

SITOP 1-phase and 2-phase 24 V DC

Output current 12 A to 40 A

Overview

Product	Special design PSU100D	SITOP smart PSU100S	SITOP modular PSU100M
Power supply, type	12.5 A	20 A	20 A
Order No.	6EP1334-1LD00	6EP1336-2BA10	6EP1336-3BA10

The product families are highlighted in the same color.
For an explanation of the product families, see chapter 1, pages 1/8 through 1/12



The low-cost power supply in flat aluminum housing can be screwed directly on a wall in various mounting positions; with wide-range input for global use.



High-performance, standard power supply for 1-phase 120/230 V AC grids, with automatic range switching; high overload capability through extra power with 1.5 times the rated current for 5 s and continuous 120 % output power up to +45 °C ambient temperature.



The modular power supply units with 1-phase and 2-phase input for global use; slim design; with 50 % extra power and switchable output characteristic; with integrated signaling contact for "24 V OK"; functional expansion possible using expansion modules.

Expansion possibilities Expansion modules, such as redundancy modules or selectivity modules for the protection of 24 V feeds (chapter 10), and DC UPS for additional protection against power failures (chapter 11)

Technical specifications

Product	Special design PSU100D	SITOP smart PSU100S	SITOP modular PSU100M
Input			
Rated voltage value $U_{in rated}$ Supply voltage • 1 for AC rated value • 2 for AC rated value • for DC • Comment	1-phase AC 100 ... 240 V AC	1-phase AC 120/230 V AC 120 V 230 V Automatic range switchover	1-phase and 2-phase AC or DC 120 ... 230 V AC 110 ... 300 V ¹⁾ Temperature derating necessary at $U_{in} < 100$ V AC or DC at 50 °C
Input voltage • 1 for AC • 2 for AC • for DC Voltage range Overvoltage resistance Mains buffering at $I_{out rated}$, min. Mains buffering Rated line frequency value • 1 • 2 Line frequency range	85 ... 264 V 15 ms at $U_{in} = 115/230$ V 50 Hz 60 Hz 47 ... 63 Hz	85 ... 132 V 176 ... 264 V $2.3 \times U_{in rated}$, 1.3 ms 20 ms at $U_{in} = 120/230$ V 50 Hz 60 Hz 47 ... 63 Hz	88 ... 350 V ¹⁾ 85 ... 275 V Implemented internally with varistors 20 ms at $U_{in} = 230$ V 50 Hz 60 Hz 45 ... 65 Hz
Input current at rated value of input voltage • 100 V rated value • 120 V rated value • 230 V rated value • 240 V rated value Input current for DC at rated value of the input voltage 600 V rated value	4 A 2 A	7.5 A 3.5 A	4.6 A 2.5 A
Switch-on current limit (+25 °C) $I_{t, max}$	max. 60 A 1.1 A ² s	max. 11 A 10 A ² s	max. 20 A 5 A ² s
Built-in incoming fuse	Internal	T 10 A (not accessible)	Yes
Protection in the mains power input (IEC 898)	Recommended miniature circuit breaker: 10 A or higher, characteristic C or 16 A or higher, characteristic B	Recommended miniature circuit breaker: 10 A or higher, characteristic C or miniature circuit breaker 3RV2411-1JA10 (120 V) or 3RV2411-1FA10 (230 V)	Recommended miniature circuit breaker for single-phase operation: 10 A characteristic C; necessary for two-phase operation: Miniature circuit breaker 2-pole coupled or circuit breaker 3RV2711-1HD10 (UL 489) at 120 V or 3RV2711-1ED10 (UL 489) at 230 V
Output			
Output Rated voltage $U_{out rated DC}$	Controlled, isolated DC voltage 24 V	Controlled, isolated DC voltage 24 V	Controlled, isolated DC voltage 24 V

¹⁾ Startup from 110 V DC (startup from 88 V DC, available soon)

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Technical specifications (continued)

