



Switching power supplies
CP range,

Linear power supplies
CP-L range

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Switching power supplies, primary switch mode, CP range

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Linear power supplies CP-L range

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Switching power supplies CP range Benefits and advantages



2CDC 273 001 F 0003

- **Switching power supplies, primary switch mode**
- **High efficiency**
- **Wide-range supply voltage input**
- **Mounting on DIN rail**
- **Small design**
- **Tested according to EN 60950**
- **Complies with EMC directives EN 61000-6-2 and EN 61000-6-4**
- **Approvals (depending on type):**



UL 508



UL 1604, Class 1, Div. 2

(hazardous locations)



UL 1310, Class 2

(low voltage limited energy)



UL 60950

(safety for information technology equipment)



GOST



C-Tick

Characteristics

- Versions with output voltages from 5 up to 48 V DC and output currents from 300 mA up to 20 A available.
- Constant or adjustable output voltage (depending on type).
- Most types provide a wide input range from 90 up to 260 V AC and a frequency range of 47 up to 440 Hz. No adjustment is necessary.
- Integrated input fuse
- Almost all types can be supplied with DC voltage from 105 up to 260 V DC.
- High efficiency of up to 90 %.
- Extended lifetime through low power dissipation and low heating.
- No-load, overload and continuous short-circuit proof, automatic restart.
- Fast and easy mounting on DIN rail.
- Compact slim design.

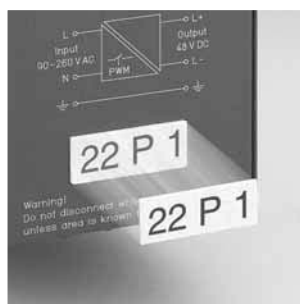
Special characteristics

- Power factor correction (PFC) acc. to EN 61000-3-2 for CP-24/5.0 and CP-24/5.0 adj.
- Parallel connection possible for CP-24/10 adj and CP-24/20 adj.
- Redundancy module available

Switching power supplies CP range Benefits and advantages

Application under extreme conditions

- Due to their reliable construction, the CP range power supplies can be used also in harsh industrial environments.
- Safety of the application is ensured by closed construction, touch-proofed connection terminals and 3-way electrical isolation.
- Because of the wide input range AC or DC it is possible to use these power supplies also in high fluctuating networks and battery-powered plants.
- Adjustable output voltage compensates voltage drops in the DC power line.



Integrated markers

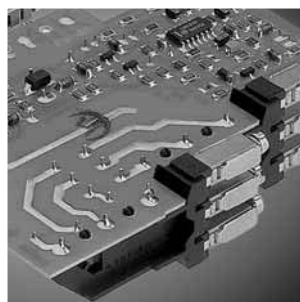
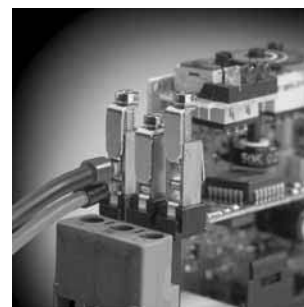
Integrated markers allow the product to be marked quickly and simply. No additional marking labels are required.

Approvals

- Applicability of the all important approvals and the observance of the valid EU standards provide high safety when using the power supply.
- All units are approved according to UL 508 and GOST.
- High interference immunity combined with reduced interference emission acc. to EN 61000-6-4 enable the use in rough industrial environments as well for building installations.
- Almost all power supply types are approved acc. to UL 1604 and CSA 22.2 No. 213-M1987. The units can be used in hazardous locations acc. to class 1, division 2, groups A, B, C and D or in non-hazardous locations.
- Some power supply types additionally are approved acc. to UL 1310, class 2 or UL 60950.

Double-chamber cage connecting terminals

Connection of up to two wires with a conductor cross section of up to 2.5 mm² (14 AWG), solid or stranded wire, with or without wire end ferrule. Potential distribution does not require additional terminals, this saving time and money. Wiring is considerably simplified through integrated cable guiding.



Safety

The "real distance" is hidden. The air and creepage distances of our products exceed international standards and substantially increase safety.

Adjustable output voltage

On the CP adj units the output voltage can be adjusted by means of a potentiometer. This way, the power supply can be adjusted optimally according to the specific application, e.g. by compensating the voltage drop caused by a long line length.



Approvals

| | CP-5/3.0 | CP-6/3.0 | CP-12/2.0 | CP-12/2.0 adj | CP-24/0.3 | CP-24/0.5 | CP-24/1.0 | CP-24/1.5 adj | CP-24/2.0 | CP-24/2.0 adj | CP-24/4.2 | CP-24/5.0 | CP-24/5.0 adj | CP-24/10 adj | CP-24/20 adj | CP-48/0.7 |
|-------------------------|----------|----------|-----------|---------------|-----------|-----------|-----------|---------------|-----------|---------------|-----------|-----------|---------------|--------------|--------------|-----------|
| UL 508 LISTED | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| UL1604, Class 1, Div. 2 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| UL 1310, Class 2 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| UL 60950 | | | | | | | | | | | | | | ■ | ■ | |
| GOST | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| C-Tick | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

