SIEMENS

SITOP power supply

SITOP PSU4200 3ph

Equipment Manual

SITOP PSU4200 24 V/10 A
6EP3434-3SB00-0AX0
SITOP PSU4200 24 V/20 A
6EP3436-3SB00-0AX0

08.2023
A5E52642331-1-76

Legal information

Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

⚠**DANGER**
indicates that death or severe personal injury **will** result if proper precautions are not taken.

⚠**WARNING**
indicates that death or severe personal injury **may** result if proper precautions are not taken.

⚠**CAUTION**
indicates that minor personal injury can result if proper precautions are not taken.

NOTICE
indicates that property damage can result if proper precautions are not taken.

If more than one degree of danger is present, the warning notice representing the highest degree of danger will be used. A notice warning of injury to persons with a safety alert symbol may also include a warning relating to property damage.

Qualified Personnel

The product/system described in this documentation may be operated only by **personnel qualified** for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems.

Proper use of Siemens products

Note the following:

⚠**WARNING**
Siemens products may only be used for the applications described in the catalog and in the relevant technical documentation. If products and components from other manufacturers are used, these must be recommended or approved by Siemens. Proper transport, storage, installation, assembly, commissioning, operation and maintenance are required to ensure that the products operate safely and without any problems. The permissible ambient conditions must be complied with. The information in the relevant documentation must be observed.

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Disclaimer of Liability

We have reviewed the contents of this publication to ensure consistency with the hardware and software described. Since variance cannot be precluded entirely, we cannot guarantee full consistency. However, the information in this publication is reviewed regularly and any necessary corrections are included in subsequent editions.

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A5E52642331-1-76
Ⓟ 09/2023 Subject to change

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Overview

Description

The 3-phase SITOP PSU4200 is the power supply series to address basic requirements in the industrial environment. It offers all of the important functions at a favorable price – and makes no compromises when it comes to quality and reliability.

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 V
- Narrow design
- Good efficiency
- Green LED for "DC O.K.."
- Integrated signaling contact for "DC O.K.."
- Push-in connections facilitate fast wiring
- Suitable for parallel operation
- No lateral installation clearances required
- Ambient temperature range -25 °C ... 70 °C
- Cooling through natural convection
- Short circuit and overload protection

Ordering data

The following device options are available:

Regulated power supply SITOP PSU4200 3ph	
Type	**Order number**
Input 400 - 500 V AC Output 24 V DC/10 A	6EP3434-3SB00-0AX0
Input 400 - 500 V AC Output 24 V DC / 20 A	6EP3436-3SB00-0AX0

Table of contents

Safety instructions

1

⚠ WARNING

Correct handling of the devices

When operating electrical devices, it is inevitable that certain components will carry dangerous voltages.

Therefore, failure to handle the units properly can result in death or serious physical injury as well as extensive property damage.

Only appropriately qualified personnel may work on or in the vicinity of this equipment.

Perfect, safe, and reliable operation of this equipment is dependent on proper transportation, storage, installation and mounting.

Before installation or maintenance work can begin, the system's main switch must be switched off and measures taken to prevent it being switched on again.

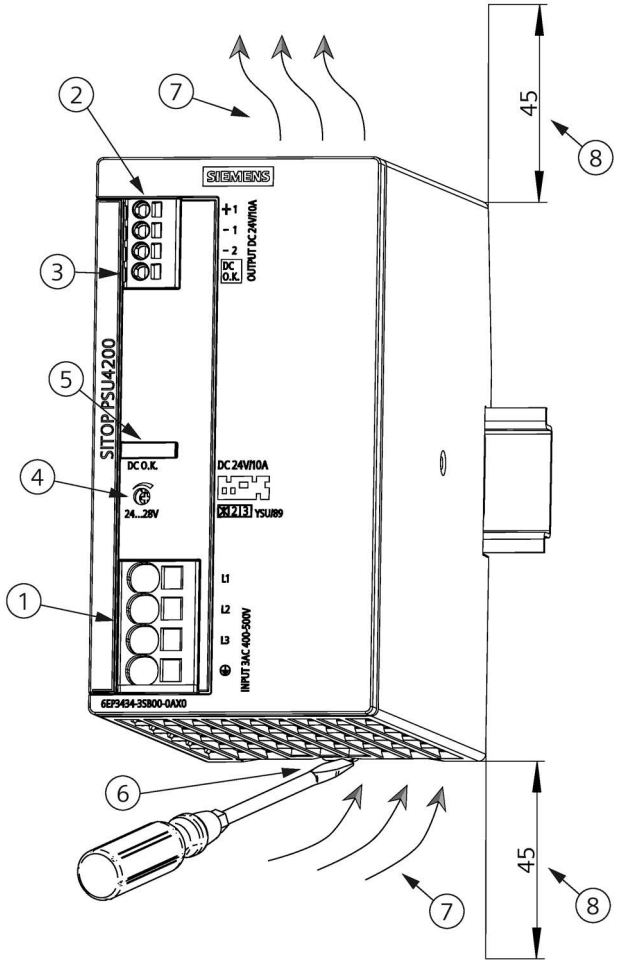
If this instruction is not observed, touching live parts can result in death or serious injury.

Description, design of the device, dimension drawing

2

2.1 Device description

SITOP PSU4200 3ph is a primary-clocked power supply for connection to a 3-phase AC line supply. An electronically regulated DC voltage that can be set via a potentiometer is available at the output of the device. The output of the device is isolated, no-load proof and short-circuit proof. The LED display is used to signal the operating state. The operating state of the device can be processed via the signaling contact.



①	AC input	⑤	Indicator light (DC O.K.)
②	DC output	⑥	DIN-rail slider + mounting lug to remove (only 10 A device)
③	Signal output (DC O.K.)	⑦	Convection (natural convection)
④	Potentiometer (24 - 28 V)	⑧	Clearance above/below

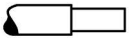
Figure 2-1 Design (example 6EP3434-3SB00-0AX0)

2.2 Connections and terminal designation

The line input terminals ① can be used to establish the connection to the supply voltage. The output terminals ② are used to connect to the loads to be supplied (see also Chapter Installation (Page 25)).

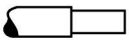
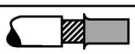
The operating state of the device can be processed via the signal output ③ (function and contact rating, see Chapter Status displays and signaling (Page 12)).

Connections and terminal designations	
① Line input L1, L2, L3, PE	one spring-loaded terminal each
② Output +1, -1, -2	one spring-loaded terminal each
③ Signal output DC O.K.	1 spring-loaded terminal

	①	② + ③	④
	0,6 x 3,5	0,6 x 3,5	0,6 x 3 / PZ1 / PH1 max. Ø 3,5 mm
	1 x 0,2 - 10 mm²	1 x 0,2 - 4 mm²	-
	1 x 0,2 - 10 mm²	1 x 0,2 - 2,5 mm²	-
	1 x 0,25 - 6 mm²	1 x 0,25 - 2,5 mm²	-
AWG	24 - 8	24 - 12	-
Nm	-	-	0,04 Nm *1)
	13 - 15 mm	10 mm	-

*1) Do not subject the end stop to higher loads

Figure 2-2 Terminal data for 6EP3434-3SB00-0AX0

	① + ② + ③	④
	0,6 x 3,5	0,6 x 3 / PZ1 / PH1 max. Ø 3,5 mm
	1 x 0,2 - 10 mm²	-
	1 x 0,2 - 10 mm²	-
	1 x 0,25 - 6 mm²	-
AWG	24 - 8	-
Nm	-	0,04 Nm *1)
	13 - 15 mm	-

*1) Do not subject the end stop to higher loads

Figure 2-3 Terminal data for 6EP3436-3SB00-0AX0

2.3 Potentiometer

The potentiometer ④ on the front of the device is used to set the output voltage. The output voltage is set to 24 V in the factory, and can be adjusted in the range 24 - 28 V; for example, to compensate voltage drops across long supply lines to the connected load.

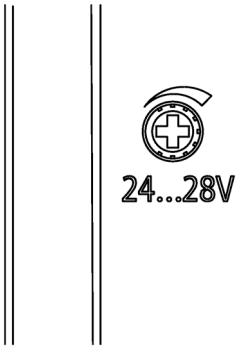


Figure 2-4 Potentiometer

NOTICE
Thermal overload possible When adjusting the output voltage to greater than the rated voltage, the output current must be derated by 4 %/V, or the permissible ambient temperature must be taken into account with 3° C/V.

Note

It is only permissible to use an insulated screwdriver when actuating the potentiometer.

For notes on actuating the potentiometer (screwdriver, torque), see Figure 2-2 Terminal data for 6EP3434-3SB00-0AX0 (Page 10) and Figure 2-3 Terminal data for 6EP3436-3SB00-0AX0 (Page 10).

2.4 Status displays and signaling

	6EP3434-3SB00-0AX0 (24 V/10 A) **6EP3436-3SB00-0AX0 (24 V/20 A)**
Operating display	LED green for "DC O.K."

