

Power supply

LOGO!Power

Operating Instructions

6EP1311-1SH03 5 V/3 A
 6EP1311-1SH13 5 V/6.3 A
 6EP1321-1SH03 12 V/1.9 A
 6EP1322-1SH03 12 V/4.5 A
 6EP1351-1SH03 15 V/1.9 A
 6EP1352-1SH03 15 V/4 A
 6EP1331-1SH03 24 V/1.3 A
 6EP1332-1SH43 24 V/2.5 A
 6EP1332-1SH52 24 V/4 A

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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
with a safety alert symbol, indicates that minor personal injury can result if proper precautions are not taken.
CAUTION
without a safety alert symbol, indicates that property damage can result if proper precautions are not taken.
NOTICE
indicates that an unintended result or situation can occur if the corresponding information is not taken into account.

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 for the specific task, 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 adhered to. The information in the relevant documentation must be observed.

Trademarks

All names identified by ® are registered trademarks of the Siemens AG. The remaining trademarks in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owner.

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.

Overview

Description

LOGO!Power are powerful power supplies, which - thanks to their flat stepped profile - are extremely flexible for use in a host of applications (for example, in installation distribution boards). The 12 V and 24 V versions are ideal as power supplies for the LOGO! logic modules.

The key benefits of the product include:

- Flat LOGO! mechanical design
- Wide-range input for voltages from 85 to 264 V AC and operation with DC voltage
- Adjustable output voltage
- Green LED for "Output voltage OK"
- Ambient temperature -20 °C to +70 °C (derating from +55 °C)
- Constant current under overload conditions for reliable connection of difficult loads
- When you turn on the power supply, a power reserve of 1.5 times rated current is available for typ. 200 ms
- Export benefits thanks to global certifications

The following device options are available:

Input	Output	Width
100 - 240 V 1-phase AC	5 V DC / 3 A	54 mm
100 - 240 V 1-phase AC	5 V DC / 6.3 A	72 mm
100 - 240 V 1-phase AC	12 V DC / 1.9 A	54 mm
100 - 240 V 1-phase AC	12 V DC / 4.5 A	72 mm
100 - 240 V 1-phase AC	15 V DC / 1.9 A	54 mm
100 - 240 V 1-phase AC	15 V DC / 4 A	72 mm
100 - 240 V 1-phase AC	24 V DC / 1.3 A	54 mm
100 - 240 V 1-phase AC	24 V DC / 2.5 A	72 mm
100 - 240 V 1-phase AC	24 V DC / 4 A	90 mm



Safety and warning information

WARNING

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.

Disposal guidelines



Packaging and packaging aids can and should always be recycled.

The product itself may not be disposed of as domestic refuse.

Ordering data

LOGO!Power
regulated power supply

6EP1311-1SH03	5 V / 3 A
6EP1311-1SH13	5 V / 6.3 A
6EP1321-1SH03	12 V / 1.9 A
6EP1322-1SH03	12 V / 4.5 A
6EP1351-1SH03	15 V / 1.9 A
6EP1352-1SH03	15 V / 4 A
6EP1331-1SH03	24 V / 1.3 A
6EP1332-1SH43	24 V / 2.5 A
6EP1332-1SH52	24 V / 4 A

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Description, device design, dimension drawing

1.1 Device description

LOGO!Power are primary switched-mode power supplies for connection to a 1-phase AC system or to DC systems. 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 indicates the operating status.