Product	Special design PSU100D	SITOP smart PSU100S	SITOP modular PSU100M
Power supply, type	12.5 A	20 A	20 A
Order No.	6EP1334-1LD00	6EP1336-2BA10	6EP1336-3BA10
Output (continued)			
Total tolerance, static ±	2 %	3 %	3 %
• Static mains compensation, approx.	0.5 %	0.5 %	0.1 %
• Static load compensation, approx.	0.5 %	1 %	0.3 %
Residual ripple, peak-peak	Max. 100 mV	Max. 150 mV	Max. 100 mV (typ. 80 mV)
Spikes (bandwidth approx. 20 MHz)	Max. 100 mV	Max. 240 mV	Max. 200 mV (typ. 100 mV)
Adjustment range	22 ... 28 V	24 ... 28 V	24 ... 28.8 V
Settable output voltage	Yes	Yes	Yes
Output voltage adjustment	Via potentiometer	Via potentiometer	Via potentiometer
• Comment		Max. 480 W	
Status display	Green LED for 24 V OK	Green LED for 24 V OK	Green LED for 24 V OK
Signaling	–	Relay contact (NO contact, rating 50 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 $U_{out} < 2\%$	No overshoot of U_{out} (soft start)	No overshoot of U_{out} (soft start)
Startup delay, max.	1 s	1.5 s	0.25 s
• Comment			
Voltage rise, typ.	30 ms	50 ms	50 ms
Maximum voltage rise time of the output voltage		500 ms	
Rated current $I_{out rated}$	12.5 A	20 A	20 A
Current range	0 ... 12.5 A	0 ... 20 A	0 ... 20 A
• Comment	+50 ... +70 °C: Derating 2.5%/K	24 A up to +45 °C; +60 ... +70 °C: Derating 5%/K	> 60 °C Derating
Typical power output	300 W	480 W	480 W
Temporary overload current		35 A	
• in the event of a short circuit during startup, typical		35 A	60 A
• in the event of a short circuit during operation, typical			30 A
Constant overload current in the event of a short circuit during startup, typical			
Duration of overload capability overcurrent		100 ms	
• in the event of a short circuit during startup		100 ms	25 ms
• in the event of a short circuit during operation			
Parallel switching for enhanced performance	Yes	Yes	Yes
• Comment			Switchable characteristic 2
Number of devices that can be switched in parallel to enhance performance, units	2	2	
Efficiency			
Efficiency at $U_{out rated}$, $I_{out rated}$, approx.	86 %	90 %	93 %
Power loss at $U_{out rated}$, $I_{out rated}$, approx.	48 W	53 W	42 W
Closed-loop control			
Dyn. mains compensation ($U_{in rated} \pm 15\%$), max.	0.5 %	1 %	0.5 %
Dynamic load compensation ($I_{out}: 50/100/50\%$), $U_{out} \pm$ typ.	5 %	3 %	1 %
Load step settling time			1 ms
• 50 to 100 %, typ.			1 ms
• 100 to 50 %, typ.			5 ms
Settling time, maximum		10 ms	
Protection and monitoring			
Output overvoltage protection	< 35 V	Yes, according to EN 60950-1	< 33 V
Current limitation, typ.	15 A	21 A	21.5 A
Property of the output, short-circuit-proof	Yes	Yes	Yes
Short-circuit protection	Electronic shutdown, automatic restart	Electronic shutdown, automatic restart	Optional constant current characteristic approx. 23 A or latching shutdown
Sustained short-circuit current rms value			
• Maximum		7 A	23 A
• Typical	15 A		Overload capability 150 % $I_{out rated}$ to 5 s/min
• Comment		Overload capability 150 % $I_{out rated}$ to 5 s/min	Yellow LED for "overload", red LED for "latching shutdown"
Overload/short-circuit indicator	–	–	

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Technical specifications (continued)