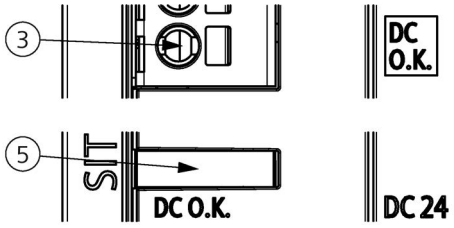


Figure 2-5 Signaling

Signaling ⑤	**6EP3434-3SB00-0AX0 (24 V/10 A)** **6EP3436-3SB00-0AX0 (24 V/20 A)**
LED lit green	Normal operation, output voltage U_{out} > 20 V
LED lit yellow	Output current > 85 % $I_{out\ rated}$

Signal output ③	**6EP3434-3SB00-0AX0 (24 V/10 A)** **6EP3436-3SB00-0AX0 (24 V/20 A)**
Signal active high	Output voltage U_{out} > 20 V
Signal output	> 18.5 V
Signal load capacity	5 mA

2.5 Block diagram

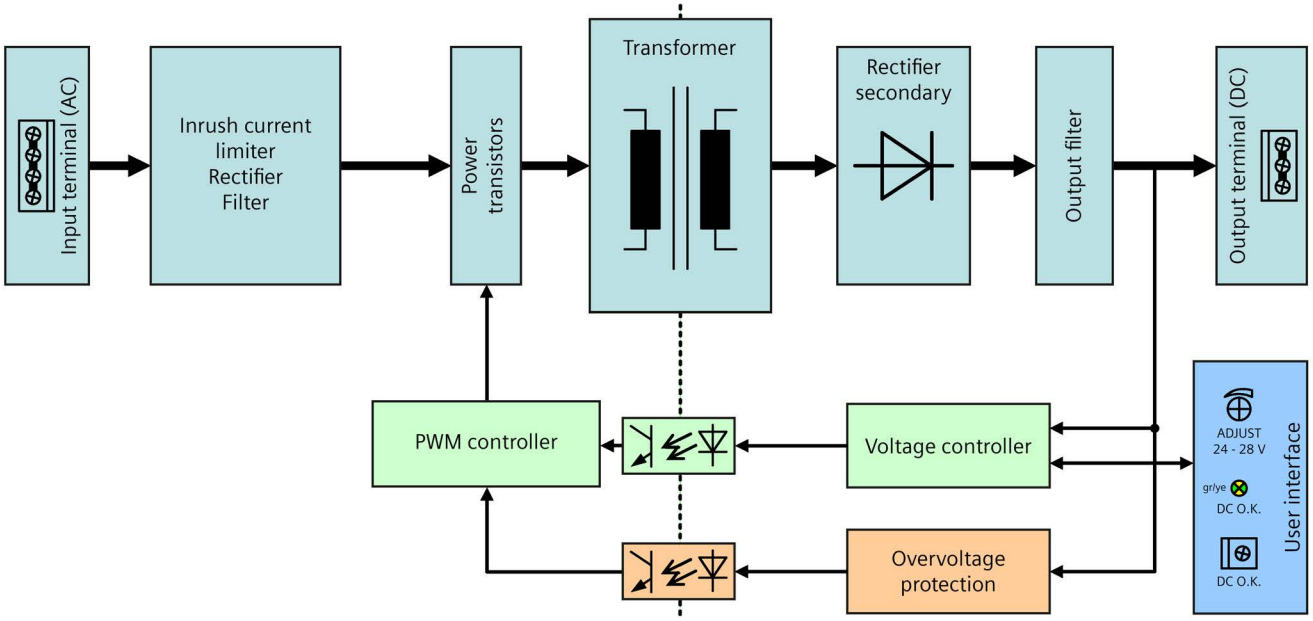


Figure 2-6 Block diagram

2.6 Dimensions and weight

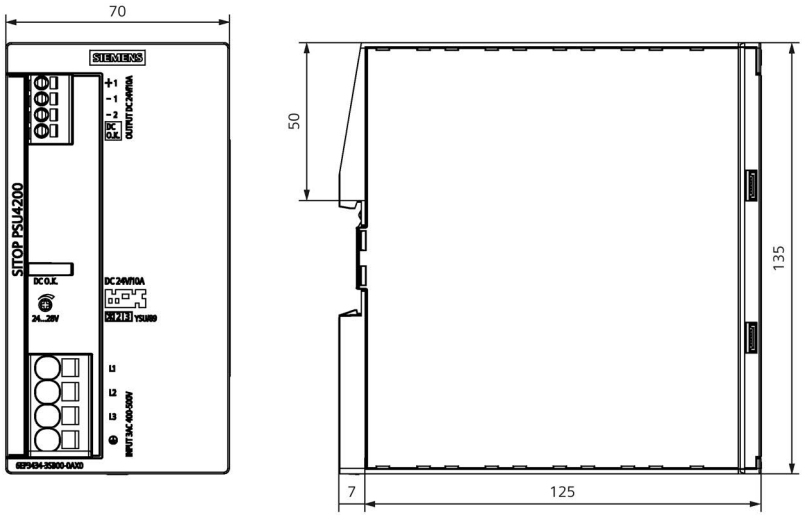


Figure 2-7 Dimension drawing 6EP3434-3SB00-0AX0 (24 V/10 A)

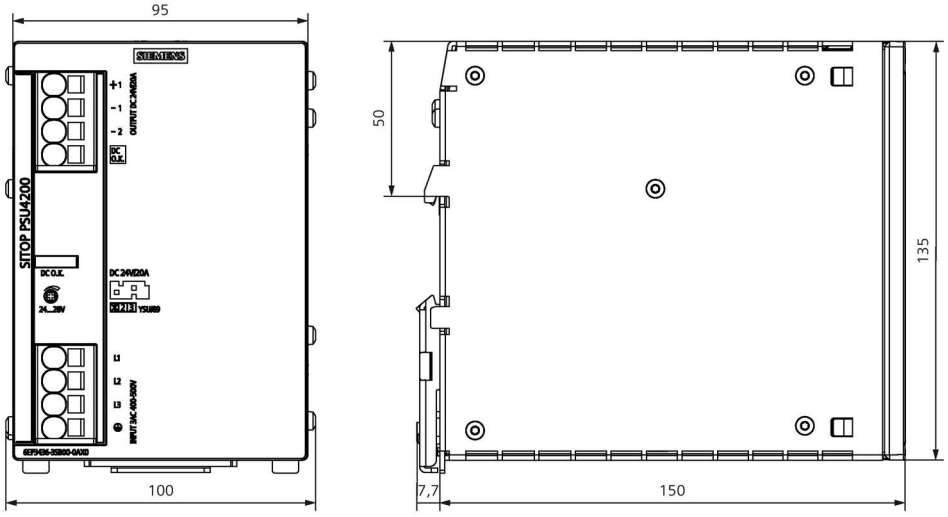


Figure 2-8 Dimension drawing 6EP3436-3SB00-0AX0 (24 V/20 A)

	6EP3434-3SB00-0AX0 (24 V/10 A)	**6EP3436-3SB00-0AX0 (24 V/20 A)**
Dimensions (W × H × D) in mm	70 × 135 × 125	95 × 135 × 150
Weight	Approx. 0.64 kg	Approx. 1.66 kg

Mounting/removal

3

⚠WARNING

Installing the device in a housing or a control cabinet

SITOP PSU4200 power supplies are built-in devices. They must be installed in a housing or control cabinet where only qualified personnel have access.

The device can be snapped onto standard mounting rails in a control cabinet (see Chapter Mechanical system (Page 35)). The 10 A device (6EP3434-3SB00-0AX0) can also be directly mounted on walls.

Mounting

The device must be mounted in such a way that the input terminals are at the bottom and the output terminals at the top. A clearance of at least 45 mm must be maintained above and below the device (max. cable duct depth 50 mm).

To mount the device on a standard mounting rail, position it with the mounting rail guide at the upper edge of the mounting rail and press down to lock it into place. If this is too difficult, press slider ⑥ at the same time, as described under "Removal".

When mounting the 10 A device on a wall, first locate 2 suitable screws on a flat surface. With the slider extended ⑥, (extend the slider until it latches into place) attach the device to the screws and screw the slider to the wall or panel using a suitable screw.

Holes, see Figure 3-2 Wall mounting (Page 17)

Removal

To remove, pull up the slider ⑥ using a screwdriver (see Figure 3-1 Mounting/removal (example 6EP3434-3SB00-0AX0) (Page 16)) and disengage the device at the bottom edge of the standard mounting rail. Then you can remove the device from the upper edge of the standard mounting rail.

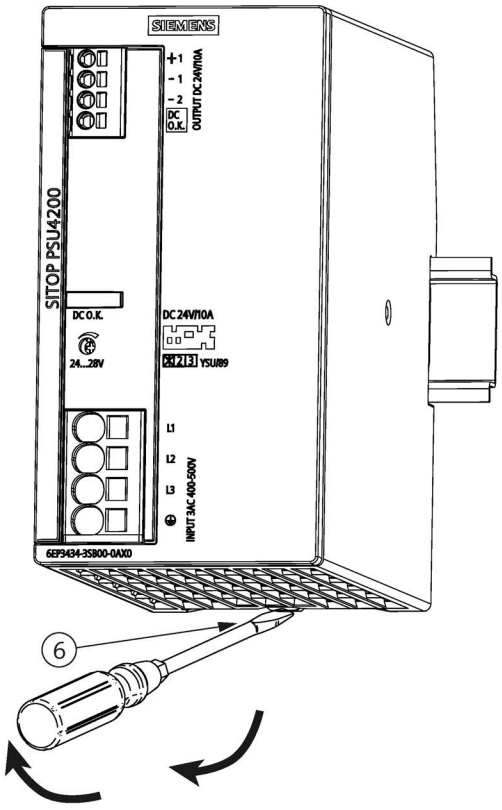


Figure 3-1 Mounting/removal (example 6EP3434-3SB00-0AX0)

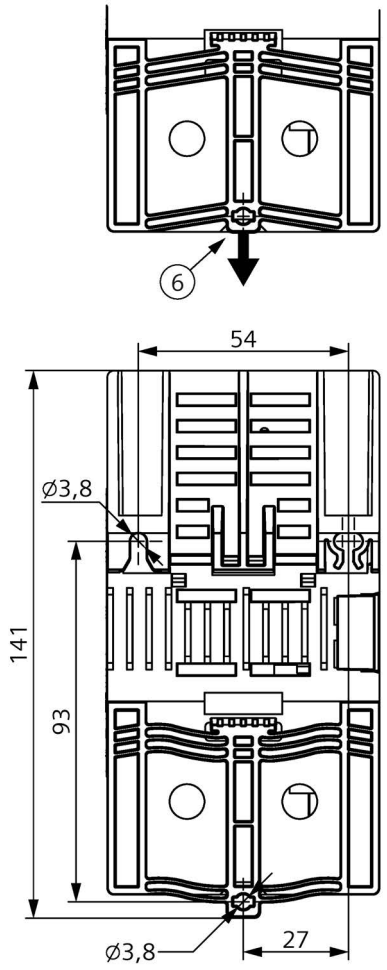


Figure 3-2 Wall mounting

Mounting position, mounting clearances

4

4.1 Standard mounting position

The device is mounted on standard mounting rails TH 35-15/7,5 (EN 60715). The certified standard mounting position of the device is vertical, and to ensure correct cooling it must be mounted in such a way that the input terminals are at the bottom and the output terminals are at the top.

A clearance of at least 45 mm must be maintained above and below the device (max. cable duct depth 50 mm).

No space is required at the side.