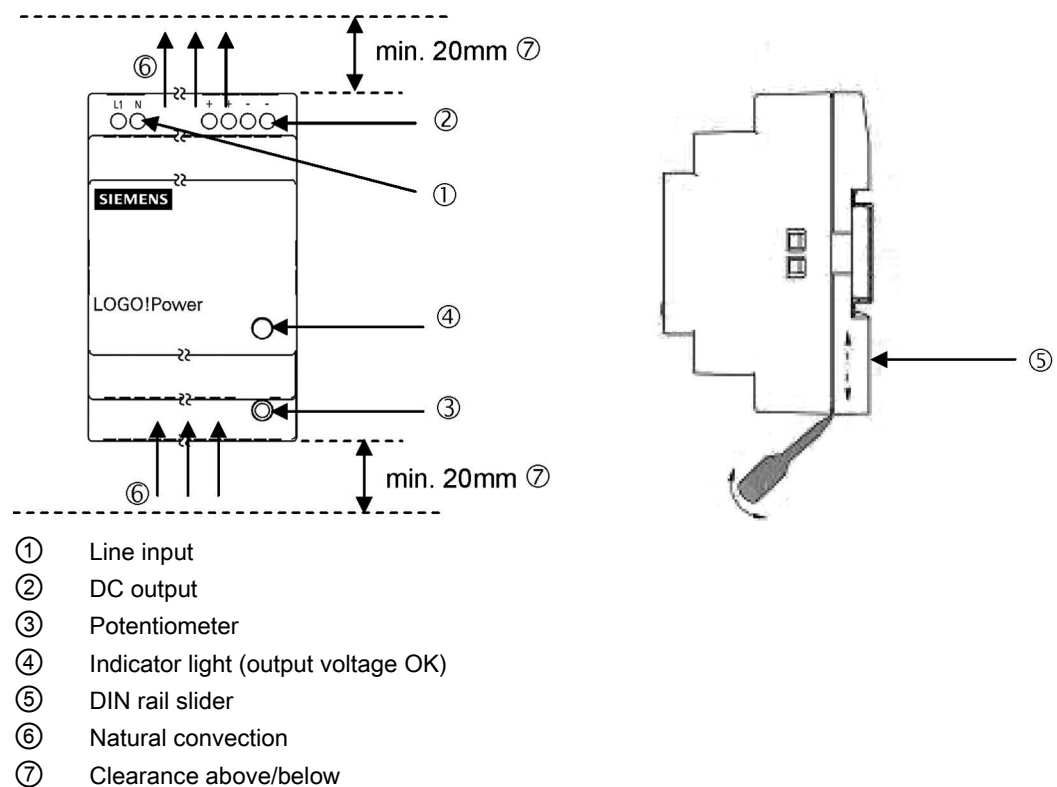


Figure 1-1 Structure

1.2 Connections and terminal designation

The line input terminals ① can be used to establish the connection to supply voltage. The output terminals ② to be supplied are used to connect the loads (see also Section Installation (Page 17)).

Connections and terminal designations	
① Supply input L1, N	One screw terminal each for 0.5 to 2.5 mm ²
② Output +	2 screw terminals for 0.5 mm to 2.5 mm ²
② Output –	2 screw terminals for 0.5 mm to 2.5 mm ²

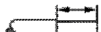
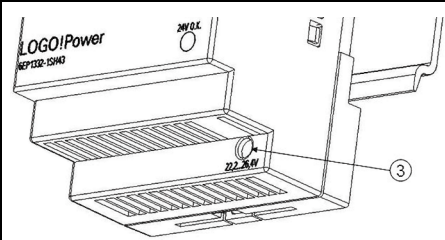
	① + ②	③
	SZS 0,5x3 max. Ø 3,5 mm	SZS 0,4x2 / PZ0/ PH0 max. Ø 3,5 mm
	1 x 0,5 - 4 mm ²	—
	1 x 0,5 - 2,5 mm ²	—
AWG	22 - 12	—
Nm	0,5 - 0,6 Nm	0,02 Nm
	7 mm	—

Figure 1-2 Terminal data

1.3 Potentiometer

The potentiometer ③ on the front of the device is used to set the output voltage. The output voltage is set to the rated value at the factory and can be set within certain limits; for example, to compensate voltage drops across long supply lines to the connected load.

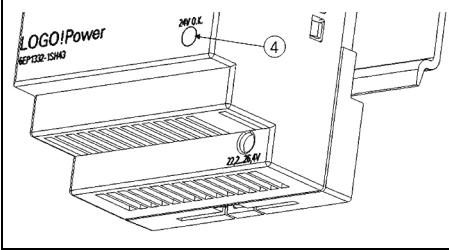
	Type	Factory setting	Setting range
	5 V	5 V	4.6 to 5.4 V
	12 V	12 V	10.5 to 12.9 V
	15 V	15 V	13.9 to 16.1 V
	24 V	24 V	22.2 to 26.4 V

WARNING

Actuation of the potentiometer is allowed only by means of an insulated screwdriver.

Notes on potentiometer operation (such as a screwdriver, torque) refer to Chapter Connections and terminal designation (Page 10), Fig. Terminal data.

1.4 Status displays and signaling

Status display	Green LED for output voltage OK	
	Signaling	
	LED ④ lights up green	Normal operation, output voltage in setpoint range
	LED ④ off	Supply voltage missing or output voltage is not in setpoint range due to overload

