Snaps onto DIN rail EN 60715 35x7.5/15**	**Snaps onto DIN rail EN 60715 35x7.5/15**	**Snaps onto DIN rail EN 60715 35x15**
electrical accessories	**Buffer module**	**Buffer module**	**Buffer module**	**Buffer module, redundancy module**
mechanical accessories	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20
MTBF at 40 °C	**1 421 519 h**	**1 292 102 h**	**667 048 h**	**838 156 h**
other information	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)			

Overview

The 1- and 2-phase SITOP PSU200M are technology power supplies for challenging solutions. The ultra-wide-range input allows connection to almost any single-phase power supply system or directly between the line conductors of three-phase networks (2-phase) and ensures a high degree of safety even if there are large voltage fluctuations.

To further increase the 24 V availability, the SITOP power supplies can be combined with **buffer**, **DC UPS**, **redundancy** and **selectivity modules**.

Product highlights

- 1- and 2-phase, 24 V DC/5 A and 10 A
- Ultra-wide input range, input voltage 85 … 264 V AC, 176 ... 550 V 2AC
- Optionally with PCB with protective coating
- Up to 91% efficiency
- cULus, cCSAus, ABS and DNV GL certifications

Ordering data

	Article No.
SITOP PSU200M 1- and 2-phase, 24 V DC/5 A Stabilized power supply Input: 120 ... 230/230 … 500 V AC Output: 24 V DC/5 A	**6EP1333-3BA10**
SITOP PSU200M 1- and 2-phase, 24 V DC/5 A Stabilized power supply Input: 120 … 230/230 … 500 V AC Output: 24 V DC/5 A Version with protective coating	**6EP1333-3BA10-8AC0**
SITOP PSU200M 1- and 2-phase, 24 V DC/10 A Stabilized power supply Input: 120 ... 230 V/230 … 500 V AC Output: 24 V DC/10 A	**6EP1334-3BA10**
SITOP PSU200M 1- and 2-phase, 24 V DC/10 A Stabilized power supply Input: 120 … 230/230 … 500 V AC Output: 24 V DC/10 A version with protective coating	**6EP1334-3BA10-8AB0**
Add-on modules	
SITOP redundancy modules[1]	See page 9/3
SITOP selectivity modules[2]	See page 9/6
SITOP buffer modules[3]	See page 9/17
Accessories	
Device identification label	**3RT2900-1SB20**

1) For more information, visit: https://www.siemens.com/sitop-redundancy/mall
2) For more information, visit: https://www.siemens.com/sitop-selectivity/mall
3) For more information, visit: https://www.siemens.com/sitop-buffering/mall

Technical specifications

Article number	**6EP1333-3BA10**	**6EP1333-3BA10-8AC0**	**6EP1334-3BA10**	**6EP1334-3BA10-8AB0**
Product	**SITOP PSU200M**	**SITOP PSU200M**	**SITOP PSU200M**	**SITOP PSU200M**
Power supply, type	**24 V/5 A**	**24 V/5 A**	**24 V/10 A**	**24 V/10 A**
Input				
Input	1-phase and 2-phase AC	1-phase and 2-phase AC	1-phase and 2-phase AC	1-phase and 2-phase AC
• Note	**Set by means of selector switch on the device; starting from V_{in} > 90/180 V**	**Set by means of selector switch on the device; starting from V_{in} > 90/180 V**	**Set by means of selector switch on the device**	**Set by means of selector switch on the device**
supply voltage				
• 1 at AC	120 ... 230 V	120 ... 230 V	120 ... 230 V	120 ... 230 V
• 2 at AC	230 ... 500 V	230 ... 500 V	230 ... 500 V	230 ... 500 V
input voltage				
• 1 at AC	85 ... 264 V	85 ... 264 V	85 ... 264 V	85 ... 264 V
• 2 at AC	176 ... 550 V	176 ... 550 V	176 ... 550 V	176 ... 550 V
Wide-range input	Yes	Yes	Yes	Yes
Overvoltage resistance	1300 V_{peak}, 1.3 ms	1300 V_{peak}, 1.3 ms	1300 V_{peak}, 1.3 ms	1300 V_{peak}, 1.3 ms
Mains buffering	at V_{in} = 120/230 V, typ. 150 ms at V_{in} = 400 V	at V_{in} = 120/230 V, typ. 150 ms at V_{in} = 400 V	at V_{in} = 120/230 V, typ. 150 ms at V_{in} = 400 V	at V_{in} = 120/230 V, typ. 150 ms at V_{in} = 400 V
Mains buffering at $I_{out\ rated}$, min.	25 ms; at V_{in} = 120/230 V, typ. 150 ms at V_{in} = 400 V	25 ms; at V_{in} = 120/230 V, typ. 150 ms at V_{in} = 400 V	25 ms; at V_{in} = 120/230 V, typ. 150 ms at V_{in} = 400 V	25 ms; at V_{in} = 120/230 V, typ. 150 ms at V_{in} = 400 V
Rated line frequency 1	50 Hz	50 Hz	50 Hz	50 Hz
Rated line frequency 2	60 Hz	60 Hz	60 Hz	60 Hz
Rated line range	47 ... 63 Hz	47 ... 63 Hz	47 ... 63 Hz	47 ... 63 Hz

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Technical specifications (continued)