Output current as a function of the ambient temperature and mounting height

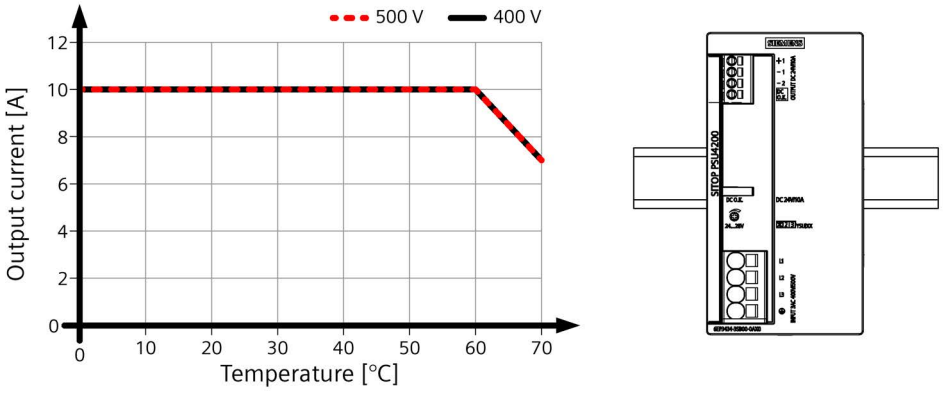


Figure 4-1 6EP3434-3SB00-0AX0 standard mounting position

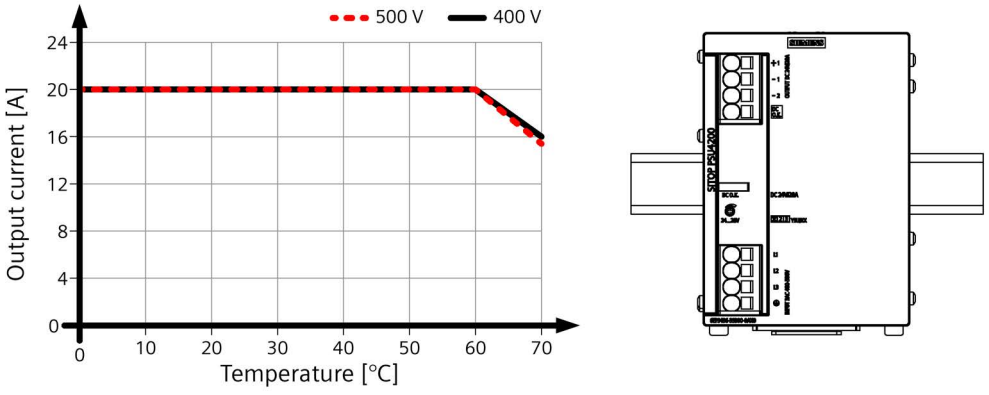


Figure 4-2 6EP3436-3SB00-0AX0 standard mounting position

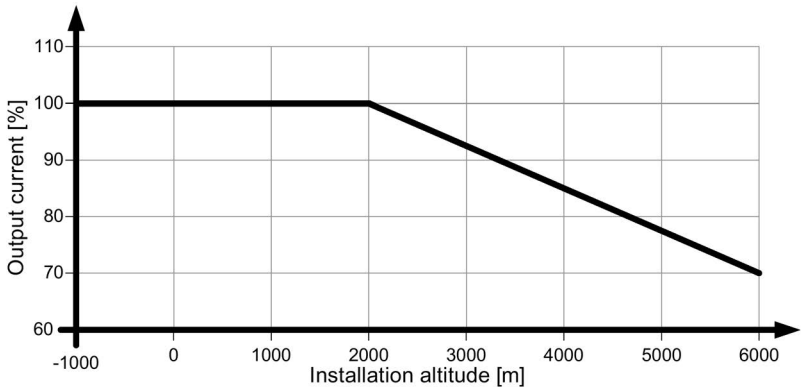


Figure 4-3 Mounting height derating

4.2 Other mounting positions

For mounting positions that deviate from the standard mounting position, derating factors (reduction of the output power or the permissible ambient temperature) must be observed in accordance with the following diagrams.

Note

In the case of mounting positions that deviate from the standard mounting position, reduced mechanical resistance of the devices against vibration and shock must be expected.

Particularly when installing on a vertically fastened standard mounting rail, additional measures may be required, e.g. to prevent the device from slipping on the standard mounting rail.

4.2.1 6EP3434-3SB00-0AX0

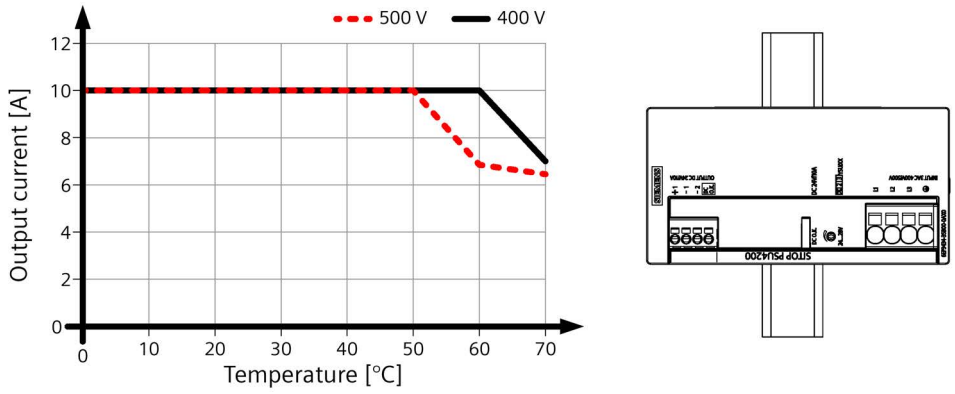


Figure 4-4 Mounting position (1)

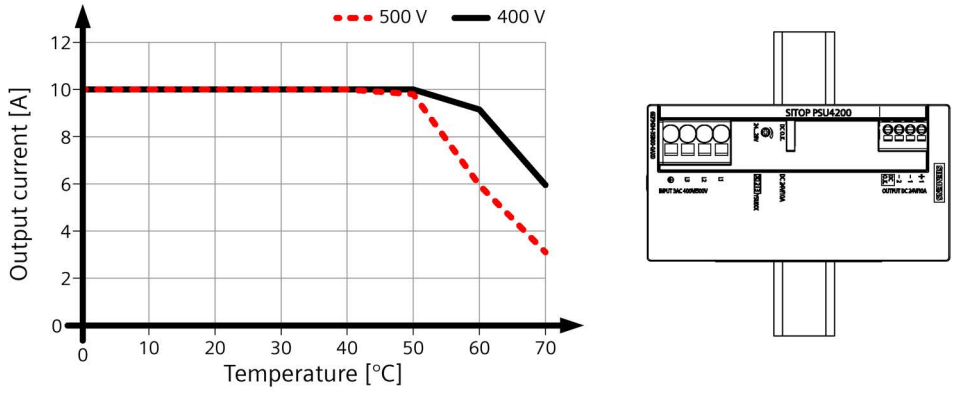


Figure 4-5 Mounting position (2)

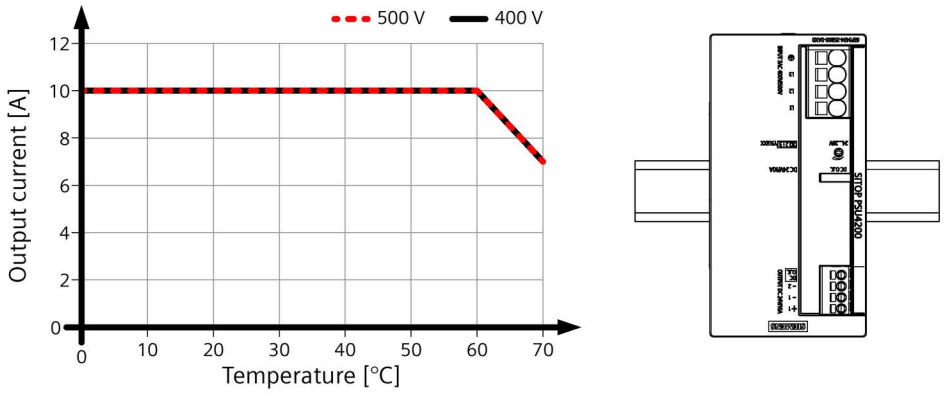


Figure 4-6 Mounting position (3)

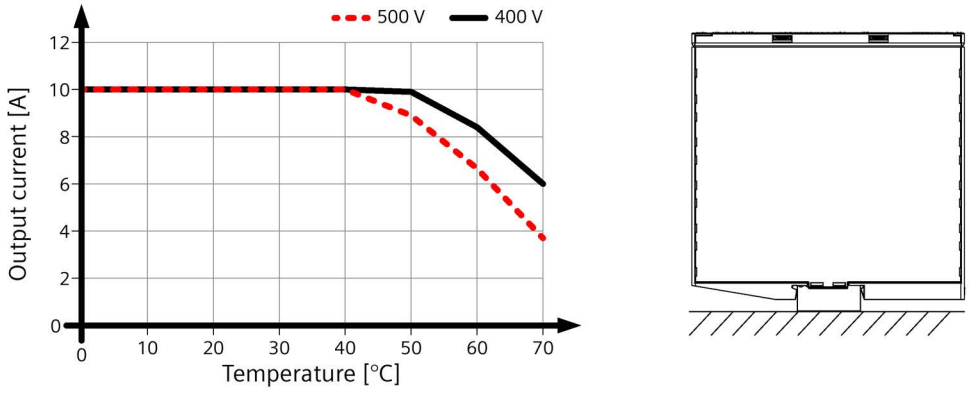


Figure 4-7 Mounting position (4)

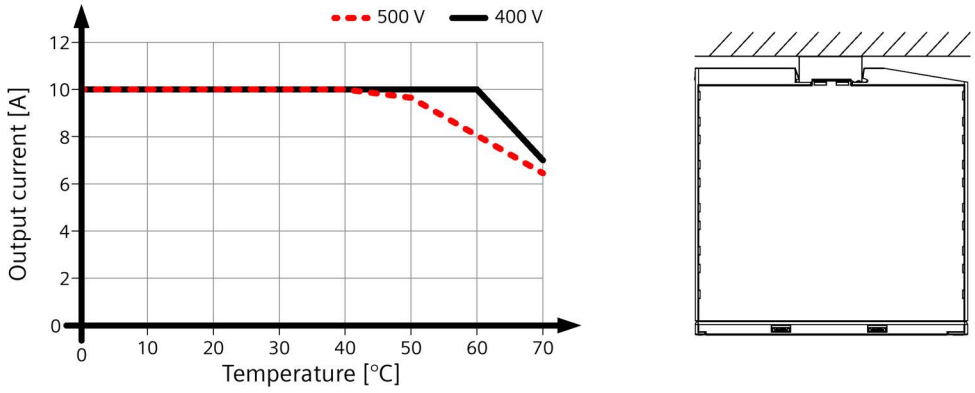


Figure 4-8 Mounting position (5)

