

Overview



The 3-phase SITOP PSU8200 power supply from the SITOP modular product line is a high-performance, stabilized technology power supply for automated machines and systems.

The key benefits of the product include:

- Wide-range input, which allows it to be connected to almost any 3-phase line supply around the world
- Output voltage can be adjusted in the range 24..28.8 V
- Power boost during operation with 300% rated current for 25 ms
- Extra-Power with 1.5x rated current for 5 seconds for switching on loads with a high inrush current
- Especially low width without requiring any lateral mounting clearances
- Ambient temperature -25...+70 °C
- Selectable short-circuit response (constant current or latching shutdown)
- A soft characteristic can be selected for a parallel connection (for uniform load distribution of power supply units of the same type)
- Display of the operating state using 3 LEDs
- Signaling contact "24 V O.K."
- To increase the system availability, these reliable power supplies can be expanded using SITOP supplementary modules (redundancy module, selectivity module, buffer module), as well as SITOP DC-UPS modules.

Ordering data

The following device versions are available:

Regulated power supply unit SITOP PSU8200 3ph	
Type	Order number
3-phase 400-500 V AC input, 24 V/20 A output	6EP3436-8SB00-0AY0
3-phase 400-500 V AC input, Output 24 V DC / 40 A	6EP1437-3BA10

Accessories	
Type	Order number
Device identification labels 20 mm × 7 mm, Ti grey	3RT2900-1SB20

2.7 Dimensions and weight

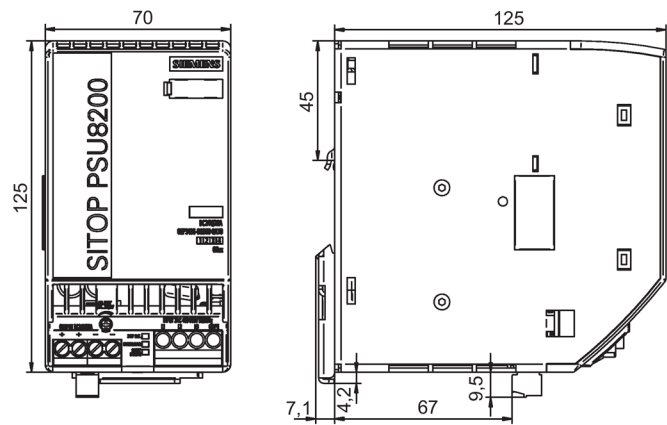


Figure 2-8 Dimension drawing 6EP3436-8SB00-0AY0

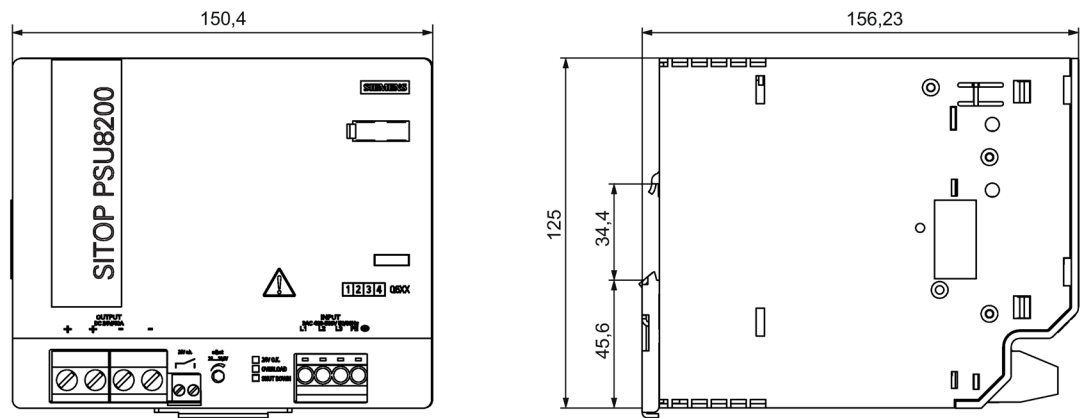


Figure 2-9 Dimension drawing 6EP1437-3BA10

	6EP3436-8SB00-0AY0 (24 V/20 A)	6EP1437-3BA10 (24 V / 40 A)
Dimensions (W × H × D) in mm	70 × 125 × 125	150 × 125 × 150
Weight	approx. 1.2 kg	approx. 3.4 kg

Technical data

Note

Technical data is applicable for a rated input voltage, rated load and +25° C ambient temperature (if nothing else is specified).