Article number Product Power supply, type	6EP1333-3BA10 SITOP PSU200M 24 V/5 A	6EP1333-3BA10-8AC0 SITOP PSU200M 24 V/5 A	6EP1334-3BA10 SITOP PSU200M 24 V/10 A	6EP1334-3BA10-8AB0 SITOP PSU200M 24 V/10 A
input current				
• at rated input voltage 120 V	**2.2 A**	**2.2 A**	**4.4 A**	**4.4 A**
• at rated input voltage 230 V	**1.2 A**	**1.2 A**	**2.4 A**	**2.4 A**
• at rated input voltage 500 V	**0.61 A**	**0.61 A**	**1.1 A**	**1.1 A**
Switch-on current limiting (+25 °C), max.	35 A	35 A	35 A	35 A
I²t, max.	**1.7 A²·s**	**1.7 A²·s**	**4 A²·s**	**4 A²·s**
Built-in incoming fuse	**T 3.15 A (not accessible)**	**T 3.15 A (not accessible)**	**T 6.3 A (not accessible)**	**T 6.3 A (not accessible)**
Protection in the mains power input (IEC 898)	Recommended miniature circuit breaker at 1-phase operation: from 6 A (10 A) characteristic C (B); required at 2-phase operation: circuit breaker 2-pole connected or circuit breaker 3RV2011-1EA10 (setting 3.8 A) or 3RV2711-1ED10 (UL 489) at 230 V; 3RV2011-1DA10 (setting 3 A) or 3RV2711-1DD10 (UL 489) at 400/500 V	Recommended miniature circuit breaker at 1-phase operation: from 6 A (10 A) characteristic C (B); required at 2-phase operation: circuit breaker 2-pole connected or circuit breaker 3RV2011-1EA10 (setting 3.8 A) or 3RV2711-1ED10 (UL 489) at 230 V; 3RV2011-1DA10 (setting 3 A) or 3RV2711-1DD10 (UL 489) at 400/500 V	Recommended miniature circuit breaker at 1-phase operation: from 6 A (10 A) characteristic C (B); required at 2-phase operation: circuit breaker 2-pole connected or circuit breaker 3RV2011-1EA10 (setting 3.8 A) or 3RV2711-1ED10 (UL 489) at 230 V; 3RV2011-1DA10 (setting 3 A) or 3RV2711-1DD10 (UL 489) at 400/500 V	Recommended miniature circuit breaker at 1-phase operation: from 6 A (10 A) characteristic C (B); required at 2-phase operation: circuit breaker 2-pole connected or circuit breaker 3RV2011-1EA10 (setting 3.8 A) or 3RV2711-1ED10 (UL 489) at 230 V; 3RV2011-1DA10 (setting 3 A) or 3RV2711-1DD10 (UL 489) at 400/500 V
Output				
Output	Controlled, isolated DC voltage	Controlled, isolated DC voltage	Controlled, isolated DC voltage	Controlled, isolated DC voltage
Rated voltage V_{out} DC	24 V	24 V	24 V	24 V
• output voltage at output 1 at DC rated value	24 V	24 V	24 V	24 V
Total tolerance, static ±	3 %	3 %	3 %	3 %
Static mains compensation, approx.	0.1 %	0.1 %	0.1 %	0.1 %
Static load balancing, approx.	0.1 %	0.1 %	0.1 %	0.1 %
Residual ripple peak-peak, max.	50 mV	50 mV	50 mV	50 mV
Spikes peak-peak, max. (bandwidth: 20 MHz)	200 mV	200 mV	200 mV	200 mV
Adjustment range	24 ... 28.8 V	24 ... 28.8 V	24 ... 28.8 V	24 ... 28.8 V
product function output voltage adjustable	Yes	Yes	Yes	Yes
Output voltage setting	via potentiometer	via potentiometer	via potentiometer	via potentiometer
Status display	Green LED for 24 V OK	Green LED for 24 V OK	Green LED for 24 V OK	Green LED for 24 V OK
Signaling	Relay contact (NO contact, rating 60 V DC/ 0.3 A) for "24 V OK"	Relay contact (NO contact, rating 60 V DC/ 0.3 A) for "24 V OK"	Relay contact (NO contact, rating 60 V DC/ 0.3 A) for "24 V OK"	Relay contact (NO contact, rating 60 V DC/ 0.3 A) for "24 V OK"
On/off behavior	Overshoot of V_{out} approx. 3 %	Overshoot of V_{out} approx. 3 %	Overshoot of V_{out} approx. 3 %	Overshoot of V_{out} approx. 3 %
Startup delay, max.	1 s	1 s	1 s	1 s
Voltage rise, typ.	50 ms	50 ms	50 ms	50 ms
Rated current value $I_{out\ rated}$	**5 A**	**5 A**	**10 A**	**10 A**
Current range	**0 ... 5 A**	**0 ... 5 A**	**0 ... 10 A**	**0 ... 10 A**
• Note	**-**	**-**	**+60 ... +70 °C: Derating 2%/K (at 120 V, 230 V) or 3.5%/K (at 400 V)**	**+60 ... +70 °C: Derating 2%/K (at 120 V, 230 V) or 3.5%/K (at 400 V)**
supplied active power typical	**120 W**	**120 W**	**240 W**	**240 W**
short-term overload current				
• at short-circuit during operation typical	**15 A**	**15 A**	**30 A**	**30 A**
duration of overloading capability for excess current				
• at short-circuit during operation	25 ms	25 ms	25 ms	25 ms
constant overload current				
• on short-circuiting during the start-up typical	**6 A**	**6 A**	**12 A**	**12 A**
Parallel switching for enhanced performance	Yes; switchable characteristic	Yes; switchable characteristic	Yes; switchable characteristic	Yes; switchable characteristic
Numbers of parallel switchable units for enhanced performance	2	2	2	2

Technical specifications (continued)