4.2.2 6EP3436-3SB00-0AX0

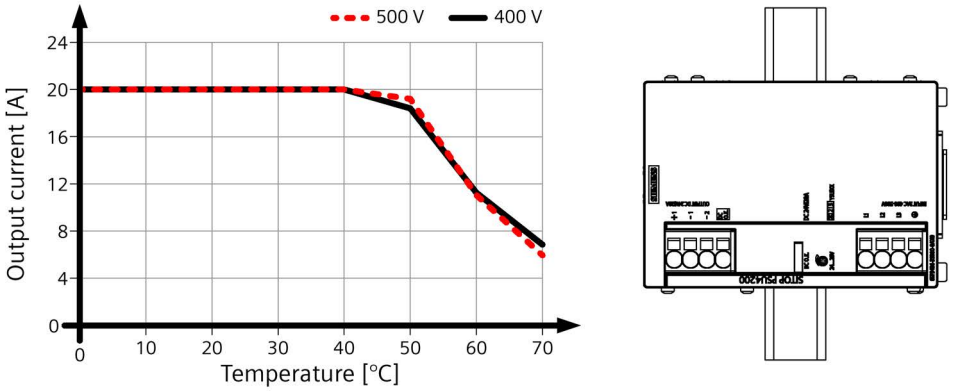


Figure 4-9 Mounting position (1)

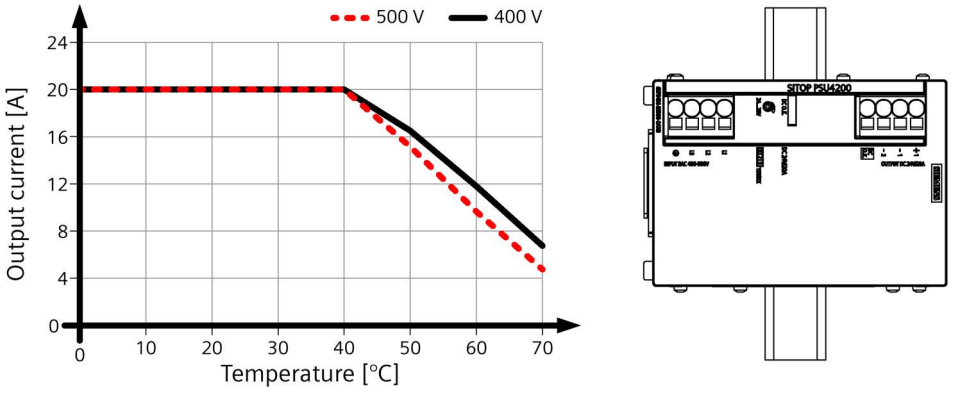


Figure 4-10 Mounting position (2)

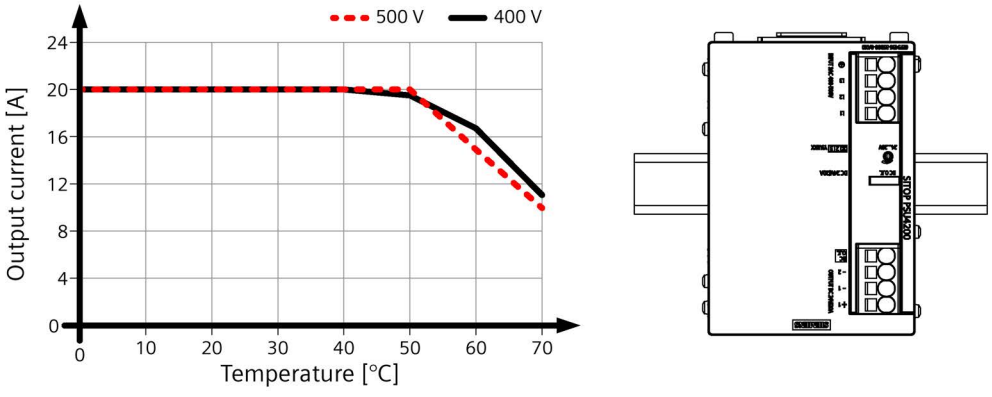


Figure 4-11 Mounting position (3)

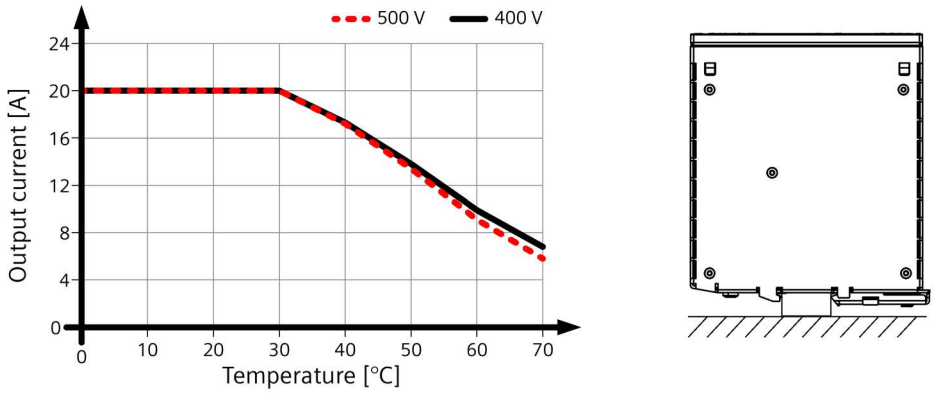


Figure 4-12 Mounting position (4)

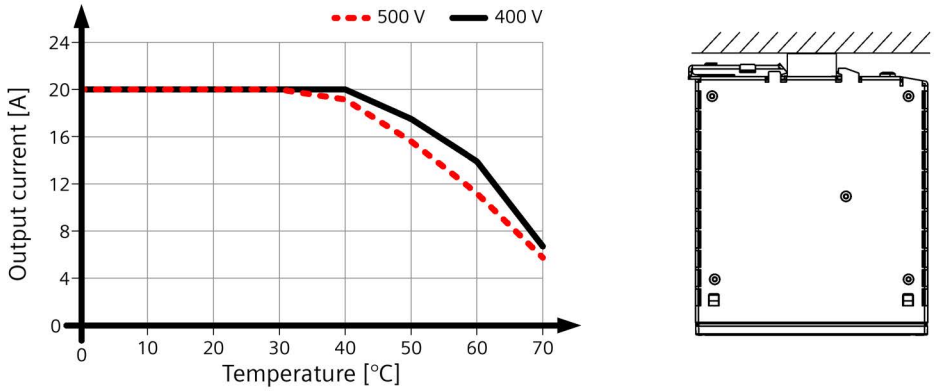


Figure 4-13 Mounting position (5)

Installation

5

⚠WARNING

Hazard due to electric shock

Before installation or maintenance work can begin, the system's main switch must be switched off and measures taken to prevent it being switched on again. If this instruction is not observed, touching live parts can result in death or serious injury.

Copper wire approved for 90 °C should be used for the wiring (UL 508: 60/75 °C).

5.1 Line-side connection

SITOP PSU4200 power supplies are designed for connection to a 3-phase AC line supply (TN, TT line system according to IEC 60364-1, IT line system according to IEC 60364-1 in IEC 61204-7 applications) with rated voltage 400 - 500 V AC (IT line system 400 V), 50 - 60 Hz.

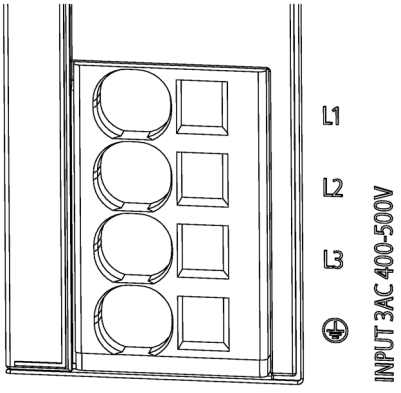


Figure 5-1 Line connection (example 6EP3434-3SB00-0AX0)

The line supply is connected via terminals L1, L2, L3 and PE (see Figure 5-1 Line connection (example 6EP3434-3SB00-0AX0) (Page 25)) and must be implemented according to IEC 60364. A protective device (miniature circuit-breaker or circuit-breaker) and a disconnection unit for the power supply must be provided. A ground-fault circuit interrupter is not permissible against indirect contact as the only protective measure. This is true for the complete line supply protected by the ground-fault circuit interrupter.

Protection

SITOP PSU4200	Required line-side protection
6EP3434-3SB00-0AX0 (24 V/10 A)	3ph coupled miniature circuit breakers 3 - 16 A (IEC 898; for UL: UL489-listed/Category DIVQ) characteristic C or circuit breaker (e.g. Siemens 3RV2... / 3RV27... / 3RV28...), alternatively, slow-acting fuses (for UL: UL248-listed)
6EP3436-3SB00-0AX0 (24 V/20 A)	3ph coupled miniature circuit breakers 6 - 16 A (IEC 898; for UL: UL489-listed/Category DIVQ) characteristic C or circuit breaker (e.g. Siemens 3RV2... / 3RV27... / 3RV28...), alternatively, slow-acting fuses (for UL: UL248-listed)

The protective conductor of the line supply must be connected at the PE terminal.

NOTICE
Country-specific regulations must be complied with when installing.

5.2 Output-side connection

SITOP PSU4200 power supplies provide an isolated (= ungrounded) SELV (ES1) output voltage (Safety Extra Low Voltage (Electrical energy source class 1)). The power supply output is isolated and is short-circuit and no-load proof. If an overload occurs, the electronic current limiting function limits the output current to a maximum value (see Chapter Technical data (Page 29)).

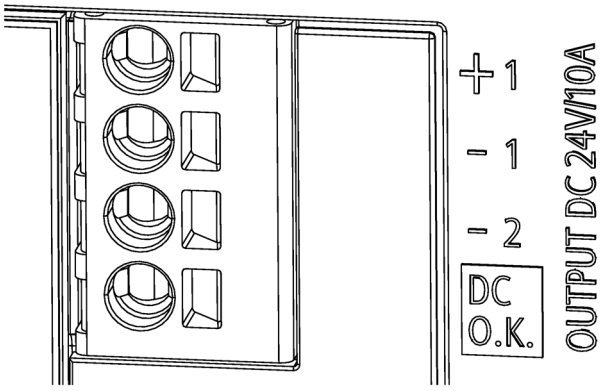


Figure 5-2 Connecting the output voltage (example 6EP3434-3SB00-0AX0)

The output voltage is connected via the "+" and "-" terminals at the output of the power supply (see Figure Connecting the output voltage (example 6EP3434-3SB00-0AX0) (Page 27)). Ensure that the output cables are dimensioned correctly for the maximum output current rms value and fused accordingly.

