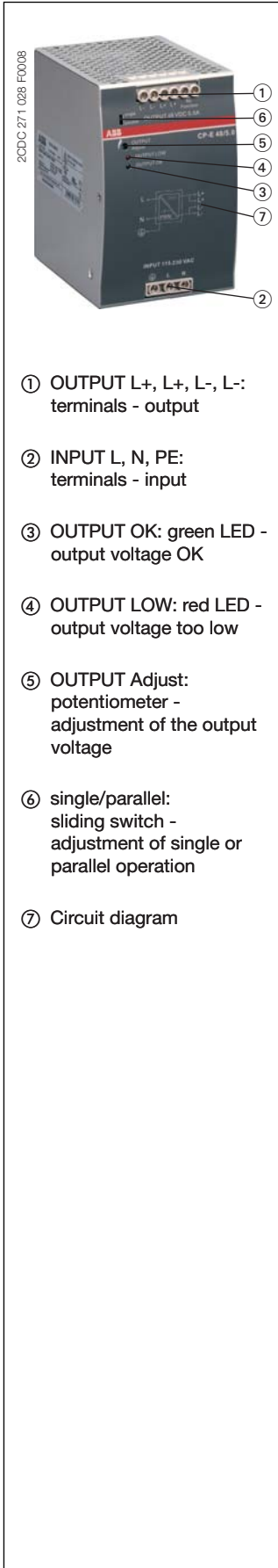


Power supply CP-E 48/5.0

Primary switch mode power supply

Data sheet



Features

- Rated output voltage 48 V DC
- Output voltage adjustable via front-face rotary potentiometer "OUTPUT Adjust"
- Rated output current 5 A
- Rated output power 240 W
- Supply range 115/230 V AC (90-132 V AC, 186-264 V AC, 210-370 V DC), auto select
- Typical efficiency of 90 %
- Low power dissipation and low heating
- Free convection cooling (no forced cooling with ventilators)
- Ambient temperature range during operation -25...+70 °C
- Open-circuit, overload and short-circuit stable
- Integrated input fuse
- LEDs for status indication

Approvals

- UL 508, CAN/CSA C22.2 No.14
- UL 60950, CAN/CSA C22.2 No.60950
- GOST

Approval refers to rated input voltage U_{IN}
 Approval refers to rated input voltage U_{IN}

Marks

- CE CE
- C-Tick C-Tick

pending

Order data

| Type | Rated input voltage | Rated output voltage / current | Order code |
|-------------|-----------------------------|--------------------------------|--------------------|
| CP-E 48/5.0 | 115/230 V AC auto select | 48 V DC / 5 A | 1SVR 427 034 R2000 |

Application

The primary switch mode power supply offers two voltage input ranges. This enables the supply with AC or DC. Furthermore it is equipped with two generous capacitors, which ensure mains buffering of at least 30 ms (at 230 V AC). That is why the devices can be used worldwide also in high fluctuating networks and battery-powered plants.

Operating mode

By means of the potentiometer „OUTPUT Adjust“ the output voltage can be adjusted within a range of 47 to 56 V DC. Thus, the power supply can be optimally adapted to the application, e.g. compensating the voltage drop caused by a long line length.

The green LED „OUTPUT OK“ is lightening during proper operation, i.e. when the output voltage is more than 75 %.

The red LED „OUTPUT LOW“ is lightening when the output voltage is less than 70 % of the rated output voltage.

Power supply CP-E 48/5.0

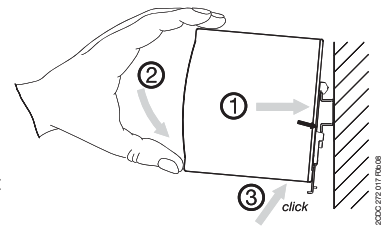
Primary switch mode power supply

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Installation

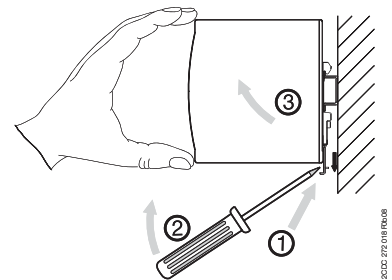
Mounting

The switch mode power supply can be snapped on a DIN rail according to EN 50022 as shown in the accompanying picture. For that the device is set with its mounting rail side on the upper edge of the mounting rail and locked by lifting it downwards.