1.5 Block diagram

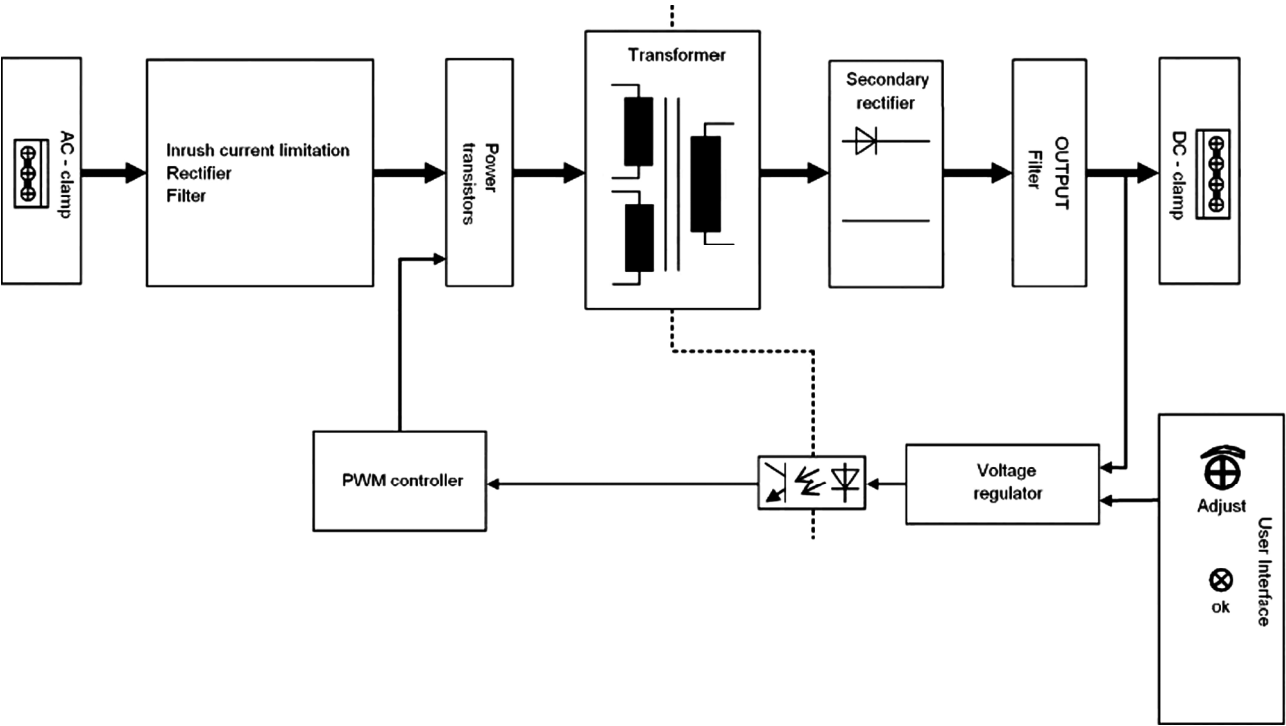


Figure 1-3 Block diagram

1.6 Dimensions and weight

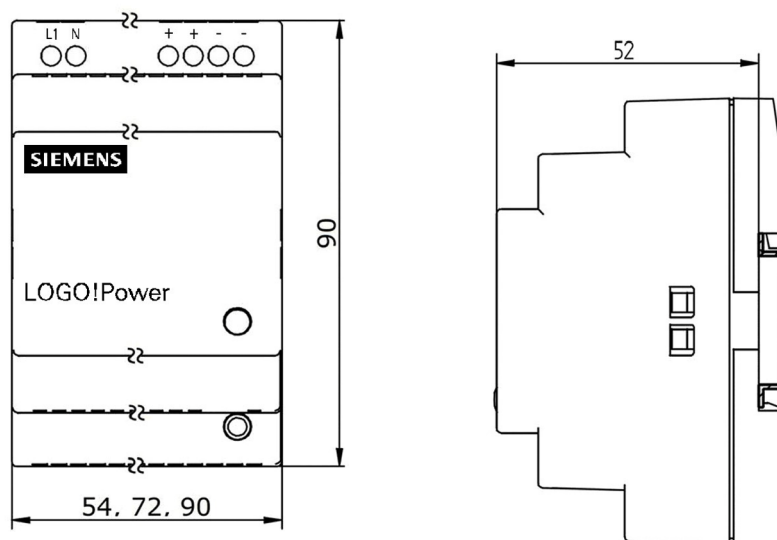


Figure 1-4 Dimension drawing

Dimensions (W × H × D)	Weight
54 × 90 × 55 mm	Approx. 160 g
72 × 90 × 55 mm	Approx. 250 g
90 × 90 × 55 mm	Approx. 320 g

Mounting/Disassembly

WARNING

The LOGO!Power power supplies are built-in units. They must be installed in a casing or control cabinet to which only qualified personnel have access.

The devices can be snapped onto standard mounting rail EN 60715 35x7.5/15 for installation in a control cabinet.

Installation

To mount the device, position it with the mounting rail guideway at the upper edge of the DIN rail and press down to lock it into place. If this is too difficult, press slider ① at the same time, as described for "Disassembly".

Deinstalling

To remove, pull up the slider ① using a screwdriver ② and disengage the device at the bottom edge of the DIN rail. Then you can remove the device from the upper edge of the DIN rail.

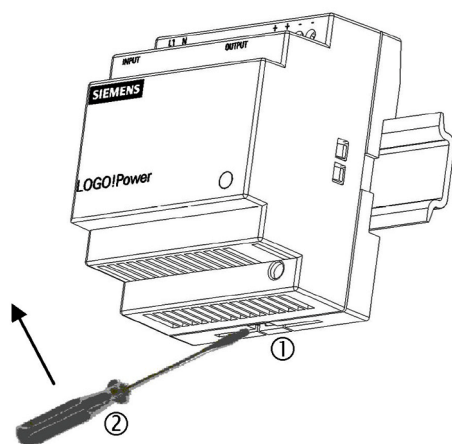


Figure 2-1 Deinstalling

WARNING

If the device is to be used in a hazardous area (Ex II 3G Ex nA IIC T3) it must be installed in a distributor box with degree of protection IP54 or higher.

Mounting position, installation clearances

3.1 Standard mounting position

The device is designed for installation on a standard mounting rail EN 60715 35x7.5/15. The device must be mounted vertically to ensure proper cooling, and with the input terminals and output terminals at the top.

A clearance of at least 20 mm should be maintained above and below the device. No space is required at the side.

3.2 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.