Note

If the safety concept of the plant or system specifies that the DC output circuit should be grounded (PELV), then it is permissible that the output voltage of the SITOP power supply is grounded. In this case, ideally, the grounding at the output should be directly connected from terminal "-" of the power supply to a suitable connection point of the protective conductor system (PE) of the plant or system.

Technical data

6

Note

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

6.1 Input

	6EP3434-3SB00-0AX0 (24 V/10 A)	6EP3436-3SB00-0AX0 (24 V/20 A)
Input	3-phase, AC	
Rated voltage $U_{in\ rated}$	400 - 500 V	
Voltage range • Remark	320 - 550 V	320 - 550 V Derating at U_{in} < 340 V: 0.5 % $I_{out\ rated}$/V
Switch-in/switch-out threshold, typical	304/297 V	315/291 V
Line failure buffering at $I_{out\ rated}$, min./typ.	5/16 ms	5/8 ms
Power failure buffering	at 400 V	
Rated line frequency	50 - 60 Hz	
Line frequency range	47 - 63 Hz	
Input current at a rated input voltage of 400 - 500 V	0.7 - 0.6 A	1.4 - 1.2 A
Inrush current limiting (25 °C), max.	50 A	36 A
I^2t, max.	0.9 A^2s	0.9 A^2s
Duration of the switch-on current limiting (25 °C), typ.	20 ms	20 ms
Integrated input fuse	None	None
Protection/fusing in the line feeder cable (IEC 898)	Protection required: 3ph coupled miniature circuit breakers 3 - 16 A (IEC 898; for UL: UL489-listed/Category DIVQ) characteristic C or circuit breaker (e.g. Siemens 3RV2... / 3RV27... / 3RV28...), alternatively, slow-acting fuses (for UL: UL248-listed)	Protection required: 3ph coupled miniature circuit breakers 6 - 16 A (IEC 898; for UL: UL489-listed/Category DIVQ) characteristic C or circuit breaker (e.g. Siemens 3RV2... / 3RV27... / 3RV28...), alternatively, slow-acting fuses (for UL: UL248-listed)

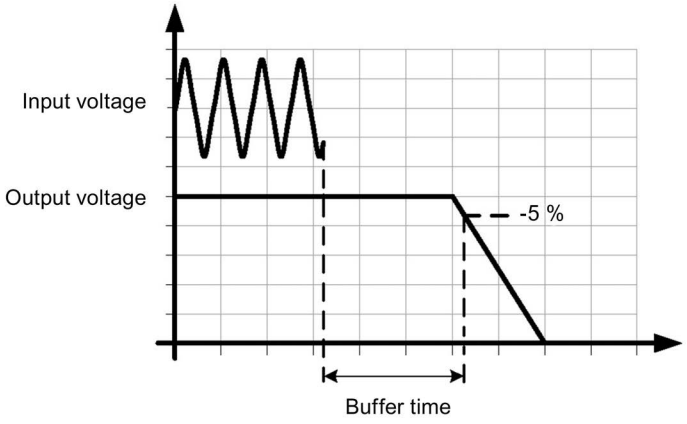


Figure 6-1 Power failure buffering

6.2 Output

	6EP3434-3SB00-0AX0 (24 V/10 A)	6EP3436-3SB00-0AX0 (24 V/20 A)
Output	Regulated, isolated DC voltage	
Rated voltage $U_{out\ rated}$ DC	24 V	
Total tolerance, static ±	3 %	3 %
Static line regulation, approx. ±	0.2 %	0.2 %
Static load regulation, approx. ±	0.3 %	0.3 %
Residual ripple Peak-peak, max.	150 mV	150 mV
Residual ripple peak-peak, typ.	48 mV	25 mV
Spikes peak-peak, max. (bandwidth, 20 MHz)	240 mV	240 mV
Spikes peak-peak, typ. (bandwidth, approx. 20 MHz)	30 mV	10 mV
Adjustment range	24 - 28 V	
• Remark	Derating at $U_{out} > U_{out\ rated}$: 4 % $I_{out\ rated}$/V	
Output voltage can be adjusted	Yes	
Adjusting the output voltage	via potentiometer at the front of the device	
Operating display	LED green for "DC O.K."	
Signaling	Signal output, see Chapter Status displays and signaling (Page 12)	
Response when switching on/off	No overshoot of U_{out} (soft start)	U_{out} overshoots by approximately 1 %
Starting delay, max.	1.5 s	1.5 s
Start delay, typ.	600 ms	600 ms
Voltage rise 400 - 500 V AC, max.	500 ms	500 ms
Voltage rise, typ.	210 ms	230 ms
Rated current $I_{out\ rated}$	10 A	20 A
Current range	0 - 10 A	0 - 20 A
• Remark	60 ... 70 °C derating: 3 % $I_{out\ rated}$/K	60 ... 70 °C derating: 2 % $I_{out\ rated}$/K
Active power output, typ.	240 W	480 W
Can be connected in parallel to increase the power rating	Yes	
Number of devices that can be connected in parallel to increase the power rating, units	2	
Output characteristic	See Figure 6-3 Output characteristic 6EP3434-3SB00-0AX0 (Page 32)	See Figure 6-4 Output characteristic 6EP3436-3SB00-0AX0 (Page 32)
Capacitive load, max.	2 mF/A	

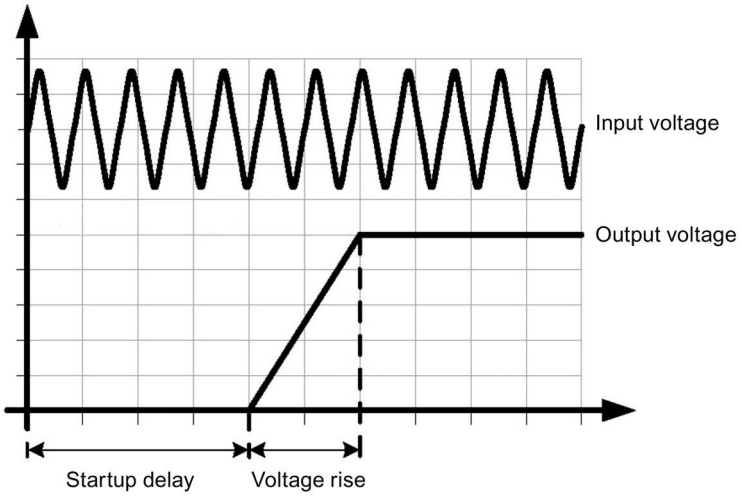


Figure 6-2 Startup delay/voltage rise

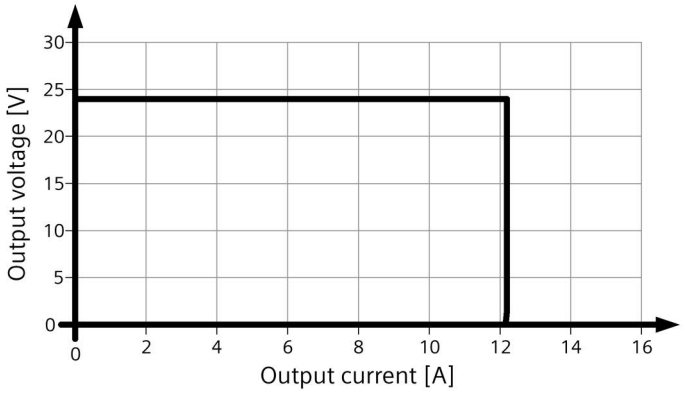


Figure 6-3 Output characteristic 6EP3434-3SB00-0AX0

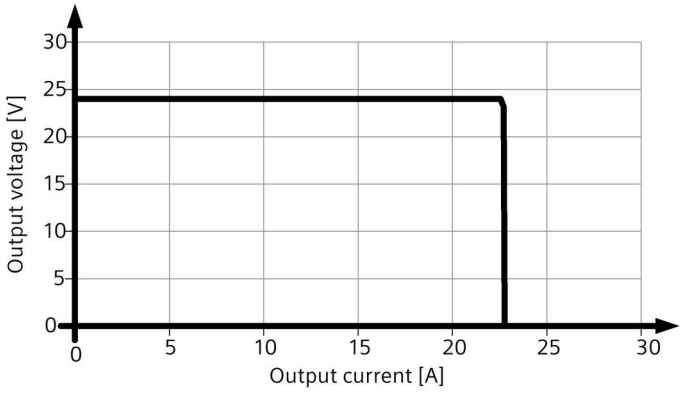


Figure 6-4 Output characteristic 6EP3436-3SB00-0AX0

The device supplies a constant output voltage until the current limit is reached. In the event of an overload, the output current and the output voltage are reduced. (see Figure 6-3 Output characteristic 6EP3434-3SB00-0AX0 (Page 32), Figure 6-4 Output characteristic 6EP3436-3SB00-0AX0 (Page 32))

6.3 Efficiency

	6EP3434-3SB00-0AX0 (24 V/10 A)	6EP3436-3SB00-0AX0 (24 V/20 A)
Efficiency at $U_{out\ rated}$, $I_{out\ rated}$, approx.	90 %	91 %
Power loss at $U_{out\ rated}$, $I_{out\ rated}$, approx.	27 W	48 W
No-load operation power loss, approx.	3.0 W	3.5 W