Product	Special design PSU100D	SITOP smart PSU100S	SITOP modular PSU100M
Power supply, type	12.5 A	20 A	20 A
Order No.	6EP1334-1LD00	6EP1336-2BA10	6EP1336-3BA10
Safety			
Primary/secondary isolation	Yes	Yes	Yes
Isolation	SELV output voltage U_{out} according to EN 60950-1	SELV output voltage U_{out} according to EN 60950-1 and EN 50178	SELV output voltage U_{out} according to EN 60950-1 and EN 50178
Protection class	Class I	Class I	Class I
Leakage current			
• Maximum	3.5 mA	3.5 mA	3.5 mA
• Typical	1 mA	1 mA	1 mA
CE mark	Yes	Yes	Yes
UL/CSA approval	Yes	Yes	Yes
UL/cUL (CSA) approval	cULus-listed (UL 508, CSA C22.2 No. 107.1) File E197259, cURus (UL 60950-1, CSA C22.2 No. 60950-1) File E151273	cULus-listed (UL 508, CSA C22.2 No. 107.1), File E197259; available soon: cCSAus (CSA C22.2 No. 60950-1, UL 60950-1)	cULus-listed (UL 508, CSA C22.2 No. 107.1), File E197259
Explosion protection	–	ATEX (EX) II 3G Ex nA nC IIC T4 Gc; cCSAus (CSA C22.2 No. 213, ANSI/ISA-12.12.01) Class I Div. 2 Group ABCD T4	ATEX (EX) II 3G Ex nA nC IIC T3; cCSAus (CSA C22.2 No. 213, ANSI/ISA-12.12.01) Class I Div. 2 Group ABCD T3
FM approval	–	–	–
CB approval	–	Yes	No
Marine approval	–	GL	GL, ABS
Degree of protection (EN 60529)	IP20	IP20	IP20
EMC			
Emitted interference	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
Operating data			
Ambient temperature			
• During operation	-10 ... +70 °C	0 ... +70 °C	-25 ... +70 °C
- Comment	with forced convection (fan)	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, without condensation	Climate class 3K3, without condensation
Mechanics			
Connection method	Screw terminals	Screw terminals	Screw terminals
Connections			
• Supply input	L, N, PE: 1 screw terminal each for 0.5 ... 1.3 mm ² solid/finely stranded	L1, N, PE: 1 screw terminal each for 0.2 ... 4 mm ² solid/finely stranded	L, N, PE: 1 screw terminal each for 0.2 ... 4 mm ² solid/finely stranded
• Output	+, -: 2 screw terminals each for 0.5 ... 1.3 mm ²	+, -: 2 screw terminals each for 0.2 ... 4 mm ²	+, -: 2 screw terminals each for 0.2 ... 4 mm ²
• Auxiliary contacts	–	13, 14 (alarm signal): 1 screw terminal each for 0.14 ... 1.5 mm ²	Alarm signals: 2 screw terminals for 0.14 ... 1.5 mm ²
Width of enclosure	105 mm	115 mm	90 mm
Height of enclosure	199 mm	145 mm	125 mm
Depth of enclosure	41 mm	150 mm	125 mm
Mounting width		115 mm	90 mm
Mounting height		225 mm	225 mm
Weight, approx.	0.81 kg	2.4 kg	1.2 kg
Product property of the enclosure: side-by-side enclosure		Yes	Yes
Type of mounting			
• Wall mounting	Yes	No	No
• DIN rail mounting	No	Yes	Yes
• S7-300 rail mounting	No	No	No
Installation	Wall mounting	Snaps onto DIN rail EN 60715 35x7.5/15	Snaps onto DIN rail EN 60715 35x7.5/15
Electrical accessories		Buffer module (chapter 10)	Buffer module (chapter 10)
Mechanical accessories		Device labeling plate 20 mm x 7 mm, pale turquoise 3RT1900-1SB20	Device labeling plate 20 mm x 7 mm, pale turquoise 3RT1900-1SB20

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Selection and ordering data

Product	Input Voltage $U_{in \text{ rated}}$	Output Voltage $U_{out \text{ rated}}$	Current $I_{out \text{ rated}}$	Order No.	Price
Special design, PSU100D 	100/240 V AC	24 V DC	12.5 A	6EP1334-1LD00	
SITOP smart, PSU100S 	120/230 V AC	24 V DC	20 A	6EP1336-2BA10	
SITOP modular PSU100M 	120 ... 230 V AC	24 V DC	20 A	6EP1336-3BA10	
SITOP modular, PSU400M 	600 V DC	24 V DC	20 A	6EP1536-3AA00	
SITOP modular 	120/230 V AC Variant with PCB with protective coating	24 V DC	20 A	6EP1336-3BA00 6EP1336-3BA00-8AA0	
SITOP modular 	120/230 V AC	24 V DC	40 A	6EP1337-3BA00	