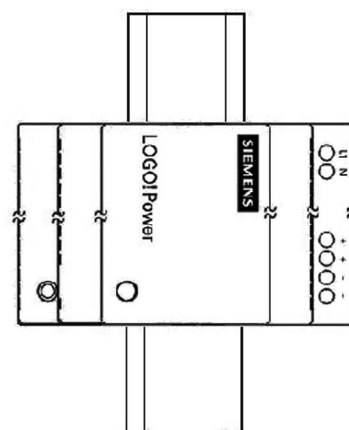
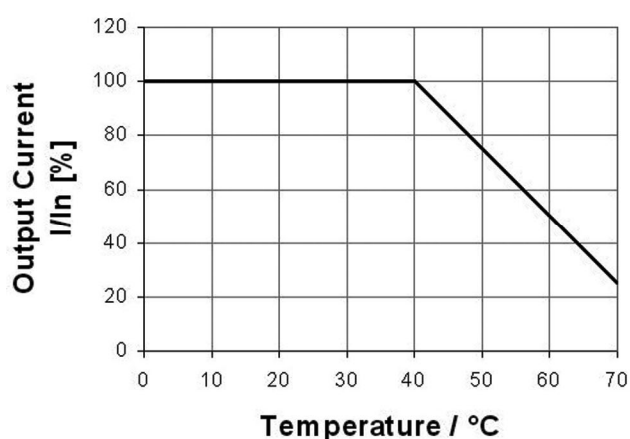


Figure 3-1 Mounting position (1)

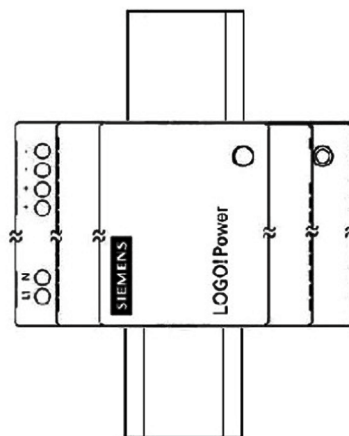
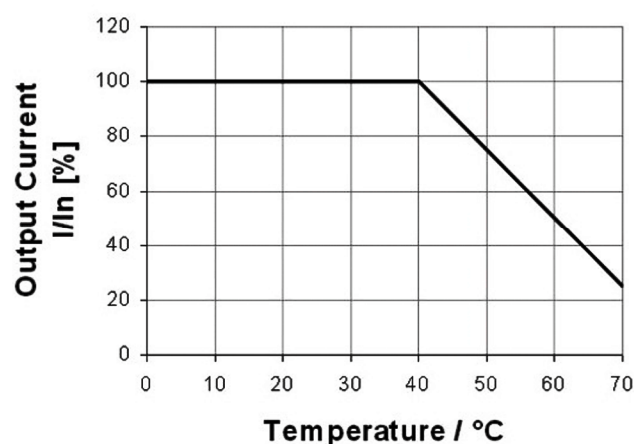


Figure 3-2 Mounting position (2)

3.2 Other mounting positions

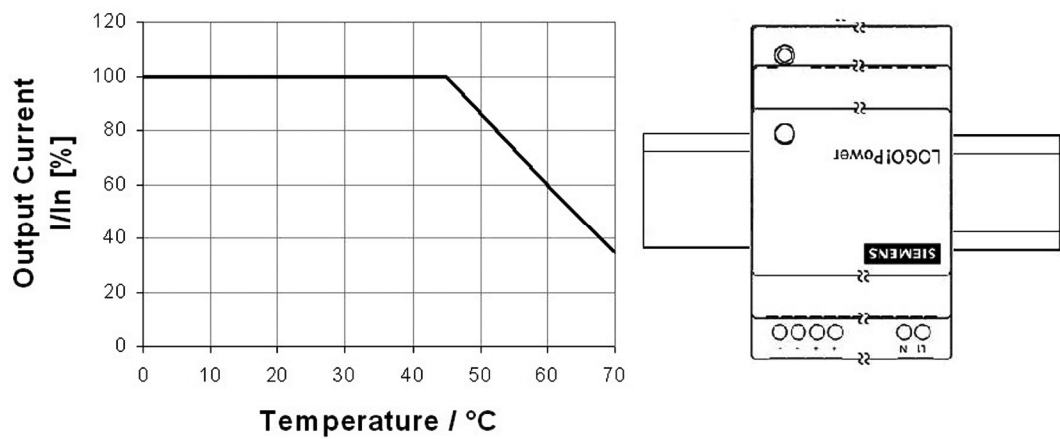


Figure 3-3 Mounting position (3)

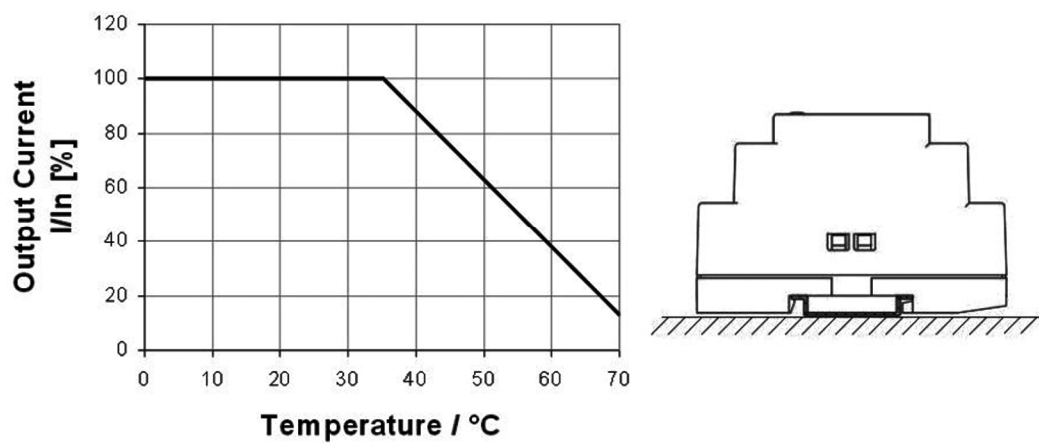


Figure 3-4 Mounting position (4)

NOTICE

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.