6.1 Input

	6EP3436-8SB00-0AY0 (24 V/20 A)	6EP1437-3BA10 (24 V / 40 A)
Input	3-phase, AC	3-phase, AC
Rated voltage value U _e rated	400-500 V	400-500 V
Voltage range	320 ... 575 V	320 ... 575 V
• Remark	Derating at U _e < 340 V: 10 % [I _a]	Derating at U _e < 340 V: 10 % [I _a]
Wide-range input	Yes	Yes
Overvoltage strength	-	2.3 × U _e rated, 1.3 ms
Power failure buffering at I _a rated, min	15 ms	15 ms
Rated line frequency	50-60 Hz	50-60 Hz
Line frequency range	47 ... 63 Hz	47 ... 63 Hz
Input current / at rated value of input voltage 400 V	1.2 A	2.6 A
Input current / at rated value of input voltage 500 V	1 A	2.1 A
Switch-on current limitation (+ 25 °C), max.	18 A	56 A
I ² t, max	0.8 A ² s	2.24 A ² s
Integrated input fuse	None	None
Protection in the line feeder cable (IEC 898)	Required: 3-pole coupled miniature circuit breaker (IEC 898) characteristic C, 6 ... 16 A or 3RV2011-1DA10 circuit breaker, (setting 3 A) or 3RV2711-1DD10 (UL 489)	Required: 3-pole coupled miniature circuit breaker 10 ... 16 A characteristic C or RV2011-1DA10 circuit breaker (setting 3 A) or 3RV2711-1DD10 (UL 489)

6.2 Output

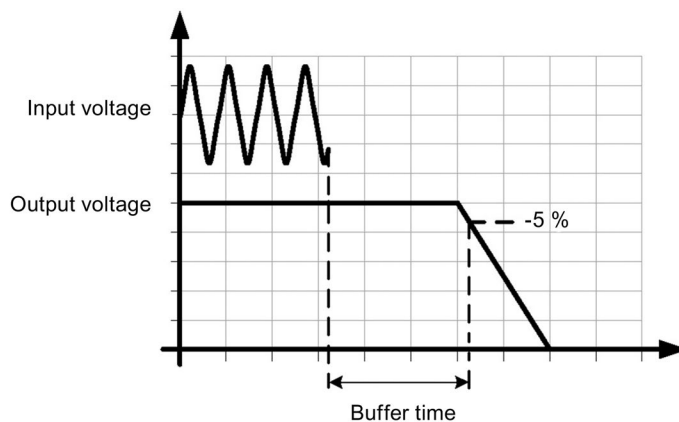


Figure 6-1 Power failure buffering

6.2 Output

	6EP3436-8SB00-0AY0 (24 V/20 A)	6EP1437-3BA10 (24 V / 40 A)
Output	Regulated, isolated DC voltage	Regulated, isolated DC voltage
Rated voltage value U_a rated DC	24 V	24 V
Total tolerance, static $\pm$	3 %	3 %
Static line regulation, approx.	0,1 %	0,1 %
Static load regulation, approx.	0,2 %	0,2 %
Residual ripple in the load range	100 mV	100 mV
Peak-peak, max.		
Spikes peak-peak, max. (bandwidth, approx. 20 MHz)	200 mV	200 mV
Adjustment range	24 ... 28.8 V	24 ... 28.8 V
Product function / output voltage can be adjusted	Yes	Yes
Output voltage setting	Via potentiometer	Via potentiometer
• Remark	Max. 480 W	Max. 960 W
Operating display	LED green for "24 V O.K."	LED green for "24 V O.K."
Signaling	Relay contact (NO contact, rating 60 V DC / 0.3 A) for "24 V O.K."	
Response when switching on/off	No overshoot of U_a (soft start)	No overshoot of U_a (soft start)
Starting delay, max.	2.5 s	2.5 s
Voltage rise, typ.	150 ms	150 ms
Voltage rise time / of the output volt- age / maximum	500 ms	500 ms
Rated current value I_a rated	20 A	40 A
Current range	0 ... 20 A	0 ... 40 A
• Remark	+60 ... +70 °C derating: approx. 3 % I_a rated/K	+60 .. +70 °C derating: approx. 4 % I_a rated/K