Article number	6EP1333-3BA10	6EP1333-3BA10-8AC0	6EP1334-3BA10	6EP1334-3BA10-8AB0
Product	**SITOP PSU200M**	**SITOP PSU200M**	**SITOP PSU200M**	**SITOP PSU200M**
Power supply, type	**24 V/5 A**	**24 V/5 A**	**24 V/10 A**	**24 V/10 A**
Efficiency				
Efficiency at $V_{out\ rated}$, $I_{out\ rated}$, approx.	**88 %**	**88 %**	**91 %**	**91 %**
Power loss at $V_{out\ rated}$, $I_{out\ rated}$, approx.	**17 W**	**17 W**	**24 W**	**24 W**
power loss [W] during no-load operation maximum	**4 W**	**4 W**	**6 W**	**6 W**
Closed-loop control				
Dynamic mains compensation (V_{in} rated ±15 %), max.	0.1 %	0.1 %	0.1 %	0.1 %
Dynamic load smoothing (I_{out}: 50/100/50 %), U_{out} ± typ.	3 %	3 %	3 %	3 %
Load step setting time 50 to 100%, typ.	2 ms	2 ms	2 ms	2 ms
Load step setting time 100 to 50%, typ.	2 ms	2 ms	2 ms	2 ms
setting time maximum	5 ms	5 ms	5 ms	5 ms
Protection and monitoring				
Output overvoltage protection	< 35 V	< 35 V	< 35 V	< 35 V
Current limitation, typ.	**6 A**	**6 A**	**12 A**	**12 A**
property of the output short-circuit proof	Yes	Yes	Yes	Yes
Short-circuit protection	**Alternatively, constant current characteristic approx. 5.5 A or latching shutdown**	**Alternatively, constant current characteristic approx. 5.5 A or latching shutdown**	**Alternatively, constant current characteristic approx. 12 A or latching shutdown**	**Alternatively, constant current characteristic approx. 12 A or latching shutdown**
enduring short circuit current RMS value				
• typical	**6 A**	**6 A**	**12 A**	**12 A**
Overload/short-circuit indicator	LED yellow for "overload", LED red for "latching shutdown"	LED yellow for "overload", LED red for "latching shutdown"	LED yellow for "overload", LED red for "latching shutdown"	LED yellow for "overload", LED red for "latching shutdown"
Safety				
Primary/secondary isolation	Yes	Yes	Yes	Yes
galvanic isolation	Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178	Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178	Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178	Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178
Protection class	Class I	Class I	Class I	Class I
leakage current				
• maximum	3.5 mA	3.5 mA	3.5 mA	3.5 mA
• typical	**0.25 mA**	**0.25 mA**	**0.32 mA**	**0.32 mA**
Degree of protection (EN 60529)	IP20	IP20	IP20	IP20
Approvals				
CE mark	Yes	Yes	Yes	Yes
UL/cUL (CSA) approval	**cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259, cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)**	**cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259**	**cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259, cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)**	**cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259**
certificate of suitability NEC Class 2	No	No	No	No
CB approval	**Yes**	**No**	**Yes**	**No**
certificate of suitability EAC approval	Yes	Yes	Yes	Yes
Marine approval	ABS, DNV GL	ABS, DNV GL	ABS, DNV GL	ABS, DNV GL
EMC				
Emitted interference	EN 55022 Class B	EN 55022 Class B	EN 55022 Class B	EN 55022 Class B
Supply harmonics limitation	EN 61000-3-2	EN 61000-3-2	EN 61000-3-2	EN 61000-3-2
Noise immunity	EN 61000-6-2	EN 61000-6-2	EN 61000-6-2	EN 61000-6-2

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Technical specifications (continued)

Article number	6EP1333-3BA10	6EP1333-3BA10-8AC0	6EP1334-3BA10	6EP1334-3BA10-8AB0
Product	**SITOP PSU200M**	**SITOP PSU200M**	**SITOP PSU200M**	**SITOP PSU200M**
Power supply, type	**24 V/5 A**	**24 V/5 A**	**24 V/10 A**	**24 V/10 A**
environmental conditions				
ambient temperature				
• during operation	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C
- Note	**With natural convection; startup tested starting from -40 °C nominal voltage**	**with natural convection**	**With natural convection; startup tested starting from -40 °C nominal voltage**	**with natural convection**
• during transport	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C	-40 ... +85 °C
Humidity class according to EN 60721	Climate class 3K3, 5 … 95% no condensation	Climate class 3K3, 5 … 95% no condensation	Climate class 3K3, 5 … 95% no condensation	Climate class 3K3, 5 … 95% no condensation
Mechanics				
Connection technology	screw-type terminals	screw-type terminals	screw-type terminals	screw-type terminals
Connections				
• Supply input	L, N, PE: 1 screw terminal each for 0.2 ... 2.5 mm^2 single-core/finely stranded	L, N, PE: 1 screw terminal each for 0.2 ... 2.5 mm^2 single-core/finely stranded	L, N, PE: 1 screw terminal each for 0.2 ... 2.5 mm^2 single-core/finely stranded	L, N, PE: 1 screw terminal each for 0.2 ... 2.5 mm^2 single-core/finely stranded
• Output	+, -: 2 screw terminals each for 0.2 ... 2.5 mm^2	+, -: 2 screw terminals each for 0.2 ... 2.5 mm^2	+, -: 2 screw terminals each for 0.2 ... 2.5 mm^2	+, -: 2 screw terminals each for 0.2 ... 2.5 mm^2
• Auxiliary	13, 14 (alarm signal): 1 screw terminal each for 0.14 ... 1.5 mm^2	13, 14 (alarm signal): 1 screw terminal each for 0.14 ... 1.5 mm^2	13, 14 (alarm signal): 1 screw terminal each for 0.14 ... 1.5 mm^2	13, 14 (alarm signal): 1 screw terminal each for 0.14 ... 1.5 mm^2
width of the enclosure	70 mm	70 mm	70 mm	70 mm
height of the enclosure	125 mm	125 mm	125 mm	125 mm
depth of the enclosure	121 mm	121 mm	121 mm	121 mm
required spacing				
• top	50 mm	50 mm	50 mm	50 mm
• bottom	50 mm	50 mm	50 mm	50 mm
• left	0 mm	0 mm	0 mm	0 mm
• right	0 mm	0 mm	0 mm	0 mm
Weight, approx.	**0.6 kg**	**0.6 kg**	**0.8 kg**	**0.8 kg**
product feature of the enclosure housing can be lined up	Yes	Yes	Yes	Yes
Installation	Snaps onto DIN rail EN 60715 35x7.5/15	Snaps onto DIN rail EN 60715 35x7.5/15	Snaps onto DIN rail EN 60715 35x7.5/15	Snaps onto DIN rail EN 60715 35x7.5/15
electrical accessories	Buffer module	Buffer module	Buffer module	Buffer module
MTBF at 40 °C	**1 123 973 h**	**1 123 973 h**	**1 055 408 h**	**1 055 408 h**
other information	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)			

