Overview

The 1-phase SITOP modular are technology power supplies for sophisticated solutions and offer maximum functionality for use in complex plants and machines. The wide-range input allows a connection to almost any electrical power system worldwide and ensures a high degree of safety even if there are large voltage fluctuations. The power boost provides up to three times the rated current for brief periods. In case of overload, you can choose between constant current with automatic restart or latching shutdown.

The high degree of efficiency keeps energy consumption and heating in the control cabinet low, and the compact metal housing also saves space.

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

Main product highlights

- 24 V DC/ 5 A, 10 A, 20 A and 40 A
- 1-phase wide-range input for connection to any supply system and for safety in case of voltage supply deviations
- Extremely slim design – no lateral installation clearances required
- Power Boost with 3 times the rated current (for 25 ms) for tripping protective devices
- Extra power with 1.5 times the rated current (5 s/min) for brief functional overload
- Selectable short-circuit response between constant current and restart
- Optional symmetrical load distribution for parallel operation
- Operating status on 3 LEDs
- Extremely high efficiency to 94 %
- Wide temperature range from -25 to +70 °C
- Comprehensive certifications, such as cULus, ATEX and DNV GL

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 AC or DC	1-phase AC
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	-
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 ≥ 90/180 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 $I_{out\ rated}$, 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	50 ... 60 Hz	50 ... 60 Hz	50 ... 60 Hz	50 ... 60 Hz
Rated line range	47 ... 63 Hz	47 ... 63 Hz	45 ... 65 Hz	45 ... 65 Hz
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	60 A
I^2t, max.	0.2 $A^2 \cdot s$	0.3 $A^2 \cdot s$	5 $A^2 \cdot s$	8 $A^2 \cdot s$
Built-in incoming fuse	T 3.15 A (not accessible)	T 6.3 A (not accessible)	Yes	Yes

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
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 DC voltage	Controlled, isolated DC voltage	Controlled, isolated DC voltage
Rated voltage V_{out} DC	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
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 %	No overshoot of V_{out} (soft start)	Overshoot of V_{out} approx. 3 %
Startup delay, max.	1 s	1 s	0.25 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
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

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
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
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)
Explosion protection	IECEx Ex nA nC IIC T4 Gc; 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, T3	IECEx Ex nA nC IIC T4 Gc; 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, T3	IECEx Ex nA nC IIC T3 Gc; ATEX (EX) II 3G Ex nA nC IIC T3 Gc; cCSAus (CSA C22.2 No. 213, ANSI/ISA-12.12.01) Class I, Div. 2, Group ABCD, T3	IECEx Ex nA nC IIC T3 Gc; 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

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
Safety (continued)				
FM approval	-	-	-	-
CB approval	Yes	Yes	Yes	Yes
Marine approval	DNV GL, ABS	DNV GL, ABS	DNV GL, ABS	DNV GL, ABS
Degree of protection (EN 60529)	IP20	IP20	IP20	IP20
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
Operating data				
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, no condensation	Climate class 3K3, no condensation	Climate class 3K3, no condensation	Climate class 3K3, 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 ... 4 mm^2 single-core/finely stranded	L, N, PE: 1 screw terminal each for 0.2 ... 4 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 ... 4 mm^2	+, -: 2 screw terminals each for 0.5 ... 10 mm^2
• Auxiliary	13, 14 (alarm signal): 1 screw terminal each for 0.14 ... 1.5 mm^2; 15, 16 (Remote): 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; 15, 16 (Remote): 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	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 for side-by-side mounting	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, 3RT2900-1SB20 (TI gray)	Device identification label 20 mm × 7 mm, 3RT2900-1SB20 (TI gray)	Device identification label 20 mm × 7 mm, 3RT2900-1SB20 (TI gray)	Device identification label 20 mm × 7 mm, 3RT2900-1SB20 (TI gray)
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)	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)	Specifications at rated input voltage and ambient temperature +25 °C (unless otherwise specified)

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**

Accessories	Article No.
SITOP PSE201U buffer module For SITOP smart and SITOP modular buffer time 100 ms to 10 s dependent on load current	**6EP1961-3BA01**
SITOP modular signaling module For 6EP1XXX-3BA00 signaling contacts: Output voltage OK, readiness for operation OK, remote ON/OFF	**6EP1961-3BA10**
SITOP PSE202U redundancy module Input/output: 24 V DC/40 A suitable for decoupling two SITOP power supplies with a maximum of 20 A output current	**6EP1961-3BA21**
SITOP PSE202U redundancy module Input/output: 24 V DC/NEC Class 2 suitable for decoupling two SITOP power supplies; output power limited < 100 VA	**6EP1962-2BA00**
SITOP PSE202U redundancy module Input/output: 24 V DC/10 A suitable for decoupling two SITOP power supplies with a maximum of 5 A output current	**6EP1964-2BA00**
SITOP PSE200U 3 A selectivity module 4-channel selectivity module Input: 24 V DC Output: 24 V DC/3 A per channel Adjustable response threshold 0.5 … 3 A	
• With common alarm signal	**6EP1961-2BA11**
• With single-channel signaling	**6EP1961-2BA31**
SITOP PSE200U 3 A NEC Class 2 selectivity module 4-channel selectivity module Input: 24 V DC Output: 24 V DC/3 A per channel Adjustable response threshold 0.5 … 3 A	
• With common alarm signal	**6EP1961-2BA51**
• With single-channel signaling	**6EP1961-2BA61**
SITOP PSE200U 10 A selectivity module 4-channel selectivity module Input: 24 V DC Output: 24 V DC/10 A per channel Adjustable response threshold 3 … 10 A	
• With common alarm signal	**6EP1961-2BA21**
• With single-channel signaling	**6EP1961-2BA41**
Device labeling plates	**3RT2900-1SB20**