	6EP3436-8SB00-0AY0 (24 V/20 A)	6EP1437-3BA10 (24 V / 40 A)
Output active power / typical	480 W	960 W
Constant overload current / for a short circuit when powering up / typical	23 A	44 A
Short-time overload current / for a short circuit during operation, typical	60 A	120 A
Duration of the current overload capability / for a short circuit during operation	25 ms	25 ms
Remark	per 1 min	per 1 min
Can be connected in parallel to increase the power rating	Yes	
Remark	Switchable characteristic curve with switch A (see Figure 2-5 Operating display and signaling (Page 12))	
Number of devices that can be connected in parallel to increase the power rating, units	2	2
Output characteristic	See Figure 6-3 Output characteristic curve 6EP3436-8SB00-0AY0 single operation (Page 32)	See Figure 6-4 6EP1437-3BA10 single operation output characteristic curve (Page 32)

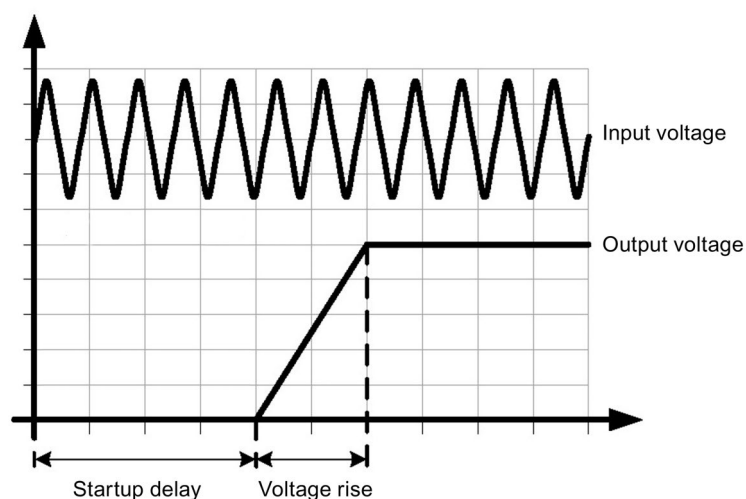


Figure 6-2 Starting delay/voltage rise

6.4 Closed-loop control

	6EP3436-8SB00-0AY0 (24 V/20 A)	6EP1437-3BA10 (24 V/40 A)
Dyn. line regulation (U_e rated $\pm 15\%$), max.	1 %	1 %
Dyn. load regulation (I_a : 50/100/50%), $U_a \pm$ typ.	2 %	3 %
Load step regulation time 50 to 100 %, typ.	2 ms	-
Load step regulation time 100 to 50 %, typ.	2 ms	-
Regulation time / maximum	10 ms	10 ms

6.5 Protection and monitoring

	6EP3436-8SB00-0AY0 (24 V/20 A)	6EP1437-3BA10 (24 V / 40 A)
Output overvoltage protection	< 35 V	< 35 V
Current limitation, typ.	23 A	44 A
Property of the output/short-circuit proof	Yes	Yes
Short-circuit protection	Optional constant current characteristic curve or latching shutdown	
Continuous short-circuit current / rms value / typical	23 A	44 A
• Comment	Overload capability 150 % I_a rated up to 5 s/min	Overload capability 150% I_a rated up to 5 s/min
Overload / short-circuit display	Yellow LED for "overload", red LED for "latching shutdown"	Yellow LED for "overload", red LED for "latching shutdown"