Overview

The 3-phase SITOP PSU8200 are technology power supplies for challenging solutions. The wide-range input allows a connection to almost any electricity supply network worldwide and ensures a high degree of safety even if there are large voltage fluctuations.

To further increase the 24 V availability, the SITOP power supplies can be combined with **buffer**, **DC UPS**, **redundancy** and **selectivity modules**.

Product highlights

- 3-phase, 24 V DC/ 20 A and 40 A
- Wide-range input, input voltage 320 … 575 V AC
- Up to 94% efficiency
- cULus, cCSAus, ABS and DNV GL certifications

Ordering data

	Article No.
SITOP PSU8200 3-phase, 24 V DC/20 A Stabilized power supply Input: 400 ... 500 V 3 AC Output: 24 V DC/20 A	**6EP3436-8SB00-0AY0**
SITOP PSU8200 3-phase, 24 V DC/40 A Stabilized power supply Input: 400 … 500 V 3 AC Output: 24 V DC/20 A	**6EP3437-8SB00-0AY0**
Add-on modules	
SITOP redundancy modules[1]	See page 9/3
SITOP selectivity modules[2]	See page 9/6
SITOP buffer modules[3]	See page 9/17
Accessories	
Device identification label	**3RT2900-1SB20**

[1] For more information, visit: https://www.siemens.com/sitop-redundancy/mall
[2] For more information, visit: https://www.siemens.com/sitop-selectivity/mall
[3] For more information, visit: https://www.siemens.com/sitop-buffering/mall

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Technical specifications

Article number	6EP3436-8SB00-0AY0	6EP3437-8SB00-0AY0
Product	**SITOP PSU8200**	**SITOP PSU8200**
Power supply, type	**24 V/20 A**	**24 V/40 A**
Input		
Input	3-phase AC	3-phase AC
Rated voltage value $V_{in\ rated}$	400 ... 500 V	400 ... 500 V
Voltage range AC	320 ... 575 V	320 ... 575 V
Wide-range input	Yes	Yes
Mains buffering	at V_{in} = 400 V	at V_{in} = 400 V
Mains buffering at $I_{out\ rated}$, min.	**15 ms; at V_{in} = 400 V**	**10 ms; at V_{in} = 400 V**
Rated line frequency 1	50 Hz	50 Hz
Rated line frequency 2	60 Hz	60 Hz
Rated line range	**47 ... 63 Hz**	**45 ... 65 Hz**
input current		
• at rated input voltage 400 V	**1.2 A**	**2.1 A**
• at rated input voltage 500 V	**1 A**	**1.7 A**
Switch-on current limiting (+25 °C), max.	**16 A**	**13 A**
I^2t, max.	**0.8 $A^2 \cdot s$**	**2.24 $A^2 \cdot s$**
Built-in incoming fuse	none	none
Protection in the mains power input (IEC 898)	**Required: 3-pole connected miniature circuit breaker 6 ... 16 A characteristic C or circuit breaker 3RV2011-1DA10 (setting 3 A) or 3RV2711-1DD10 (UL 489)**	**Required: 3-pole connected miniature circuit breaker 10 ... 16 A characteristic C or circuit breaker 3RV2011-1DA10 (setting 3 A) or 3RV2711-1DD10 (UL 489)**
Output		
Output	Controlled, isolated DC voltage	Controlled, isolated DC voltage
Rated voltage V_{out} DC	24 V	24 V
• output voltage at output 1 at DC rated value	24 V	24 V
Total tolerance, static ±	3 %	3 %
Static mains compensation, approx.	0.1 %	0.1 %
Static load balancing, approx.	0.2 %	0.2 %
Residual ripple peak-peak, max.	100 mV	100 mV
Spikes peak-peak, max. (bandwidth: 20 MHz)	**200 mV**	**240 mV**
Adjustment range	24 ... 28 V	24 ... 28 V
product function output voltage adjustable	Yes	Yes
Output voltage setting	**via potentiometer; max. 480 W**	**via potentiometer; max. 960 W**
Status display	Green LED for 24 V OK	Green LED for 24 V OK
Signaling	Relay contact (NO contact, rating 60 V DC/ 0.3 A) for "24 V OK"	Relay contact (NO contact, rating 60 V DC/ 0.3 A) for "24 V OK"
On/off behavior	**No overshoot of V_{out} (soft start)**	**minimal overshooting (< 2 %)**
Startup delay, max.	**2.5 s**	**0.1 s**
voltage increase time of the output voltage maximum	**500 ms**	**100 ms**
Rated current value $I_{out\ rated}$	**20 A**	**40 A**
Current range	**0 ... 20 A**	**0 ... 40 A**
• Note	**+60 ... +70 °C: Derating 2%/K**	**+60 ... +70 °C: Derating 4%/K**
supplied active power typical	**480 W**	**960 W**
short-term overload current		
• at short-circuit during operation typical	**60 A**	**120 A**
duration of overloading capability for excess current		
• at short-circuit during operation	25 ms	25 ms
constant overload current		
• on short-circuiting during the start-up typical	**22 A**	**44 A**
Parallel switching for enhanced performance	Yes; switchable characteristic	Yes; switchable characteristic
Numbers of parallel switchable units for enhanced performance	2	2