! WARNING

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.

4.1 Line-side connection

The LOGO!Power power supplies are power packs acc. to safety class II (without protective conductor or equivalent without PE). LOGO!Power are designed for connection to a 1-phase AC supply network (TN or TT system in accordance with VDE 0100 T 300 / IEC 364-3) with rated voltage 1-phase 100-240 V AC, 50/60 Hz or to a power supply with 110-300 V DC .

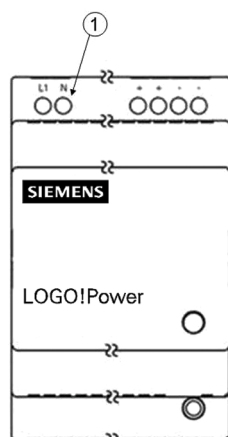


Figure 4-1 Line connection

The connection of power supply network is made via the terminals L1 and N (see Fig. 4-1) and must be established in accordance with IEC 60364 and EN 50178. A protective device (miniature circuit breaker or circuit breaker) and a disconnection unit for the power supply must be provided. A residual current circuit-breaker must not be used as the only protective measure against indirect contact; this applies to the entire supply system that is protected by the residual current operated circuit breaker.

Line-side protection (IEC 898) to be implemented upstream:

- Circuit breaker characteristic C, from 10 A or
- circuit breaker characteristic B, from 16 A

Other country-specific regulations may have to be observed when installing the device.

4.2 Output-side connection

The LOGO!Power power supplies provide an isolated (= non-grounded) SELV (Safety Extra Low Voltage) output voltage at the output. The output of the power supplies is no-load, overload, and short-circuit proof. If overload occurs, the electronic current limitation limits the output current to a maximum value (refer to chapter Technical data, Output (Page 25)).

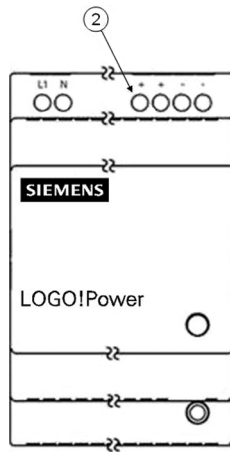


Figure 4-2 Connection of the output voltage

The output voltage is connected via the + and - terminals at the output of the power supply (see Fig. 4-2). Make sure that the output cables are dimensioned correctly for the maximum output current rms value and fused accordingly.

Note

When using LOGO!Power in conjunction with devices of the protection class I (with protective conductor), a connection must be established between "-" and "PE" with at least 1.5 mm².

Applications

5.1 Parallel connection to increase power rating

To enhance performance, two LOGO!Power power supplies of the same type can be galvanically 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 network junction (terminal strip) if possible.
- The parallel-switched power supplies must be switched on simultaneously with a common switch in the mains supply line (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 0.2 %. 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 0.2%.

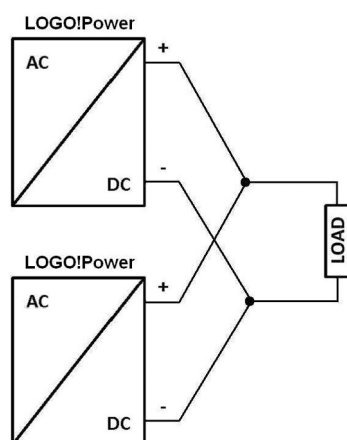


Figure 5-1 Parallel connection to increase power rating

CAUTION

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

5.2 Parallel connection for redundancy

The parallel switching of several LOGO!Power power supplies for redundancy is required when the demands for reliability of the supply are particularly high.

If a component in the redundant supply fails, the power supply for the loads must be fully accommodated by the remaining component. It is therefore important when dimensioning the system to make sure that $n+1$ redundant switched power supplies can handle the total power requirement of the remaining n power supplies.

To prevent loading of the remaining power supplies in the event of a secondary-side error when one power supply fails, the respective "+" terminals of the power supplies must be decoupled via diodes.

NOTICE

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 power supply networks.

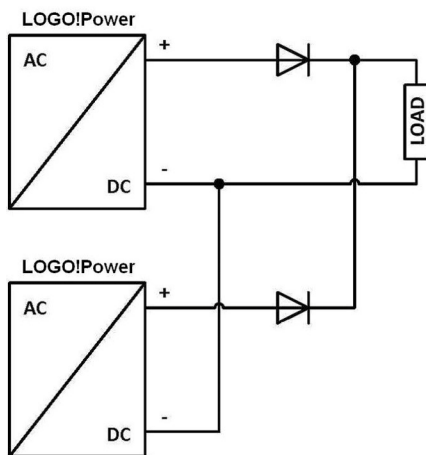


Figure 5-2 Parallel connection for redundancy

5.3 Series connection for increased voltage

To achieve a higher output voltage, two LOGO!Power power supplies of the same type can be connected in series. In this case, connect the "-" terminal of the first power supply to the "+" terminal of the second power supply. The "+" terminal of the first power supply and the "-" terminal of the second power supply are routed to the load.

Depending on grounding point of the secondary output voltage, voltages of $+2 \times U_A$, $\pm U_A$ or $-2 \times U_A$ can be implemented.

In the case of asymmetric load distribution, it is not possible to ensure correct functionality.

WARNING

When two power supplies are connected in series, it is not possible to ensure the permanently permissible SELV voltage of maximum of 60 V DC acc. to EN 60950 in the event of a fault.