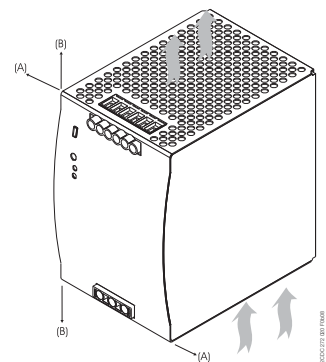
Demounting

Remove the switch mode power supply as shown in the accompanying picture. For that the latching lever is pulled downwards by means of the screwdriver. Alternatively you can press the unlock button to release the device. Then in both cases the device can be unhinged from the mounting rail edge and removed.



Mounting position

The devices have to be mounted horizontally with the input terminals on the bottom. In order to ensure a sufficient convection, the minimum distance to other modules should not be less than 25 mm in vertical and horizontal direction.



Electrical connection

Connect the input terminals L and N. The protective earth conductor PE must be connected. The installation must be executed acc. to EN 60950, provide a suitable disconnecting device (e. g. line protection switch) in the supply line. The input side is protected by an internal input fuse.

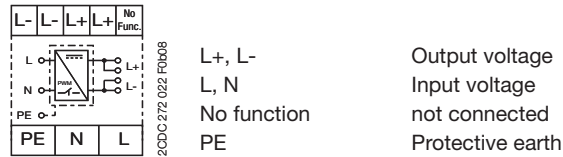
Rate the lines for the maximum output current (considering the short-circuit current) or provide a separate fuse protection. We recommend to choose the cable section as large as possible in order to minimize voltage drops. Observe the polarity. The device is overload, short-circuit and open-circuit proof. The secondary side of the power supply unit is electrically isolated from the input and internally not earthed (SELV) and can therefore be earthed by the user according to the needs with L+ or L- (PELV).

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Connection diagram



Safety instructions and warnings

The device must be installed by qualified persons only and in accordance with the specific national regulations (e.g., VDE, etc.). The devices are maintenance-free chassis-mounted units.

Disconnect system from supply network!

Before any installation, maintenance or modification work: Disconnect the system from the supply network and protect against switching on.

Before start of operation:

Attention! Improper installation/operation may impair safety and cause operational difficulties or destruction of the unit. Before operation the following must be ensured:

- Connect to main according to the specific national regulations.
- Power supply cables and unit must be sufficiently fused. A disconnecting device has to be provided for the end product to disengage unit and supply cables from supply mains if required.
- The protective earth conductor must be connected to the terminal (Protection class I)
- The secondary side of the power supply unit is not earthed and can be earthed by the user according to the needs with L+ or L-.
- Rate the output lines for the output current of the power supply and connect them with the correct polarity.
- In order to ensure sufficient air-cooling the distance to other devices has to be considered.

In operation:

- Do not modify the installation (primary and secondary side)! High current! Risk of electric arcs and electric shocks (danger to life)!
- Risk of burns: Depending on the operation conditions the enclosure can become very hot.
- The internal fuse is not user-replaceable. If the internal fuse blows, most probably the device is defective. In this case, an examination of the switch mode power supply by the manufacturer is necessary.

Attention! High voltage! Danger to life!



The power supplies contain components with high stored energy and circuits with high voltage! Do not introduce any objects into the unit, and do not open the unit. With some units of this range the output is capable of providing hazardous energy. Ensure that the service personnel is protected against inadvertent contact with parts carrying energy.