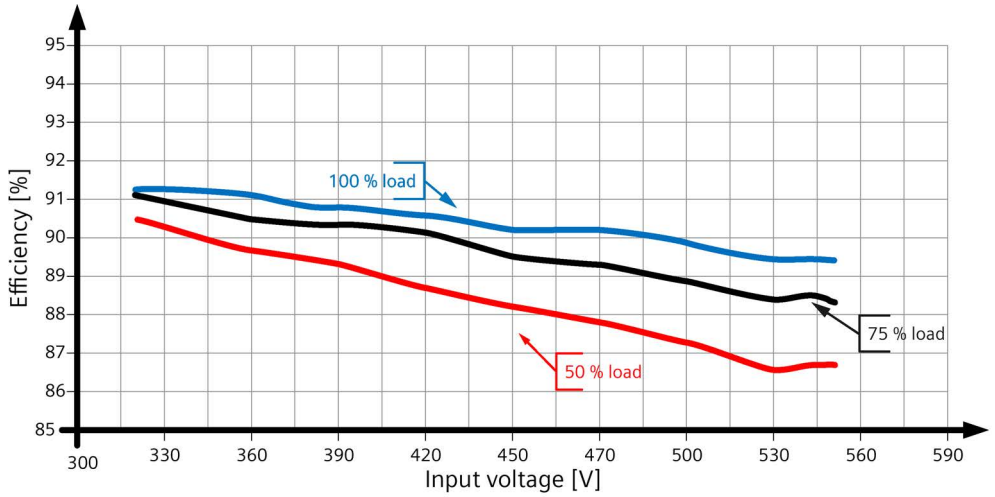


Figure 6-5 Efficiency 6EP3434-3SB00-0AX0 (24 V/10 A)

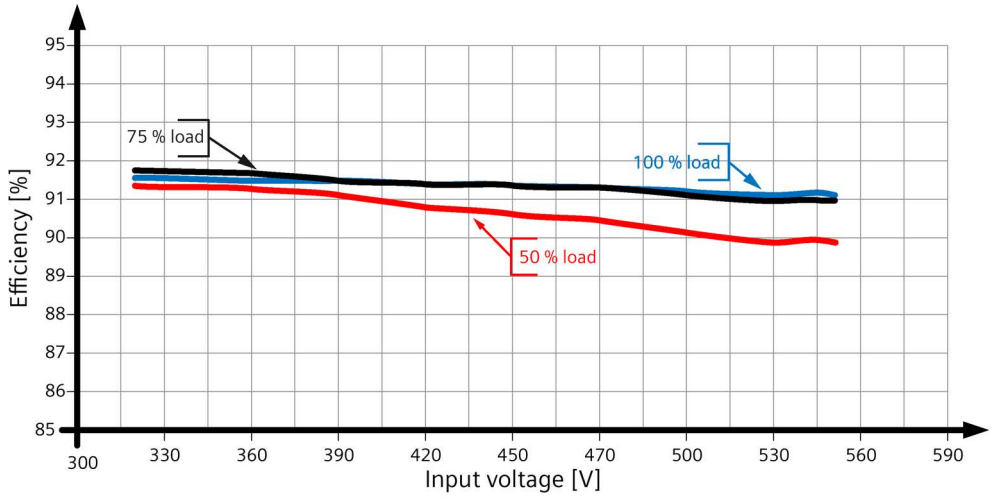


Figure 6-6 Efficiency 6EP3436-3SB00-0AX0 (24 V/20 A)

6.4 Closed-loop control

	6EP3434-3SB00-0AX0 (24 V/10 A)	6EP3436-3SB00-0AX0 (24 V/20 A)
Dyn. line regulation ($U_{in\ rated}$ ±15 %), U_{out} ± max.	0.2 %	0.2 %
Dyn. load regulation (I_{out}: 10/90/10 %), U_{out} ± max.	5 %	5 %
Dyn. load regulation (I_{out}: 10/90/10 %), U_{out} ± typ.	1.5 %	1 %
Load step regulation time 10 to 90 %, typ.	1 ms	1 ms
Load step regulation time 90 to 10 %, typ.	1 ms	1 ms

6.5 Protection and monitoring

	6EP3434-3SB00-0AX0 (24 V/10 A)	6EP3436-3SB00-0AX0 (24 V/20 A)
Output overvoltage protection	< 32 V	< 32 V
Current limitation, typ.	12.2 A	23.4 A
Property of the output: short-circuit proof	Yes	
Short-circuit protection	U-I characteristic	U-I characteristic
Continuous short-circuit current: Rms value, typ.	12.5 A	23.5 A

6.6 MTBF

	6EP3434-3SB00-0AX0 (24 V/10 A)	6EP3436-3SB00-0AX0 (24 V/20 A)
Mean **T**ime **B**etween **F**ailures	SN29500: > 1330000 h at 40 °C, rated load, 24 hour operation	SN29500: > 815000 h at 40 °C, rated load, 24 hour operation

6.7 Mechanical system

	6EP3434-3SB00-0AX0 (24 V/10 A)	**6EP3436-3SB00-0AX0 (24 V/20 A)**
Connection system	Screw-type terminal	
Connections: Line input	L1, L2, L3, PE: 1 spring-loaded terminal each for 0.2 - 10 mm² solid/finely stranded	
Connections: Output	+1, -1, -2: one spring-loaded terminal each for 0.2 - 4/2.5 mm² solid/finely stranded	+1, -1, -2: one spring-loaded terminal each for 0.2 - 10 mm² solid/finely stranded
Connections: Signal contact	DC O.K.: 1 spring-loaded terminal each for 0.2 - 4/2.5 mm² solid/finely stranded	DC O.K.: 1 spring-loaded terminal for 0.2 - 10 mm² solid/finely stranded
Width of the housing	70 mm	95 mm
Height of the housing	135 mm	135 mm
Depth of the housing	125 mm	150 mm
Installation width	70 mm	100 mm
Mounting height	225 mm	225 mm
Weight, approx.	0.64 Kg	1.66 Kg
Product feature of the housing: housings can be lined up next to one another	Yes	
Type of mounting: Wall/panel mounting	Yes	No
Type of mounting: DIN rail mounting	Yes	
Type of mounting: S7-300 rail mounting	No	
Mounting	Can be snapped onto standard TH35-15/7,5 mounting rails (EN 60715)	

6.8 Accessories

	6EP3434-3SB00-0AX0 (24 V/10 A) **6EP3436-3SB00-0AX0 (24 V/20 A)**
Electrical accessories	Buffer module, redundancy module, selectivity module or DC UPS

6.9 Dimension drawing

See Chapter Dimensions and weight (Page 14)

CAD data that can be downloaded from the Internet:

6EP3434-3SB00-0AX0
(http://www.automation.siemens.com/bilddb/index.aspx?objKey=G_KT01_XX_02023)

6EP3436-3SB00-0AX0
(http://www.automation.siemens.com/bilddb/index.aspx?objKey=G_KT01_XX_02026)

Safety, approvals, EMC

7

7.1 Safety

	6EP3434-3SB00-0AX0 (24 V/10 A) **6EP3436-3SB00-0AX0 (24 V/20 A)**
Primary/secondary galvanic isolation	Yes
Galvanic isolation	SELV (ES1) output voltage U_{out} according to EN 61204-7 transformer according to EN 61558-2-16
Protection class	Class I
Degree of protection (EN 60529)	IP20
Leakage current, typ.	0.4 mA
Leakage current, max.	0.8 mA
Test voltage	see Table Test voltage (Page 38)

7.2 Test voltage

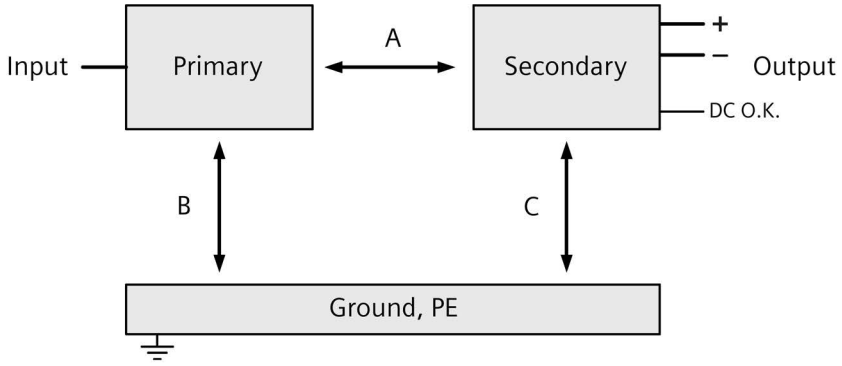


Figure 7-1 Test voltage diagram

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 (L1, L2, L3)
- Connect output terminals "DC O.K." and PE with one another

Test (C)

- Connect output terminals and "DC O.K." with one another and measure with respect to PE

Table 7- 1 Test voltage

	Test time	**Prim ↔ sec (A)**	**Prim ↔ PE (B)**	**Sec ↔ PE (C)**
Type test	60 s	5000 V DC	2500 V DC	-
Production test	1 s	3350 V DC*)	3350 V DC	850 V DC
Field test	1 s	2500 V DC	2500 V DC	850 V DC

*) 100% of all components for primary (line side) with respect to secondary (load side) are subject to a routine test with at least 4500 V DC.

Remark:
Tripping current for DC measurement: max. 10 mA

7.3 Approvals

	6EP3434-3SB00-0AX0 (24 V/10 A) **6EP3436-3SB00-0AX0 (24 V/20 A)**
CE marking	Yes, (2014/35/EU, 2014/30/EU and 2011/65/EU)
CB certificate	Yes
CB scheme	IEC 62368-1
UL/cUL approval	cULus-listed (UL 508, CSA 22.2 No. 107.1), File E197259
cCSAus approval	Yes, CSA C22.2 No. 62368-1
UKCA marking	Yes
RCM approval	Yes
EAC approval	Yes
SONCAP certificate	Yes
BIS certificate	Available soon

7.4 EMC

		6EP3434-3SB00-0AX0 (24 V/10 A) **6EP3436-3SB00-0AX0 (24 V/20 A)**
Electrostatic discharge	EN 61000-4-2	8 kV contact, 8 kV air
Electromagnetic fields	EN 61000-4-3	80 - 6000 MHz 10 V/m 895 - 905 MHz and 1.89 GHz 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	2 kV symmetrical at the line connections 4 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
Voltage dips	EN 61000-4-11	100 % for 10 ms 60 % for 200 ms 30 % for 500 ms
Voltage interruptions	EN 61000-4-11	100% for 5000 ms
Emitted interference	EN 55032	Class A
Generic standards	EN 61000-6-2	Immunity for industrial environments
	EN 61000-6-4	Noise emission for industrial environments

Environmental conditions

8

	6EP3434-3SB00-0AX0 (24 V/10 A) **6EP3436-3SB00-0AX0 (24 V/20 A)**
Ambient temperature	-25 ... 70 °C for natural convection (self convection)
	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	Climate class 3K3 according to EN 60721, 5 - 95 % no condensation
Degree of pollution	2
Mechanical stressing in operation	Tested according to: • EN 60068-2-6 vibration, test Fc: 3.5 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/s^2, test duration 11 ms
Damaging gases	Tested according to: • EN 60068-2-42 sulfur dioxide • EN 60068-2-43 hydrogen sulfide
Atmospheric pressure	Operation: • 1080 - 795 hPa (≤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: II up to 2000 m (EN 61204-7) I from 2000 m up to 6000 m (EN 61204-7) Storage: • 1080 - 660 hPa (≤3500 m)

Applications

9

9.1 Parallel connection to increase the power rating

To increase the power rating, power supplies of the same type can be directly connected in parallel.