Switching power supplies

CP range

Ordering details

Compared with conventional power supplies, CP range power supplies provide many advantages:

- DIN rail mountable compact modules
- Low weight
- High efficiency
- Low heating
- Wide supply voltage range
- Constant output voltage
- Short-circuit and overload proof
- Input protection by internal fuse
- Safe isolation acc. to EN 50178 (VDE 0160)

Constant output voltage

| Type | Supply voltage | Output voltage | Order code | Pack. unit pieces | Price 1 piece | Weight 1 piece kg/lb |
|-----------|-------------------------------|-----------------|---------------------|-------------------|---------------|----------------------|
| CP-5/3.0 | 90-260 V AC/ 105-260 V DC | 5 V DC / 3 A | 1SVR 423 418 R 3000 | 1 | | 0.22/0.49 |
| CP-6/3.0 | 90-260 V AC/ 105-260 V DC | 6 V DC / 3 A | 1SVR 423 418 R 4000 | 1 | | 0.22/0.49 |
| CP-12/2.0 | 90-260 V AC/ 105-260 V DC | 12 V DC / 2 A | 1SVR 423 418 R 1000 | 1 | | 0.22/0.49 |
| CP-24/0.3 | 90-260 V AC/ 105-260 V DC | 24 V DC / 0.3 A | 1SVR 423 418 R 2000 | 1 | | 0.22/0.49 |
| CP-24/0.5 | 90-260 V AC/ 105-260 V DC | 24 V DC / 0.5 A | 1SVR 423 414 R 0000 | 1 | | 0.22/0.49 |
| CP-24/1.0 | 90-260 V AC/ 105-260 V DC | 24 V DC / 1 A | 1SVR 423 418 R 0000 | 1 | | 0.22/0.49 |
| CP-24/2.0 | 90-140 V AC | 24 V DC / 2 A | 1SVR 423 417 R 0000 | 1 | | 0.30/0.66 |
| CP-24/2.0 | 140-260 V AC/ 160-260 V DC | 24 V DC / 2 A | 1SVR 423 417 R 1000 | 1 | | 0.30/0.66 |
| CP-24/4.2 | 90-260 V AC/ 127-260 V DC | 24 V DC / 4.2 A | 1SVR 423 416 R 1000 | 1 | | 0.58/1.28 |
| CP-24/5.0 | 90-260 V AC/ 127-260 V DC | 24 V DC / 5 A | 1SVR 423 416 R 0000 | 1 | | 0.58/1.28 |
| CP-48/0.7 | 90-260 V AC/ 105-260 V DC | 48 V DC / 0.7 A | 1SVR 423 418 R 6000 | 1 | | 0.22/0.49 |



2CDC 271 009 F0003

CP-24/0.5



2CDC 271 013 F 0003

CP-24/1.0



2CDC 271 014 F 0003

CP-24/2.0



2CDC 271 011 F 0003

CP-24/5.0



2CDC 271 012 F 0003

CP-48/0.7

Switching power supplies

CP range

Ordering details



2CDC 271 005 F 0003

CP-24/2.0 adj



2CDC 271 015 F 0003

CP-24/5.0 adj



1SVR 423 415 F 0000

CP-24/10 adj



1SVR 423 415 F 1000

CP-24/20 adj



2CDC 271 006 F 0003

CP-RUD

Adjustable output voltage

| Type | Supply voltage | Output voltage | Order code | Pack. unit pieces | Price 1 piece | Weight 1 piece kg/lb |
|---------------|-------------------------------|-----------------|---------------------|-------------------|---------------|----------------------|
| CP-12/2.0 adj | 90-260 V AC/ 105-260 V DC | 12 V DC / 2 A | 1SVR 423 418 R 1100 | 1 | | 0.22/0.49 |
| CP-24/1.5 adj | 90-260 V AC/ 105-260 V DC | 24 V DC / 1.5 A | 1SVR 423 418 R 5000 | 1 | | 0.22/0.49 |
| CP-24/2.0 adj | 140-260 V AC/ 160-260 V DC | 24 V DC / 2 A | 1SVR 423 417 R 1100 | 1 | | 0.28/0.616 |
| CP-24/5.0 adj | 90-260 V AC/ 127-260 V DC | 24 V DC / 5 A | 1SVR 423 416 R 0100 | 1 | | 0.58/1.28 |
| CP-24/10 adj | 93-132 V AC/ 187-264 V AC | 24 V DC / 10 A | 1SVR 423 415 R 0000 | 1 | | 1.05/2.31 |
| CP-24/20 adj | 93-132 V AC/ 187-264 V AC | 24 V DC / 20 A | 1SVR 423 415 R 1000 | 1 | | 2.20/4.84 |

Redundant module

| Type | Input current | Output current | Order code | Pack. unit pieces | Price 1 piece | Weight 1 piece kg/lb |
|--------|---------------|----------------|---------------------|-------------------|---------------|----------------------|
| CP-RUD | 5 A max. | 5 A max. | 1SVR 423 418 R 9000 | 1 | | 0.15/0.33 |

Monitors two CP range power supplies with an output current of up to 5 A each. If one power supply fails, CP-RUD automatically switches to the alternate supply without interruption of the load current. Max. voltage 40 V.