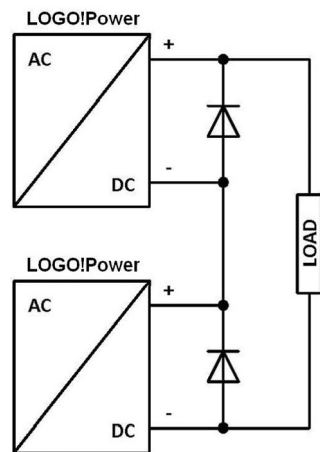


Figure 5-3 Series connection

5.4 Protection against short-time voltage dips

During a drop in the primary-side supply voltage, the LOGO!Power power supplies still maintain the output voltage over a short millisecond period (see section Technical data, Input (Page 23)).

Technical data

6.1 Input

Rated voltage V_e rated		1-phase 100 - 240 V AC wide-range input
AC voltage range		85 ... 264 V AC
Voltage* range DC		110 to 300 V DC
Connect/shutdown threshold		Typ. 80 V/70 V
Overvoltage resistance		$2,3 \times V_e$ rated, 1.3 ms
Rated line frequency; rated line frequency range		50/60 Hz; 47 to 63 Hz
Rated current I_e rated at $V_e = 230$ V	6EP1311-1SH03	0.20 A
	6EP1311-1SH13	0.43 A
	6EP1321-1SH03	0.29 A
	6EP1322-1SH03	0.67 A
	6EP1351-1SH03	0.35 A
	6EP1352-1SH03	0.70 A
	6EP1331-1SH03	0.36 A
	6EP1332-1SH43	0.69 A
	6EP1332-1SH52	0.99 A
Switch-on current limitation (+25 °C)	6EP1311-1SH03	< 30 A
	6EP1311-1SH13	< 55 A
	6EP1321-1SH03	< 30 A
	6EP1322-1SH03	< 55 A
	6EP1351-1SH03	< 30 A
	6EP1352-1SH03	< 55 A
	6EP1331-1SH03	< 30 A
	6EP1332-1SH43	< 50 A
	6EP1332-1SH52	< 30 A
I^2t value	6EP1311-1SH03	0.4 A ² s
	6EP1311-1SH13	1.2 A ² s
	6EP1321-1SH03	0.4 A ² s
	6EP1322-1SH03	1.2 A ² s
	6EP1351-1SH03	0.4 A ² s
	6EP1352-1SH03	1.2 A ² s
	6EP1331-1SH03	0.4 A ² s
	6EP1332-1SH43	1.2 A ² s
	6EP1332-1SH52	1.3 A ² s
Built-in line-side fuse		Fuse
Required protection in the mains supply conductor		Miniature circuit breakers (IEC 898) characteristic C 10 A or characteristic B 16 A
Mains buffering at I_a rated		>40 ms (for 187 V)

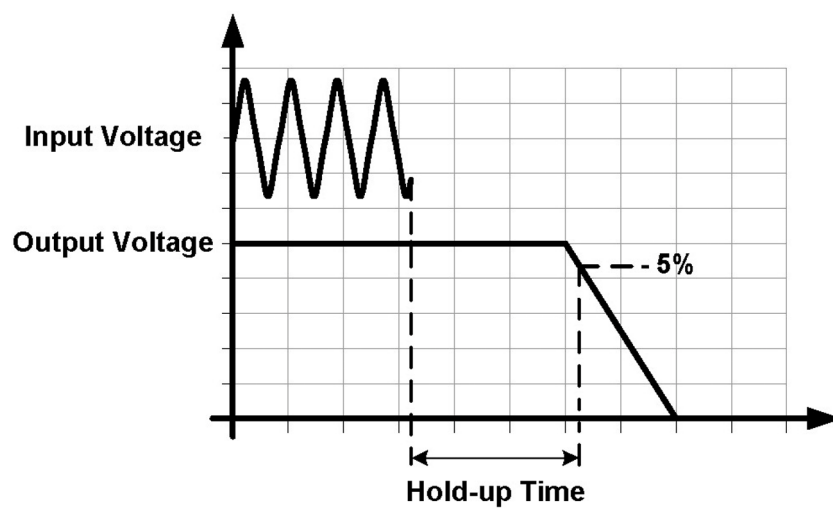


Figure 6-1 Mains buffering

6.2 Output

Rated voltage I_a rated		Controlled, isolated DC voltage 5 V DC, 12 V, 15 V or 24 V
Total tolerance		±3 %
Static line smoothing		Approx. ±0.5 %
Static load smoothing		Approx. ±1 %
Residual ripple	12 V, 15 V, 24 V	< 200 mVpp
	5 V	< 100 mVpp
Spikes (bandwidth: 20 MHz)	12 V, 15 V, 24 V	< 300 mVpp
	5 V	< 100 mVpp
Setting range	5 V	4.6 to 5.4 V
	12 V	10.5 to 12.9 V
	15 V	13.9 to 16.1 V
	24 V	22.2 to 26.4 V
Response on activation/deactivation		No overshoot of V_a (soft start)
Startup delay/voltage rise		< 1.5 s / < 500 ms (typ. 70 ms / typ. 10 ms) (see the figure below)
Rated current I_a rated	6EP1311-1SH03	3 A
	6EP1311-1SH13	6.3 A
	6EP1321-1SH03	1.9 A
	6EP1322-1SH03	4.5 A
	6EP1351-1SH03	1.9 A
	6EP1352-1SH03	4 A
	6EP1331-1SH03	1.3 A
	6EP1332-1SH43	2.5 A
	6EP1332-1SH52	4 A
Current range		0 ... 100% I_a rated
- Up to +55 °C - Derating		0 ... 70% I_a rated (at +70 °C)
Power reserve		When you turn on the power supply 1.5 x I_a rated for typ. 200 ms
Parallel switching for enhanced performance		Yes, 2 units
Output characteristic		(see illustration below)