The following must be observed:

- The cables connected to each power supply at terminals "+" and "-" must have identical lengths and the same cable cross-sections (or the same impedance) up to a common external connection point (terminal strip) if possible.
- The power supplies connected in parallel must be switched on simultaneously with a common switch in the line feeder cable (e.g. with the main switch available in control cabinets).
- The output voltages measured in no-load operation for the power supplies that are not yet connected in parallel should not deviate more than a maximum of 50 mV. This usually corresponds to the factory setting. If the output voltage is changed, you should connect the "-" terminals and then, in no-load operation, measure the voltage difference between the "+" terminals that have not yet been connected. The voltage difference should not exceed 50 mV.

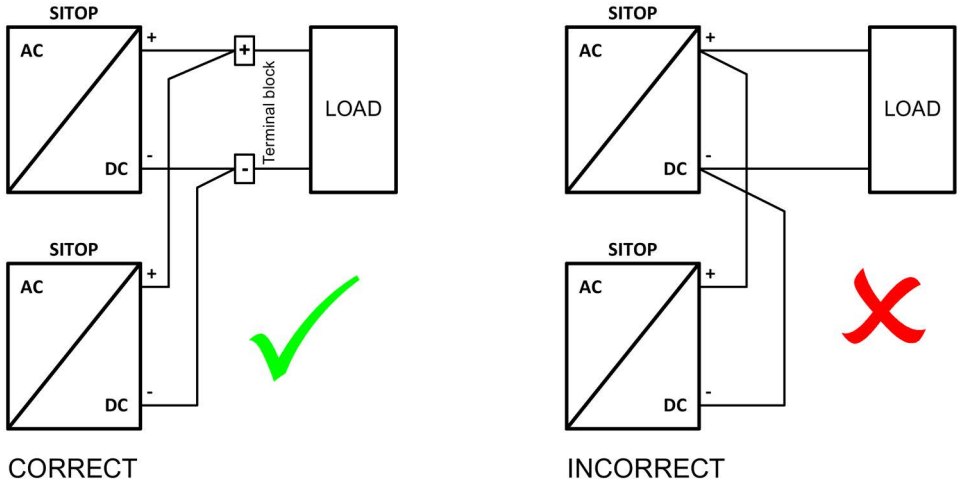


Figure 9-1 Parallel connection

NOTICE

Protective circuit for the parallel connection of more than two power supplies

When connecting more than two power supplies in parallel, additional measures must be taken to prevent high reverse currents in the event of a secondary device fault. For this purpose, a suitable protective circuit (e.g. decoupling diode or DC-capable circuit breaker) must be installed between each "+" terminal of the power supply and the common connection point.

9.2 Parallel connection for redundancy

Connecting several 24 V power supplies in parallel for redundancy purposes is required if especially high demands are placed regarding the availability of a reliable 24 V power supply. Using the SITOP PSE202U redundancy module, two power supplies of the same type up to 20 A can be decoupled (Figure 9-2 Redundant configuration with two power supplies and SITOP PSE202U redundancy module (Page 45)). When one of the devices fails, then the other automatically takes over the power supply. If one of the power supplies fails, then this is signaled using an LED on the redundancy module as well as an isolated relay contact. When dimensioning the system, it must be ensured that n+1 redundant connected power supplies can handle the total power requirement of the remaining n power supplies.

Note

For a high reliability of the supply, it is recommended that the redundant switched power supplies are fused separately on the line-side and, if possible, be connected to different line supplies.

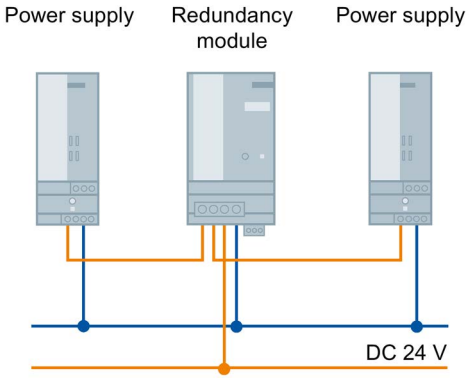


Figure 9-2 Redundant configuration with two power supplies and SITOP PSE202U redundancy module

You can find additional information at:

Manual SITOP Expansion Modules
(https://support.industry.siemens.com/cs/ww/en/view/109768676)

9.3 Series connection for increased voltage

To achieve an output voltage of 48 V DC, two 24 V SITOP power supplies of the same type can be connected in series.

Depending on the grounding point of the secondary output voltages, voltages of +48 V, ±24 V or -48 V can be realized.

Note

For additional details, see Catalog KT 10.1 Chapter 15 Technical information and configuring (see (https://support.industry.siemens.com/cs/ww/de/view/109745655)).

⚠ WARNING

SELV (ES1) in the case of fault, not guaranteed

When connecting two power supplies in series, SELV (ES1) according to EN 61204-7, cannot be guaranteed in the case of a fault.

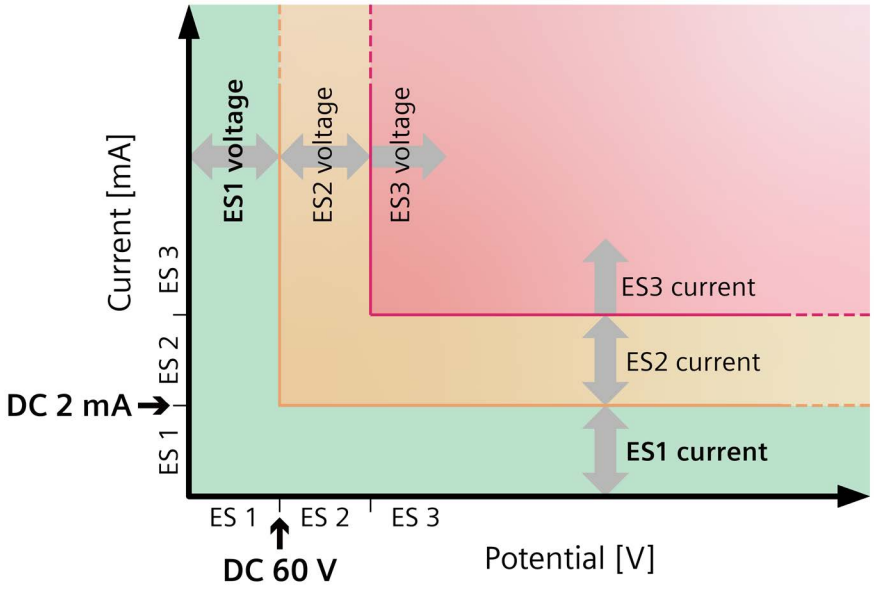


Figure 9-3 Representation of the ES limit values for voltage and current

To guarantee safe and reliable operation of the power supplies in all operating states, for the series circuit, the subsequent wiring using two redundancy modules SITOP RED1200 is recommended.

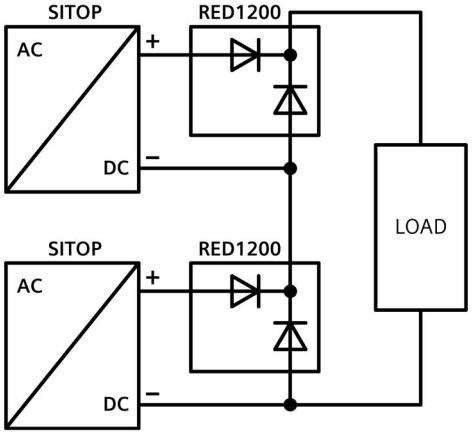


Figure 9-4 Series connection

9.4 Overload protection in the 24 V output circuit

If an overload occurs, the electronic current limiting function of the 24 V power supply limits the output current to a maximum value (see Section Technical data (Page 29)). The output cables are protected against a thermal overload if they are dimensioned corresponding to the maximum rms output current, or protected using additional components (for example, miniature circuit breaker, fuses).

However, a load circuit that fails as a result of overload, for instance, should frequently be reliably and quickly identified and specifically switched off before the power supply goes into current-limiting mode (in current-limiting mode, the supply voltage would also be reduced for all of the remaining 24 V loads).

The SITOP PSE200U selectivity module with 4 outputs (versions with adjustable output current range for each output from 0.5 - 3 A and 3 - 10 A) is available for this purpose; this monitors the 24 V branches for overload and short circuit (Figure 9-5 Electronic protection of 24 V loads using the SITOP PSE200U selectivity module (Page 48)). Brief current peaks, e.g. as a result of a high inrush current, are permitted, and branches with a longer overload are switched into a no-current condition. This is also ensured for cables in a high-ohmic condition and for short circuits that slowly develop over time.

When an output fails, the fault is signaled using a group signal contact or as a single channel signal, and the branch of the module involved is displayed using an LED.

For variants with single-channel signaling, function blocks for evaluation purposes are available for SIMATIC S7-1200/1500/300/400, for STEP 7 Classic and TIA Portal at no charge.

You can find additional information at:

Manual SITOP selectivity modules
(https://support.industry.siemens.com/cs/ww/en/view/108989004)

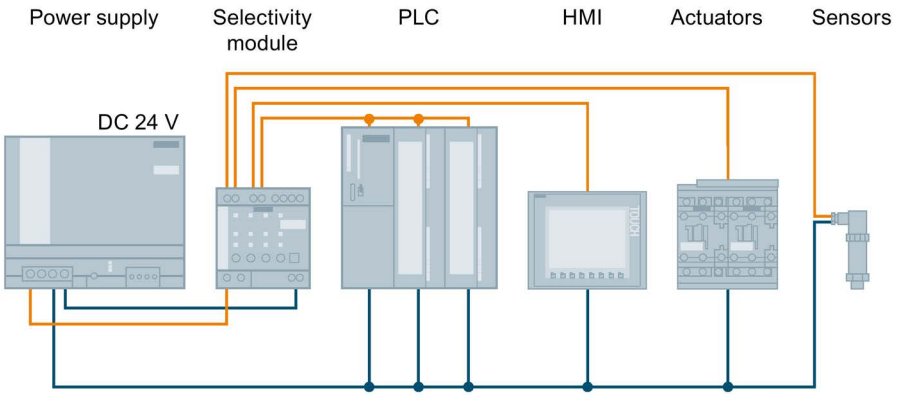


Figure 9-5 Electronic protection of 24 V loads using the SITOP PSE200U selectivity module

9.5 Protection against short-time voltage dips

For a drop in the line-side supply voltage, the 24 V power supply still maintains the output voltage for a short time in the millisecond range (see Chapter Technical data (Page 29)).