Technical specifications (continued)

Article number	6EP3436-8SB00-0AY0	6EP3437-8SB00-0AY0
Product	**SITOP PSU8200**	**SITOP PSU8200**
Power supply, type	**24 V/20 A**	**24 V/40 A**
Efficiency		
Efficiency at $V_{out\ rated}$, $I_{out\ rated}$, approx.	94 %	94 %
Power loss at $V_{out\ rated}$, $I_{out\ rated}$, approx.	**31 W**	**66 W**
power loss [W] during no-load operation maximum	**-**	**4 W**
Closed-loop control		
Dynamic mains compensation (V_{in} rated ±15 %), max.	**0.1 %**	**1 %**
Dynamic load smoothing (I_{out}: 50/100/50 %), U_{out} ± typ.	**1 %**	**3 %**
Load step setting time 50 to 100%, typ.	**0.2 ms**	**-**
Load step setting time 100 to 50%, typ.	**0.2 ms**	**-**
Dynamic load smoothing (I_{out}: 10/90/10 %), U_{out} ± typ.	**2 %**	**-**
Load step setting time 10 to 90%, typ.	**0.2 ms**	**-**
Load step setting time 90 to 10%, typ.	**0.2 ms**	**-**
setting time maximum	10 ms	10 ms
Protection and monitoring		
Output overvoltage protection	**< 32 V**	**< 31.8 V**
Current limitation, typ.	**22 A**	**44 A**
property of the output short-circuit proof	Yes	Yes
Short-circuit protection	**Alternatively, constant current characteristic approx. 22 A or latching shutdown**	**Alternatively, constant current characteristic approx. 44 A or latching shutdown**
enduring short circuit current RMS value		
• typical	**22 A**	**50 A**
overcurrent overload capability in normal operation	overload capability 150 % $I_{out\ rated}$ up to 5 s/min	overload capability 150 % $I_{out\ rated}$ up to 5 s/min
Overload/short-circuit indicator	LED yellow for "overload", LED red for "latching shutdown"	LED yellow for "overload", LED red for "latching shutdown"
Safety		
Primary/secondary isolation	Yes	Yes
galvanic isolation	**Safety extra low output voltage V_{out} according to EN 60950-1**	**Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178**
Protection class	Class I	Class I
leakage current		
• maximum	**3.5 mA**	**1 mA**
• typical	**0.9 mA**	**0.6 mA**
Degree of protection (EN 60529)	IP20	IP20
Approvals		
CE mark	Yes	Yes
UL/cUL (CSA) approval	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)
certificate of suitability NEC Class 2	No	No
CB approval	Yes	Yes
certificate of suitability EAC approval	Yes	Yes
Marine approval	ABS, DNV GL	ABS, DNV GL
EMC		
Emitted interference	EN 55022 Class B	EN 55022 Class B
Supply harmonics limitation	EN 61000-3-2	EN 61000-3-2
Noise immunity	EN 61000-6-2	EN 61000-6-2

Technical specifications (continued)

Article number	6EP3436-8SB00-0AY0	6EP3437-8SB00-0AY0
Product	**SITOP PSU8200**	**SITOP PSU8200**
Power supply, type	**24 V/20 A**	**24 V/40 A**
environmental conditions		
ambient temperature		
• during operation	-25 ... +70 °C	-25 ... +70 °C
- Note	**With natural convection; startup tested starting from -40 °C nominal voltage**	**With natural convection**
• during transport	-40 ... +85 °C	-40 ... +85 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C
Humidity class according to EN 60721	Climate class 3K3, 5 … 95% no condensation	Climate class 3K3, 5 … 95% no condensation
Mechanics		
Connection technology	screw-type terminals	screw-type terminals
Connections		
• Supply input	**L1, L2, L3, PE: 1 screw terminal each for 0.2 ... 4 mm² single-core/finely stranded**	**L1, L2, L3, PE: 1 screw terminal each for 0.5 ... 4 mm² single-core/finely stranded**
• Output	**+, -: 2 screw terminals each for 0.2 ... 4 mm²**	**+: 2 screw terminals each for 0.5 ... 16 mm²; -: 3 screw terminals each for 0.5 ... 16 mm²**
• Auxiliary	**13, 14 (alarm signal): 1 screw terminal each for 0.14 ... 1.5 mm²; 15, 16 (Remote): 1 screw terminal each for 0.14 ... 1.5 mm²**	**13, 14 (alarm signal), 15, 16 (Remote): 1 screw terminal each for 0.05 ... 2.5 mm²**
width of the enclosure	**70 mm**	**135 mm**
height of the enclosure	**125 mm**	**145 mm**
depth of the enclosure	**125 mm**	**150 mm**
required spacing		
• top	**50 mm**	**40 mm**
• bottom	**50 mm**	**40 mm**
• left	0 mm	0 mm
• right	0 mm	0 mm
Weight, approx.	**1.2 kg**	**3.3 kg**
product feature of the enclosure housing can be lined up	Yes	Yes
Installation	**Snaps onto DIN rail EN 60715 35x7.5/15**	**Snaps onto DIN rail EN 60715 35x15**
electrical accessories	Buffer module	Buffer module
mechanical accessories	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20
MTBF at 40 °C	**590 573 h**	**517 015 h**
other information	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)	

Overview

The 3-phase SITOP PSU8200 are technology power supplies for challenging solutions. The wide-range input allows a connection to almost any electricity supply network worldwide and ensures a high degree of safety even if there are large voltage fluctuations.