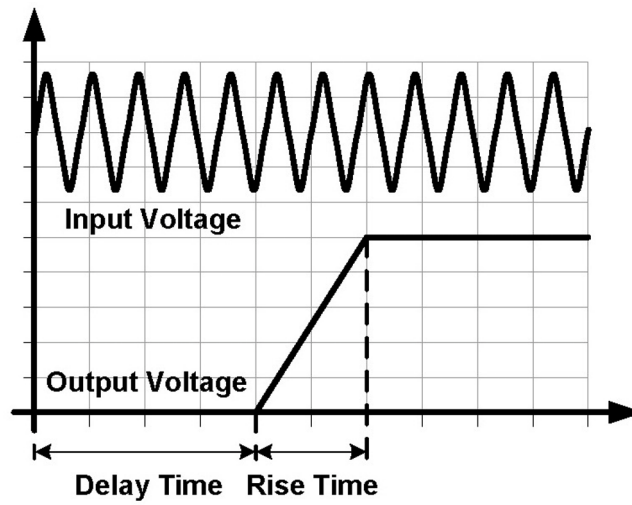


Figure 6-2 Startup delay/voltage rise

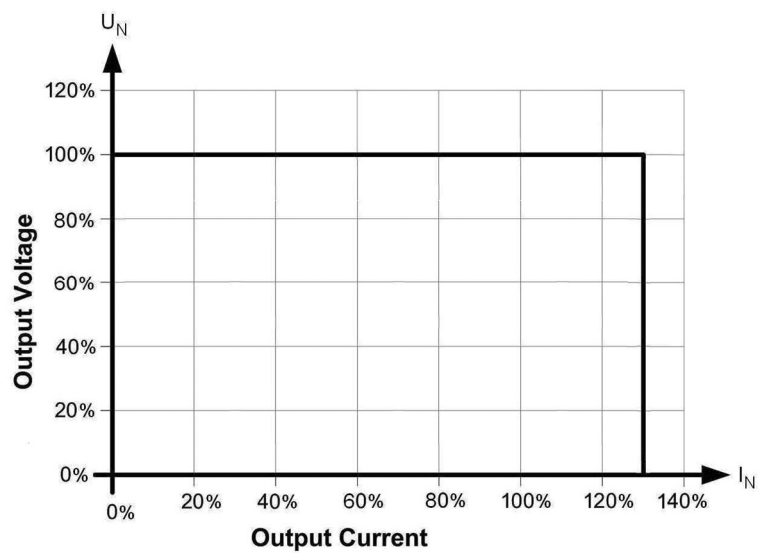


Figure 6-3 Output characteristic (typical behavior)

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. The device does not switch off.

6.3 Closed-loop control

Dyn. mains compensation (V_e rated $\pm 15\%$)	<3% V_a
Dyn. load compensation (I_a : 10/90/10 %)	Typ. $\pm 2\%$ V_a
Load-step settling time	
• 10 to 90 %	< 20 ms (typ. 0.2 ms)
• 90 to 10 %	< 20 ms (typ. 0.2 ms)

6.4 Efficiency and power loss

Efficiency at V_a rated, I_a rated (at V_e 230 V)	6EP1311-1SH03	Approx. 77 %
	6EP1311-1SH13	Approx. 80 %
	6EP1321-1SH03	Approx. 78 %
	6EP1322-1SH03	Approx. 84 %
	6EP1351-1SH03	Approx. 80 %
	6EP1352-1SH03	Approx. 85 %
	6EP1331-1SH03	Approx. 83 %
	6EP1332-1SH43	Approx. 87 %
	6EP1332-1SH52	Approx. 87 %
Efficiency at V_a rated, I_a rated (at V_e 230 V)	6EP1311-1SH03	Approx. 4.6 W
	6EP1311-1SH13	Approx. 8.1 W
	6EP1321-1SH03	Approx. 6.4 W
	6EP1322-1SH03	Approx. 10.2 W
	6EP1351-1SH03	Approx. 7.1 W
	6EP1352-1SH03	Approx. 10.8 W
	6EP1331-1SH03	Approx. 6.3 W
	6EP1332-1SH43	Approx. 8.7 W
	6EP1332-1SH52	Approx. 13.8 W
No-load power loss (at V_e 230 V)	6EP1311-1SH03	Approx. 1.5 W
	6EP1311-1SH13	Approx. 1.5 W
	6EP1321-1SH03	Approx. 1.8 W
	6EP1322-1SH03	Approx. 1.9 W
	6EP1351-1SH03	Approx. 2.1 W
	6EP1352-1SH03	Approx. 2.3 W
	6EP1331-1SH03	Approx. 2.0 W
	6EP1332-1SH43	Approx. 1.8 W
	6EP1332-1SH52	Approx. 2.0 W