Power supply CP-E 48/5.0

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Technical data

Data at $T_a = 25\text{ °C}$, $U_{IN} = 230\text{ V AC}$ and rated values, if nothing else indicated

| Type | | CP-E 48/5.0 |
|--|---|---|
| Input circuit | | L, N |
| Rated input voltage U_{IN} | | 115/230 V AC auto select |
| Input voltage range | | 93-132 V AC, 186-264 V AC / 210-370 V DC |
| Frequency range AC | | 47-63 Hz |
| Typical input current | at 115 V AC | 5.4 A |
| | at 230 V AC | 2.2 A |
| Typical power consumption | | 267 W |
| Inrush current | at 115 V AC | 30 A (max. 5 ms) |
| | at 230 V AC | 60 A (max. 5 ms) |
| Power failure buffering | at 115 V AC | min. 25 ms |
| | at 230 V AC | min. 30 ms |
| Internal input fuse | | 6.3 A slow-acting / 250 V AC |
| Indication of operational states | | |
| Output voltage | OUTPUT OK: green LED | ┌───┐: output voltage OK |
| | OUTPUT LOW: red LED | ┌───┐: output voltage too low |
| Output circuit | | L+, L+, L-, L- |
| Rated output voltage | | 48 V DC |
| Tolerance of the output voltage | | 0...+1 % |
| Adjustment range of the output voltage | | 47-56 V DC |
| Rated output power | | 240 W |
| Rated output current I_r | $T_a \leq 60\text{ °C}$ | 5 A |
| Derating of the output current | $60\text{ °C} < T_a \leq 70\text{ °C}$ | 2.5 %/°C |
| Maximum deviation with | load change statical | $\pm 1\%$ (single mode) $\pm 5\%$ (parallel mode) |
| | change of input voltage within the input voltage range | $\pm 0.5\%$ |
| Control time | | < 2 ms |
| Starting time after applying the supply voltage | at I_r | max. 1 s |
| Response time | at rated load | |
| Residual ripple and switching peaks | BW = 20 MHz | 100 mV |
| Parallel connection | | configurable, to increase power, up to 3 devices, reduction: (number of devices x I_r x) x 0.9 |
| Series connection | | yes, to increase voltage, max. 2 devices |
| Resistance to reverse feed | | |
| Power factor correction (PFC) | | yes |
| Output circuit - No-load, overload and short-circuit behaviour | | |
| Output curve | | U/I curve |
| Short-circuit protection | | continuous short-circuit proof |
| Short-circuit behaviour | | continuation with output power limitation |
| Overload protection | | output power limitation |
| No-load protection | | continuous no-load stability |
| Starting of capacitive loads | | unlimited |