To further increase 36 V availability, SITOP power supplies can be combined with redundancy modules.

Product highlights

- 3-phase, 36 V DC / 13 A
- Input voltage 320 … 575 V AC
- Up to 94% efficiency
- cULus, cCSAus, ABS and DNV GL certifications

Ordering data

	Article No.
SITOP PSU8200 3-phase, 36 V DC/13 A Stabilized power supply Input: 400 ... 500 V 3 AC Output: 36 V DC/13 A	**6EP3446-8SB10-0AY0**
Add-on modules	
SITOP redundancy modules RED1200[1)]	See page 9/3
Accessories	
Unit labeling plate	**3RT2900-1SB20**

1) For more information, visit: https://www.siemens.com/sitop-redundancy/mall

Technical specifications

Article number	**6EP3446-8SB10-0AY0**
Product	**SITOP PSU8200**
Power supply, type	**36 V/13 A**
Input	
Input	3-phase AC
Rated voltage value $V_{in\ rated}$	400 ... 500 V
Voltage range AC	320 ... 575 V
Wide-range input	Yes
Mains buffering	at V_{in} = 400 V
Mains buffering at $I_{out\ rated}$, min.	15 ms; at V_{in} = 400 V
Rated line frequency 1	50 Hz
Rated line frequency 2	60 Hz
Rated line range	47 ... 63 Hz
input current	
• at rated input voltage 400 V	1.2 A
• at rated input voltage 500 V	1 A
Switch-on current limiting (+25 °C), max.	16 A
I^2t, max.	0.8 $A^2 \cdot s$
Built-in incoming fuse	none
Protection in the mains power input (IEC 898)	Required: 3-pole connected miniature circuit breaker 6 ... 16 A characteristic C or circuit breaker 3RV2011-1DA10 (setting 3 A) or 3RV2711-1DD10 (UL 489)
Output	
Output	Controlled, isolated DC voltage
Rated voltage V_{out} DC	36 V
• output voltage at output 1 at DC rated value	36 V
Total tolerance, static ±	3 %
Static mains compensation, approx.	0.1 %
Static load balancing, approx.	0.2 %
Residual ripple peak-peak, max.	100 mV
Spikes peak-peak, max. (bandwidth: 20 MHz)	200 mV
Adjustment range	36 ... 42 V
product function output voltage adjustable	Yes
Output voltage setting	via potentiometer; max. 480 W
Status display	Green LED for 36 V OK
Signaling	Relay contact (NO contact, rating 60 V DC/ 0.3 A) for 36 V OK
On/off behavior	No overshoot of V_{out} (soft start)
Startup delay, max.	2.5 s
voltage increase time of the output voltage maximum	500 ms
Rated current value $I_{out\ rated}$	13 A
Current range	0 ... 13 A
• Note	+60 ... +70 °C: Derating 2%/K
supplied active power typical	468 W
short-term overload current	
• at short-circuit during operation typical	39 A
duration of overloading capability for excess current	
• at short-circuit during operation	25 ms
constant overload current	
• on short-circuiting during the start-up typical	14 A
Parallel switching for enhanced performance	Yes; switchable characteristic

Technical specifications (continued)

Article number	6EP3446-8SB10-0AY0
Product	**SITOP PSU8200**
Power supply, type	**36 V/13 A**
Numbers of parallel switchable units for enhanced performance	2
Efficiency	
Efficiency at $V_{out\ rated}$, $I_{out\ rated}$, approx.	94 %
Power loss at $V_{out\ rated}$, $I_{out\ rated}$, approx.	30 W
Closed-loop control	
Dynamic mains compensation (V_{in} rated ±15 %), max.	0.1 %
Dynamic load smoothing (I_{out}: 50/100/50 %), U_{out} ± typ.	1 %
Load step setting time 50 to 100%, typ.	0.2 ms
Load step setting time 100 to 50%, typ.	0.2 ms
Dynamic load smoothing (I_{out}: 10/90/10 %), U_{out} ± typ.	2 %
Load step setting time 10 to 90%, typ.	0.2 ms
Load step setting time 90 to 10%, typ.	0.2 ms
setting time maximum	10 ms
Protection and monitoring	
Output overvoltage protection	< 48 V
Current limitation, typ.	14 A
property of the output short-circuit proof	Yes
Short-circuit protection	Alternatively, constant current characteristic approx. 14 A or latching shutdown
enduring short circuit current RMS value	
• typical	14 A
overcurrent overload capability in normal operation	overload capability 150 % $I_{out\ rated}$ up to 5 s/min
Overload/short-circuit indicator	LED yellow for "overload", LED red for "latching shutdown"
Safety	
Primary/secondary isolation	Yes
galvanic isolation	Safety extra low output voltage V_{out} according to EN 60950-1
Protection class	Class I
leakage current	
• maximum	3.5 mA
• typical	0.9 mA
Degree of protection (EN 60529)	IP20
Approvals	
CE mark	Yes
UL/cUL (CSA) approval	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)
certificate of suitability NEC Class 2	No
CB approval	Yes
certificate of suitability EAC approval	Yes
Marine approval	DNV GL