6.5 Protection and monitoring

Output overvoltage protection		Yes, acc. to EN 60950
Current limitation		Typ. 110 % ... 130 % of I_a rated when you turn on the power supply overload capability with 150 % of I_a rated for typ. 200 ms
Short-circuit protection		Characteristic curve up to 0 V
Sustained short-circuit current rms value	6EP1311-1SH03	Approx. 3.9 A
	6EP1311-1SH13	Approx. 8.0 A
	6EP1321-1SH03	Approx. 2.3 A
	6EP1322-1SH03	Approx. 4.4 A
	6EP1351-1SH03	Approx. 2.3 A
	6EP1352-1SH03	Approx. 4.4 A
	6EP1331-1SH03	Approx. 1.6 A
	6EP1332-1SH43	Approx. 3.5 A
	6EP1332-1SH52	Approx. 7.2 A
Overload/short-circuit indicator		-

Generic standards	EN 61000-6-2	Immunity for industrial environments
	EN 61000-6-3	Emission for residential areas
Electrostatic discharges	EN 61000-4-2	6 kV contact, 8 kV air
Electromagnetic fields	EN 61000-4-3	80 to 1000 MHz 10 V/m 1000 to 2000 MHz 3 V/m 2000 to 2700 MHz 1 V/m
High-speed transient disturbance variables (burst)	EN 61000-4-4	4 kV on mains connections 2 kV at DC output
Power surges	EN 61000-4-5	2 kV symmetrically on mains connections 4 kV symmetrically on mains connections 500 V symmetrical/asymmetrical on DC output lines
High-frequency fields	EN 61000-4-6	10 V; 0.15 to 80 MHz
Voltage dips	EN 61000-4-11	100 % for 20 ms 60 % for 200 ms 30 % for 500 ms
Voltage interruptions	EN 61000-4-11	100 % for 5000 ms
Emitted interference	EN 55022	Class B
Harmonic currents	EN 61000-3-2	Class A

Ambient conditions

Humidity class	Climate class 3K3 to EN 60721, no condensation
Ambient temperature	-20 ... +70 °C with natural convection Derating: • from +55 °C 2 %/K Tested to: • EN 60068-2-1 coldness • EN 60068-2-2 dry heat • EN 60068-2-78 damp heat, constant • EN 60068-2-14 change of temperature
Transport/storage temperature	-40 ... +85 °C Tests (packed for shipping) according to: • EN 60068-2-1 coldness • EN 60068-2-2 dry heat • EN 60068-2-30 damp heat, cyclic
Mechanical stressing in operation	Tested to: • EN 60068-2-6 vibration, test Fc – 7 mm deflection in the range 5 - 9 Hz – 2 G acceleration in the range 9 - 150 Hz • EN 60068-2-27 shock, test Ea – Acceleration 150 m/s², test duration 11 ms
Damaging gases	Tested to: • EN 60068-2-42 sulfur dioxide: 10 cm³/m³, 4 days • EN 60068-2-43 sulfur dioxide: 1 cm³/m³, 4 days
Atmospheric pressure	Tested to: • EN 60068-2-13 Operation: • 1080 ... 795 hPa (-1000 to +2000 m) • >2000 m: Derating factor of 5 % / 1000 m Storage: • 1080 ... 660 hPa (-1000 to +3500 m)

Safety

Primary/secondary isolation	Yes, SELV output voltage U_a according to EN 60950 and EN 50178
Test voltage	Primary/secondary 3 kV _{AC} or corresponding DC value
Protection class	Class II (without protective conductor)
Leakage current	< 250 μ A
Degree of protection (EN 60529)	IP20

Certifications

Certifications	
CE marking	Yes (2004/108/EC and 2006/95/EC)
UL/cUL approval	cULus-listed (UL 508, CSA C22.2 No.107.1), File E197259 cURus (UL60950, CSA C22.2 No. 60950) File E151273 NEC Class2 for types: 6EP1311-1SH03 5 V/3 A 6EP1321-1SH03 12 V/1,9 A 6EP1351-1SH03 15 V/1,9 A 6EP1331-1SH03 24 V/1,3 A 6EP1332-1SH43 24 V/2,5 A
CSA approval	CLASS 5318 01 - Power Supplies - for Hazardous Locations CLASS 5318 81 - Power Supplies - for Hazardous Locations - Certified to U.S. Standard Class I, Division 2, Groups A,B,C and D, T4 Class I, Zone 2, Ex nA II T4 IP20, AEx nA II T4 IP20
FM	Class I, Div. 2, Groups A, B, C, and D; T4
CB scheme	IEC 60950-1
Explosion protection	ATEX II 3G Ex nA IIC T3 X EN 60079-0:2006 and EN 60079-15:2005
SEMI F47 compliance 208 V-240 V	IEC 61000-4-11
Marine approval	Germanischer Lloyd (GL) 6EP1352-1SH52: Cert. No.:24184-04HH All other types: Cert. No.:47994-03HH ABS, DNV, BV, LRS in preparation for selected types

MTBF

Mean Time Between Failures	In accordance with SN29500: >3500000 h at 40 °C, rated load, 24-h operation
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Environment

The device is RoHS-compatible.

As a rule, only non-silicon precipitating materials are used.

Accessories

No accessories.

Service & Support

Further information via the home page
<http://www.siemens.de/sitop/manuals> or
<http://support.automation.siemens.com>
Phone: +49 (0) 911 895 7222