For line supplies that manifest frequent brief voltage dips, in order to increase the power supply reliability, it may make sense to increase the line buffering time in the device using an additional SITOP PSE201U buffer module.

The SITOP PSE201U buffer module, based on electrolytic capacitors, is connected in parallel to the power supply output (Figure 9-6 Buffering brief power failures using the SITOP PSE201U buffer module (Page 49)). The buffer time is 200 ms at 40 A up to 1.6 s for a load current of 5 A. This time can be increased a multiple number of times by connecting buffer modules in parallel; the maximum buffer time is 10 s.

You can find additional information at:

Manual SITOP expansion modules
(https://support.industry.siemens.com/cs/ww/en/view/109768676)

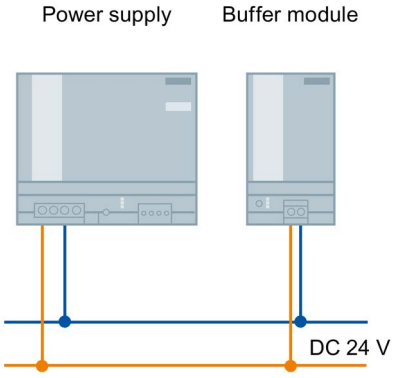


Figure 9-6 Buffering brief power failures using the SITOP PSE201U buffer module

9.6 Protecting against longer power failures

Sudden and longer failures of the line supply voltage can result in undefined states and significant danger as a result of the associated failure of the plant or system control. The SITOP power supply product portfolio includes various DC-UPS solutions to prevent the failure of the 24 V power supply voltage.

Power supply failures up into the minutes range can be buffered using the maintenance-free SITOP UPS500 DC-UPS modules based on capacitors (Figure 9-7 24 V buffering to allow the saving of process data and controlled shutdown of PCs (Page 50)).

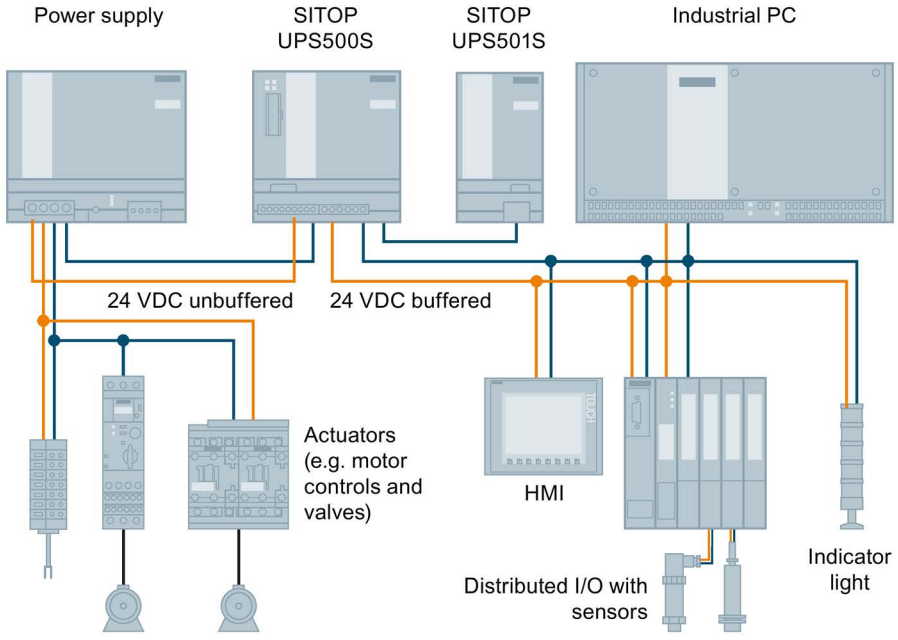


Figure 9-7 24 V buffering to allow the saving of process data and controlled shutdown of PCs

Using the free-of-charge SITOP DC-UPS software tool, DC-UPS systems can be simply integrated into PC-based automation solutions. This supports further processing of the status signals and safely running down the PC.

You can find more information at:

Manual, DC UPS with capacitors
(https://support.industry.siemens.com/cs/ww/en/ps/18042/man)

Using the SITOP UPS1600 DC UPS and battery modules SITOP BAT1600 or SITOP UPS1100, buffer times in the range of hours can be implemented. Intelligent battery management using Energy Storage Link automatically detects the energy storage device, and ensures optimum temperature-controlled charging and continuous monitoring. The UPS1600 with its digital inputs/outputs as well as optional USB interface or Ethernet/PROFINET port can be flexibly integrated into the widest range of automation applications.

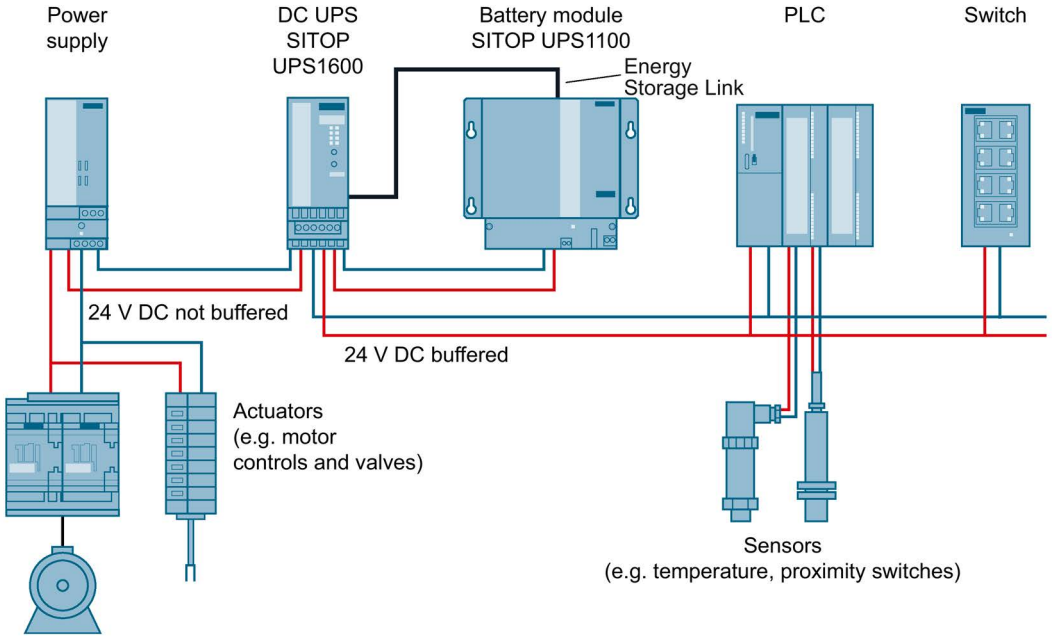


Figure 9-8 24 V buffering with SITOP UPS1600 to maintain communication, signaling functions, sensor measured values and position values

For open, PC-based automation systems, configuration and monitoring is realized using the free-of-charge SITOP Manager, or for devices with an older software release, using PC software SITOP UPS Manager (compatibility list, see DC-UPS Manual SITOP UPS1600/BAT1600/UPS1100 (https://support.industry.siemens.com/cs/ww/en/view/84977415)). This allows PC responses to the operating states of the DC UPS to be freely selected – and offers comprehensive diagnostic functions.

For TIA-based automation systems, the UPS1600 is engineered using the TIA Portal. Special function blocks for SIMATIC S7-300/400/1200 and S7-1500 are available at no charge, and make it easy to integrate operating and diagnostics information into STEP 7 user programs. Preconfigured UPS faceplates for WinCC visualization can be downloaded at no charge.

You can find more information at:

Manual DC-USV SITOP UPS1600/BAT1600/UPS1100 (https://support.industry.siemens.com/cs/ww/en/view/84977415)

Environment

10

The devices are in conformance with RoHS.

Only substances in conformance with PWIS are used (paint-wetting impairment substances).

Disposal guidelines

Packaging and packaging aids can and should always be recycled. The product itself may not be disposed of as domestic refuse.

Service & Support

11

Service & Support Portal

On the main support page, you can find a wealth of useful information about the range of services we offer, documents, downloads and much more:
Industry Online Support (https://support.industry.siemens.com)

Technical support

You can access technical support through the following communication channels:

- Internet:
  Web form for support request (http://www.siemens.com/SupportRequest)
- Smartphone:
  Siemens Industry Online Support App
  (https://new.siemens.com/global/en/products/software/mobile-apps/industry-online-support.html)

Technical documentation on the Internet

Operating instructions and manuals for SITOP are available in the Internet:
Operating instructions/manuals (https://www.siemens.com/sitop-manuals)

SITOP power supply homepage

Current information about our power supplies is available in the Internet at the SITOP home page:
SITOP (http://www.siemens.com/sitop)

Texts for invitation to tender

You can find invitation to tender texts for SITOP power supplies here:
Link to the portal (http://www.siemens.de/ausschreibungstexte)

CAx data

You can find 2D-/3D data, devices circuit diagrams according to IEC and ANSI as well as EPLAN macros as download in the Internet:
Siemens image database (http://www.siemens.com/sitop-cax)

Request all CAx data via the CAx download manager:
CAx shopping cart (http://www.siemens.com/cax)

TIA Selection Tool

Simply and quickly select the optimum power supply, add-on modules and DC-UPS:
TIA Selection Tool cloud (http://www.siemens.com/tst-powersupply)

In addition, the 24 V load view in the TIA Selection Tool allows you to simply select the power supply for your particular project as the current demand of the automation products being supplied is automatically calculated.
Download the TIA Selection Tool (http://www.siemens.de/tia-selection-tool-standalone)

Online catalog and ordering system

The online catalog and the online ordering system are available through the Industry Mall homepage:
Industry Mall (http://www.siemens.com/industrymall/de)

Contact persons

If you have any questions regarding the use of our products, then contact the Siemens contact person in your regional Siemens sales office.

You can find these addresses as follows:

- Internet (http://www.automation.siemens.com/partner)
- Industry Mall (http://www.siemens.com/industrymall/de)