6.6 MTBF

	6EP3436-8SB00-0AY0 (24 V/20 A)	6EP1437-3BA10 (24 V / 40 A)
Mean Time Between Failures	SN29500: >500000 hours at 40 °C, rated load, 24-hour operation	SN29500: > 500,000 hours (typ. 700,000 hours) at 40° C, rated load, 24-hour operation

Safety, approvals, EMC

7.1 Safety

	6EP3436-8SB00-0AY0 (24 V/20 A)	6EP1437-3BA10 (24 V / 40 A)
Primary/secondary galvanic isolation	Yes	Yes
Electrical isolation	SELV output voltage Ua according to EN 60950-1 and EN 50178	SELV output voltage Ua according to EN 60950-1 and EN 50178
Protection class	Class I	Class I
Degree of protection (EN 60529)	IP20	IP20
Leakage current, typ.	1 mA	0.4 mA
Leakage current, max.	3.5 mA	3.5 mA
Test voltage	See Table 7-1 Test voltage for 6EP3436-8SB00-0AY0 (Page 40)	See Table 7-2 Test voltage for 6EP1437-3BA10 (Page 41)

7.2 Test voltage

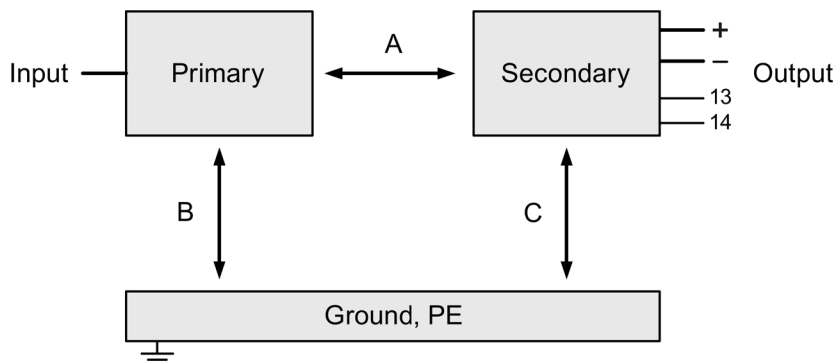


Figure 7-1 Test voltage diagram

Only the manufacturer can perform the type test and production test; users can also perform the field test.

Preconditions for performing the field test:

Tests (A) & (B)

- Connect the input terminals with one another
- Connect the output terminals, signaling contact and PE with one another

Test (C)

- Connect the output terminals and signaling contact with one another and measure with respect to PE

Table 7- 1 Test voltage for 6EP3436-8SB00-0AY0

	Test time	Prim ↔ sec (A)	Prim ↔ PE (B)	Sec ↔ PE (C)
Type test	60 s	4200 VDC	2200 VDC	700 VDC
	60 s	3000 VAC	1500 VAC	500 VAC
Production test	1 s	4200 VDC	4200 VDC	500 VDC
	1 s	3000 VAC	3000 VAC	350 VAC
Field test	1 s	2200 VDC	2200 VDC	500 VDC
	1 s	1500 VAC	1500 VAC	350 VAC

Note:

Tripping current for DC measurement: 0 mA

Tripping current for AC measurement: <100 mA

Table 7- 2 Test voltage for 6EP1437-3BA10

	Test time	Prim ↔ sec (A)	Prim ↔ PE (B)	Sec ↔ PE (C)
Type test	60 s	4200 VDC	2200 VDC	700 VDC
	60 s	3000 VAC	1500 VAC	500 VAC
Production test	1 s	2200 VDC	2200 VDC	500 VDC
	1 s	1500 VAC	1500 VAC	350 VAC
Field test	1 s	2200 VDC	2200 VDC	500 VDC
	1 s	1500 VAC	1500 VAC	350 VAC

Remark:

Tripping current for DC measurement: 0 mA

Tripping current for AC measurement: <100 mA

7.3 Approvals

6EP3436-8SB00-0AY0 (24 V/20 A) 6EP1437-3BA10 (24 V / 40 A)	
CE marking	Yes, (2004/108/EG and 2006/95/EG)
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)
Explosion protection	EPS 12 ATEX 1 442 X IECEX EPS 14.0062X II 3G Ex nA nC IIC T4 Gc cCSAus HazLoc Class I, Div 2, Group A,B,C,D T4
CB approval	Yes, (IEC 60950-1)
SEMI F47 compliance	Fulfilled
Marine approvals	GL, ABS

7.4 EMC

6EP3436-8SB00-0AY0 (24 V/20 A) 6EP1437-3BA10 (24 V / 40 A)		
Electrostatic discharge	EN 61000-4-2	8 kV contact, 8 kV air
Electromagnetic fields	EN 61000-4-3	80 ... 1000 MHz 25 V/m 1000 ... 2700 MHz 10 V/m
High-speed transient disturbance variables (burst)	EN 61000-4-4	4 kV at line supply connections 2 kV at the DC output
Surge voltages	EN 61000-4-5	3 kV symmetrical at the line connections 6 kV unsymmetrical at the line connections 500 V symmetrical/unsymmetrical at DC output cables
High-frequency fields	EN 61000-4-6	10 V; 0.15 ... 80 MHz
Magnetic fields	EN 61000-4-8	30 A/m; 50 Hz
Emitted interference	EN 55022	Class B
Line harmonics limit	EN 61000-3-2	Class A
Generic standards	EN 61000-6-2	Noise immunity for industrial environments
	EN 61000-6-3	Emission for residential areas

Ambient conditions

	6EP3436-8SB00-0AY0 (24 V/20 A)	6EP1437-3BA10 (24 V / 40 A)
Ambient temperature	-25°...+70° C with natural convection	
• Remark	In the range -25 ... 0 °C continuous starting at a rated input voltage +/-10 % is possible. The specified properties (see Technical data (Page 29)) are only guaranteed in the 0 ...+70 °C range.	
	Tested according to: • EN 60068-2-1 cold • EN 60068-2-2 dry heat • EN 60068-2-78 humid heat, constant • EN 60068-2-14 temperature change	
Transport and storage temperature	-40 ... +85° C	
	Tests (packed for shipping) according to: • EN 60068-2-1 cold • EN 60068-2-2 dry heat • EN 60068-2-30 humid heat, cyclic	
Humidity class	Climatic class 3K3 according to EN 60721, without condensation	Climatic class 3K3 according to EN 60721, without condensation
Mechanical stressing during operation	Tested according to: • EN 60068-2-6 vibration, test Fc: 7 mm deflection in the range 5 ... 8.4 Hz 2 g acceleration in the range 8.4 ... 150 Hz • EN 60068-2-27 shock, test Ea: - acceleration 150 m/s², test duration 11 ms	Tested according to: • EN 60068-2-6 vibration, test Fc: 0.075 mm deflection in the range 10 ... 58 Hz 1 g acceleration in the range 58 ... 150 Hz • EN 60068-2-27 shock, test Ea: - acceleration 150 m/s², test duration 11 ms

	6EP3436-8SB00-0AY0 (24 V/20 A)	6EP1437-3BA10 (24 V / 40 A)
Damaging gases	Tested according to: • EN 60068-2-42 sulfur dioxide • EN 60068-2-43 hydrogen sulfide	
Atmospheric pressure	Operation: • 1080 ... 795 hPa (-1000 ...+2000 m) • For operation at altitudes of 2000 m up to 6000 m above sea level: output must be derated by -7.5 % / 1000 m or the ambient temperature must be reduced by 5 K / 1000 m (see Figure 4-3 Mounting height derating (Page 20)) • Overvoltage category: - III to 2000 m (EN 50178) - II from 2000 m to 6000 m (EN 50178) - II to 2000 m (EN 60950-1) - I from 2000 m to 6000 m (EN 60950-1) Storage: • 1080 ... 660 hPa (-1000 ...+3500 m)	