Article number	6EP3446-8SB10-0AY0
Product	**SITOP PSU8200**
Power supply, type	**36 V/13 A**
EMC	
Emitted interference	EN 55022 Class B
Supply harmonics limitation	EN 61000-3-2
Noise immunity	EN 61000-6-2
environmental conditions	
ambient temperature	
• during operation	-25 ... +70 °C
- Note	with natural convection
• during transport	-40 ... +85 °C
• during storage	-40 ... +85 °C
Humidity class according to EN 60721	Climate class 3K3, 5 … 95% no condensation
Mechanics	
Connection technology	screw-type terminals
Connections	
• Supply input	L1, L2, L3, PE: 1 screw terminal each for 0.2 ... 4 mm² single-core/finely stranded
• Output	+, -: 2 screw terminals each for 0.2 ... 4 mm²
• Auxiliary	13, 14 (alarm signal): 1 screw terminal each for 0.14 ... 1.5 mm²; 15, 16 (Remote): 1 screw terminal each for 0.14 ... 1.5 mm²
width of the enclosure	70 mm
height of the enclosure	125 mm
depth of the enclosure	125 mm
required spacing	
• top	50 mm
• bottom	50 mm
• left	0 mm
• right	0 mm
Weight, approx.	1.2 kg
product feature of the enclosure housing can be lined up	Yes
Installation	Snaps onto DIN rail EN 60715 35x7.5/15
mechanical accessories	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20
other information	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)

Overview

The 3-phase SITOP PSU8200 are technology power supplies for challenging solutions. The wide-range input allows a connection to almost any electricity supply network worldwide and ensures a high degree of safety even if there are large voltage fluctuations.

Product highlights

- 3-phase, 48 V DC/ 10 A and 20 A
- Input voltage 320 … 575 V AC
- Up to 94% efficiency
- cULus, cCSAus, ABS and DNV GL certifications

Ordering data

	Article No.
SITOP PSU8200 3-phase, 48 V DC/10 A Stabilized power supply Input: 400 … 500 V 3 AC Output: 48 V DC/10 A	**6EP3446-8SB00-0AY0**
SITOP PSU8200 3-phase, 48 V DC/20 A Stabilized power supply Input: 400 … 500 V 3 AC Output: 48 V DC/20 A	**6EP3447-8SB00-0AY0**
Add-on modules	
SITOP RED1200 redundancy modules[1)]	See page 9/3
Accessories	
Device identification label	**3RT2900-1SB20**

[1)] For more information, visit: https://www.siemens.com/sitop-redundancy/mall

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Technical specifications

Article number	6EP3446-8SB00-0AY0	6EP3447-8SB00-0AY0
Product	**SITOP PSU8200**	**SITOP PSU8200**
Power supply, type	**48 V/10 A**	**48 V/20 A**
Input		
Input	3-phase AC	3-phase AC
Rated voltage value $V_{in\ rated}$	400 ... 500 V	400 ... 500 V
Voltage range AC	320 ... 575 V	320 ... 575 V
Wide-range input	Yes	Yes
Mains buffering	at V_{in} = 400 V	at V_{in} = 400 V
Mains buffering at $I_{out\ rated}$, min.	**15 ms; at V_{in} = 400 V**	**10 ms; at V_{in} = 400 V**
Rated line frequency 1	50 Hz	50 Hz
Rated line frequency 2	60 Hz	60 Hz
Rated line range	**47 ... 63 Hz**	**45 ... 65 Hz**
input current		
• at rated input voltage 400 V	**1.2 A**	**2 A**
• at rated input voltage 500 V	**1 A**	**1.7 A**
Switch-on current limiting (+25 °C), max.	**16 A**	**13 A**
I^2t, max.	**0.8 $A^2 \cdot s$**	**2.24 $A^2 \cdot s$**
Built-in incoming fuse	**none**	**-**
Protection in the mains power input (IEC 898)	**Required: 3-pole connected miniature circuit breaker 6 ... 16 A characteristic C or circuit breaker 3RV2011-1DA10 (setting 3 A) or 3RV2711-1DD10 (UL 489)**	**Required: 3-pole connected miniature circuit breaker 10 ... 16 A characteristic C or circuit breaker 3RV2011-1DA10 (setting 3 A) or 3RV2711-1DD10 (UL 489)**
Output		
Output	Controlled, isolated DC voltage	Controlled, isolated DC voltage
Rated voltage V_{out} DC	48 V	48 V
• output voltage at output 1 at DC rated value	48 V	48 V
Total tolerance, static ±	3 %	3 %
Static mains compensation, approx.	0.1 %	0.1 %
Static load balancing, approx.	0.2 %	0.2 %
Residual ripple peak-peak, max.	100 mV	100 mV
Spikes peak-peak, max. (bandwidth: 20 MHz)	**200 mV**	**480 mV**
Adjustment range	**42 ... 56 V**	**46 ... 56 V**
product function output voltage adjustable	Yes	Yes
Output voltage setting	**via potentiometer; max. 480 W**	**via potentiometer; max. 960 W**
Status display	Green LED for 48 V OK	Green LED for 48 V OK
Signaling	Relay contact (NO contact, rating 60 V DC/ 0.3 A) for 48 V OK	Relay contact (NO contact, rating 60 V DC/ 0.3 A) for 48 V OK
On/off behavior	**No overshoot of V_{out} (soft start)**	**minimal overshoot (< 3 %)**
Startup delay, max.	**2.5 s**	**0.1 s**
voltage increase time of the output voltage maximum	**500 ms**	**100 ms**
Rated current value $I_{out\ rated}$	**10 A**	**20 A**
Current range	**0 ... 10 A**	**0 ... 20 A**
• Note	**+60 ... +70 °C: Derating 2%/K**	**+60 ... +70 °C: Derating 4%/K**
supplied active power typical	**480 W**	**960 W**
short-term overload current		
• at short-circuit during operation typical	**30 A**	**60 A**
duration of overloading capability for excess current		
• at short-circuit during operation	25 ms	25 ms
constant overload current		
• on short-circuiting during the start-up typical	**11 A**	**24 A**
Parallel switching for enhanced performance	Yes; switchable characteristic	Yes; switchable characteristic
Numbers of parallel switchable units for enhanced performance	2	2