Further information

You can find additional information in the Internet at:

- 2D dimensional drawings, 3D CAD data, circuit diagram macros:
www.siemens.com/sitop-cax
- Operating instructions:
www.siemens.com/sitop-manuals
- SITOP Selection Tool:
www.siemens.com/sitop-selection-tool

Installation instructions, mounting areas and fixing options

Installation instructions

All SITOP and LOGO!Power supplies are built-in devices. They must be mounted vertically so that the supply air can enter the ventilation slots at the bottom of the devices and leave through the upper part of the devices. The minimum distances specified in the relevant operating instructions for the top, bottom and side of the devices must be observed to ensure free air convection.

The option of mounting in non-vertical positions with the appropriate derating is specified in the respective user documentation (manual).

Mounting areas and fixing options

Power supply	Order No.	Required mounting area in mm (W x H)	Mounting on a DIN rail acc. to EN 60715		Wall mounting
			35 x 7.5 mm	35 x 15 mm	
SITOP 24 V, 1-phase and 2-phase power supplies					
24 V/0.375 A	6EP1731-2BA00	22.5 x 180	X	X	
24 V/0.6 A	6EP1331-5BA00	22.5 x 180	X	X	
24 V/1.3 A	6EP1331-5BA10	30 x 180	X	X	
24 V/1.3 A	6EP1331-1SH03	54 x 130	X	X	
24 V/2 A	6ES7307-1BA01-0AA0 ³⁾	40 x 205	²⁾	²⁾	
	6ES7305-1BA80-0AA0 ³⁾	80 x 225		¹⁾	
	6EP1732-0AA00	80 x 235		X	X
24 V/2.1 A	6EP1331-1LD00	58 (117) x 128			X
24 V/2.5 A	6EP1332-2BA20	33 x 225	X	X	
	6EP1332-5BA00	45 x 180	X	X	
	6EP1332-1SH43	72 x 130	X	X	
	6EP1332-1SH71	70 x 140	X	X	X
	6EP1332-1LB00	33 x 225	X	X	
24 V/3 A	6EP1332-4BA00 ⁵⁾	50 x 225			
24 V/3.1 A	6EP1332-1LD00	58 (117) x 128			X
24 V/3.5 A	6EP1332-1SH31	160 x 280	X	X	X
24 V/3.7 A	6EP1332-5BA20	52 x 180	X	X	
24 V/4 A	6EP1332-5BA10	52.5 x 180	X	X	
	6EP1332-1SH52	90 x 130	X	X	
24 V/4.1 A	6EP1332-1LD10	58 (117) x 158			X
24 V/5 A	6EP1333-3BA00	70 x 225	X	X	
	6EP1333-2BA20	50 x 225	X	X	
	6ES7307-1EA01-0AA0 ³⁾	60 x 205	²⁾	²⁾	
	6EP1333-1LB00	50 x 225	X	X	
	6ES7307-1EA80-0AA0 ³⁾	80 x 225		¹⁾	
	6EP1333-1AL12	160 x 230	X	X	
24 V/6.2 A	6EP1333-1LD00	58 (117) x 178			X
24 V/8 A	6EP1333-4BA00 ⁵⁾	75 x 205			
24 V/10 A	6EP1334-3BA00	90 x 225	X	X	
	6EP1334-2BA20	70 x 225	X	X	
	6ES7307-1KA02-0AA0 ³⁾	80 x 205	²⁾	²⁾	
	6EP1334-1LB00	70 x 225	X	X	
	6EP1334-1AL12	160 x 230	X	X	
24 V/12.5 A	6EP1334-1LD00	61 (125) x 199			X
24 V/20 A	6EP1336-2BA10	115 x 225	X	X	
	6EP1336-3BA10	90 x 225	X	X	
	6EP1536-3AA00	90 x 225	X	X	
	6EP1336-3BA00	160 x 225	X	X	
24 V/40 A	6EP1337-3BA00	240 x 225		X	