Power supply CP-E 48/5.0

Primary switch mode power supply

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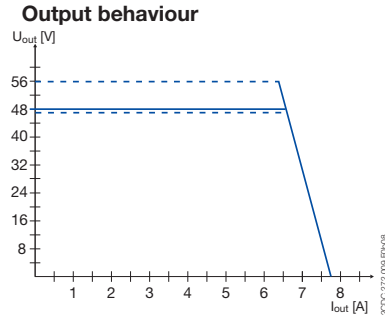
| Type | CP-E 48/5.0 | |
|---|--|-----------------------------------|
| General data | | |
| Efficiency | typ. 90 % | |
| Duty time | 100 % | |
| Dimensions (W x H x D) | 83 x 123.6 x 123.6 mm [3.27 x 4.87 x 4.87 in] | |
| Weight | 1.36 kg (3.01 lb) | |
| Material of enclosure | Metall | |
| Mounting | DIN rail (EN 60715), snap-on mounting without any tool | |
| Mounting position | horizontal | |
| Minimum distance to other units | horizontal / vertical | 25 mm / 25 mm (0.98 in / 0.98 in) |
| Degree of protection | enclosure / terminals | IP/20 / IP20 |
| Protection class | I | |
| Electrical connection - input circuit / output circuit | | |
| Wire size | fine-strand with wire end ferrule | 0.2-4 mm ² (24-11 AWG) |
| | fine-strand without wire end ferrule rigid | 0.2-6 mm ² (24-10 AWG) |
| Stripping length | 8 mm (0.31 in) | |
| Tightening torque | input / output | 1 Nm / 0.6 Nm |
| Environmental data | | |
| Ambient temperature range | operation | -25...+70 °C |
| | rated load | -25...60 °C |
| | storage | -25...+85 °C |
| Damp heat (cyclic) (IEC/EN 60068-2-30) | 95 % without condensation | |
| Vibration (sinusoidal) (IEC/EN 60068-2-6) | | |
| Shock (half-sine) (IEC/EN 60068-2-27) | | |
| Isolation data | | |
| Rated insulation voltage U _i | input circuit / output circuit | 3 kV AC |
| Pollution degree | 2 | |
| Standards | | |
| Product standard | | |
| Low Voltage Directive | 2006/95/EG | |
| EMC directive | 2004/108/EG | |
| RoHS directive | 2002/95/EG | |
| Electrical safety | IEC/EN 60950-1 | |
| Protective low voltage | SELV | |
| Electromagnetic compatibility | | |
| Interference immunity | IEC/EN 61000-6-2 | |
| electrostatic discharge (ESD) | IEC/EN 61000-4-2 | |
| electromagnetic field (HF radiation resistance) | IEC/EN 61000-4-3 | |
| fast transients (Burst) | IEC/EN 61000-4-4 | |
| powerful impulses (Surge) | IEC/EN 61000-4-5 | |
| HF line emission | IEC/EN 61000-4-6 | |
| Interference emission | IEC/EN 61000-6-3 | |
| electromagnetic field (HF radiation resistance) | IEC/CISPR 22, EN 55022 | Class B |
| HF line emission | IEC/CISPR 22, EN 55022 | Class B |

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Technical diagrams

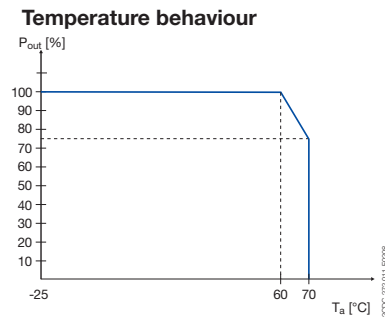


Output curve at $T_a = 25\text{ °C}$

The switch mode power supply CP-E 48/5.0 is able to supply at 48 V DC output voltage and

- at an ambient temperature of:
 - ≤ 60 °C a continuous output current of approx. 5 A
- at ambient temperatures of:
 - 60 °C < T_a ≤ 70 °C the output power has to be reduced by 2.5 % per °C temperature increase.

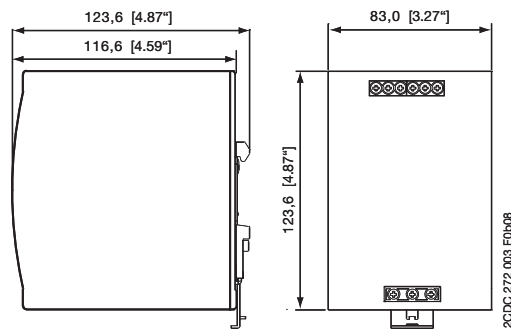
If the switch mode power supply is loaded with an output current > 5 A, the operating point is passing through the U/I characteristic curve shown.



Temperature curve at rated load

Dimensions

in mm



CP-E 48/5.0

Power supply CP-E 48/5.0

Primary switch mode power supply

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Further Documentation

| Document title | Document type | Document number |
|--------------------------------|---------------------|--------------------|
| Electronic Products and Relays | Technical catalogue | 2CDC 110 004 C020x |
| Power Supply Units | Application manual | 2CDC 114 048 M020x |

You can find the documentation in the internet under www.abb.com/lowvoltage → Control Products → ...



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