Technical specifications (continued)

Article number	6EP3446-8SB00-0AY0	6EP3447-8SB00-0AY0
Product	**SITOP PSU8200**	**SITOP PSU8200**
Power supply, type	**48 V/10 A**	**48 V/20 A**
Efficiency		
Efficiency at $V_{out\ rated}$, $I_{out\ rated}$, approx.	94 %	94 %
Power loss at $V_{out\ rated}$, $I_{out\ rated}$, approx.	**31 W**	**58 W**
power loss [W] during no-load operation maximum	**-**	**4 W**
Closed-loop control		
Dynamic mains compensation (V_{in} rated ±15 %), max.	**0.1 %**	**1 %**
Dynamic load smoothing (I_{out}: 50/100/50 %), U_{out} ± typ.	**1 %**	**3 %**
Load step setting time 50 to 100%, typ.	**0.2 ms**	**-**
Load step setting time 100 to 50%, typ.	**0.2 ms**	**-**
Dynamic load smoothing (I_{out}: 10/90/10 %), U_{out} ± typ.	**2 %**	**-**
Load step setting time 10 to 90%, typ.	**0.2 ms**	**-**
Load step setting time 90 to 10%, typ.	**0.2 ms**	**-**
setting time maximum	10 ms	10 ms
Protection and monitoring		
Output overvoltage protection	**< 60 V**	**< 57.8 V**
Current limitation, typ.	**11 A**	**22 A**
property of the output short-circuit proof	Yes	Yes
Short-circuit protection	**Alternatively, constant current characteristic approx. 11 A or latching shutdown**	**Alternatively, constant current characteristic approx. 22 A or latching shutdown**
enduring short circuit current RMS value		
• typical	**11 A**	**26 A**
overcurrent overload capability in normal operation	overload capability 150 % $I_{out\ rated}$ up to 5 s/min	overload capability 150 % $I_{out\ rated}$ up to 5 s/min
Overload/short-circuit indicator	LED yellow for "overload", LED red for "latching shutdown"	LED yellow for "overload", LED red for "latching shutdown"
Safety		
Primary/secondary isolation	Yes	Yes
galvanic isolation	**Safety extra low output voltage V_{out} according to EN 60950-1**	**Safety extra-low output voltage U_{out} acc. to EN 60950-1 and EN 50178**
Protection class	Class I	Class I
leakage current		
• maximum	**3.5 mA**	**1 mA**
• typical	**0.9 mA**	**0.6 mA**
Degree of protection (EN 60529)	IP20	IP20
Approvals		
CE mark	Yes	Yes
UL/cUL (CSA) approval	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)	cULus-Listed (UL 508, CSA C22.2 No. 107.1), File E197259; cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)
certificate of suitability NEC Class 2	No	No
CB approval	Yes	Yes
certificate of suitability EAC approval	Yes	Yes
Marine approval	**ABS, DNV GL**	**DNV GL**
EMC		
Emitted interference	EN 55022 Class B	EN 55022 Class B
Supply harmonics limitation	EN 61000-3-2	EN 61000-3-2
Noise immunity	EN 61000-6-2	EN 61000-6-2

Technical specifications (continued)

Article number	6EP3446-8SB00-0AY0	6EP3447-8SB00-0AY0
Product	**SITOP PSU8200**	**SITOP PSU8200**
Power supply, type	**48 V/10 A**	**48 V/20 A**
environmental conditions		
ambient temperature		
• during operation	-25 ... +70 °C	-25 ... +70 °C
- Note	**with natural convection**	**With natural convection**
• during transport	-40 ... +85 °C	-40 ... +85 °C
• during storage	-40 ... +85 °C	-40 ... +85 °C
Humidity class according to EN 60721	Climate class 3K3, 5 … 95% no condensation	Climate class 3K3, 5 … 95% no condensation
Mechanics		
Connection technology	screw-type terminals	screw-type terminals
Connections		
• Supply input	**L1, L2, L3, PE: 1 screw terminal each for 0.2 ... 4 mm² single-core/finely stranded**	**L1, L2, L3, PE: 1 screw terminal each for 0.5 ... 4 mm² single-core/finely stranded**
• Output	**+, -: 2 screw terminals each for 0.2 ... 4 mm²**	**+: 2 screw terminals each for 0.5 ... 16 mm²; -: 3 screw terminals each for 0.5 ... 16 mm²**
• Auxiliary	**13, 14 (alarm signal): 1 screw terminal each for 0.14 ... 1.5 mm²; 15, 16 (Remote): 1 screw terminal each for 0.14 ... 1.5 mm²**	**13, 14 (alarm signal), 15, 16 (Remote): 1 screw terminal each for 0.05 ... 2.5 mm²**
width of the enclosure	**70 mm**	**135 mm**
height of the enclosure	**125 mm**	**145 mm**
depth of the enclosure	**125 mm**	**150 mm**
required spacing		
• top	**50 mm**	**40 mm**
• bottom	**50 mm**	**40 mm**
• left	0 mm	0 mm
• right	0 mm	0 mm
Weight, approx.	**1.2 kg**	**3.3 kg**
product feature of the enclosure housing can be lined up	Yes	Yes
Installation	**Snaps onto DIN rail EN 60715 35x7.5/15**	**Snaps onto DIN rail EN 60715 35x15**
mechanical accessories	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20	Device identification label 20 mm × 7 mm, TI-grey 3RT2900-1SB20
MTBF at 40 °C	**-**	**520 782 h**
other information	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)	