Linear power supplies

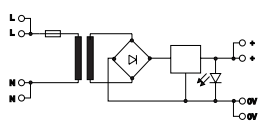
CP-L range

Ordering details



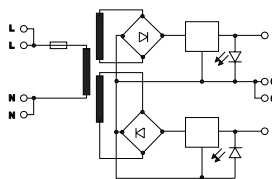
1SVR 419 500 F 3000

CP-L



1SVC 110 000 F 0315

5 V DC, 12 V DC,
15 V DC, 24 V DC



1SVC 110 000 F 0316

±12 V DC stabilized
±15 V DC stabilized

Compact linear power supplies providing many advantages:

- Universal combination base for snap-on mounting to all common DIN/EN rails (acc. to EN 50022 and EN 50035)
- All power supplies are available for supply voltage 115 V or 230 V AC
- All power supplies provide stabilized (regulated) DC output voltage with low residual ripple of ±1%
- Double connection terminals on the supply and the output side allow easy potential distribution by line looping
- The output is short-circuit and overload proof
- LED for status indication
- approved

| Type | Supply voltage | Output voltage | Order code | Pack. ¹⁾ pcs. | Price 1 piece | Weight 1 pc. kg/lb |
|-----------|----------------|----------------|---------------------|--------------------------|---------------|--------------------|
| CP-L5/1.0 | 115 V AC | 5 V DC / 1 A | 1SVR 419 500 R 3000 | 1 | | 0.82/1.80 |
| | 230 V AC | 5 V DC / 1 A | 1SVR 419 500 R 3100 | 1 | | 0.82/1.80 |

| | | | | | | |
|------------|----------|-----------------|---------------------|---|--|-----------|
| CP-L12/0.5 | 115 V AC | 12 V DC / 0.5 A | 1SVR 419 501 R 1000 | 1 | | 0.82/1.80 |
| | 230 V AC | 12 V DC / 0.5 A | 1SVR 419 501 R 1100 | 1 | | 0.82/1.80 |

| | | | | | | |
|------------|----------|---------------|---------------------|---|--|-----------|
| CP-L12/1.0 | 115 V AC | 12 V DC / 1 A | 1SVR 419 501 R 3000 | 1 | | 0.78/1.72 |
| | 230 V AC | 12 V DC / 1 A | 1SVR 419 501 R 3100 | 1 | | 0.78/1.72 |

| | | | | | | |
|------------|----------|-----------------|---------------------|---|--|-----------|
| CP-L15/0.5 | 115 V AC | 15 V DC / 0.5 A | 1SVR 419 502 R 1000 | 1 | | 0.82/1.80 |
| | 230 V AC | 15 V DC / 0.5 A | 1SVR 419 502 R 1100 | 1 | | 0.82/1.80 |

| | | | | | | |
|------------|----------|---------------|---------------------|---|--|-----------|
| CP-L15/1.0 | 115 V AC | 15 V DC / 1 A | 1SVR 419 502 R 3000 | 1 | | 0.78/1.72 |
| | 230 V AC | 15 V DC / 1 A | 1SVR 419 502 R 3100 | 1 | | 0.78/1.72 |

| | | | | | | |
|-------------|----------|------------------|---------------------|---|--|-----------|
| CP-L24/0.25 | 115 V AC | 24 V DC / 0.25 A | 1SVR 419 503 R 0000 | 1 | | 0.82/1.80 |
| | 230 V AC | 24 V DC / 0.25 A | 1SVR 419 503 R 0100 | 1 | | 0.82/1.80 |

| | | | | | | |
|-------------|----------|------------------|---------------------|---|--|-----------|
| CP-L24/0.75 | 115 V AC | 24 V DC / 0.75 A | 1SVR 419 503 R 2000 | 1 | | 1.05/2.31 |
| | 230 V AC | 24 V DC / 0.75 A | 1SVR 419 503 R 2100 | 1 | | 1.05/2.31 |

| Type | Supply voltage | Output voltage | Order code | Pack. ¹⁾ pcs. | Price 1 piece | Weight 1 pc. kg/lb |
|------|----------------|----------------|------------|--------------------------|---------------|--------------------|
|------|----------------|----------------|------------|--------------------------|---------------|--------------------|

| | | | | | | |
|-------------|----------|------------------|---------------------|---|--|-----------|
| CP-L±12/0.5 | 115 V AC | ±12 V DC / 0.5 A | 1SVR 419 511 R 1000 | 1 | | 1.07/2.35 |
| | 230 V AC | ±12 V DC / 0.5 A | 1SVR 419 511 R 1100 | 1 | | 1.07/2.35 |

| | | | | | | |
|-------------|----------|------------------|---------------------|---|--|-----------|
| CP-L±15/0.5 | 115 V AC | ±15 V DC / 0.5 A | 1SVR 419 512 R 1000 | 1 | | 1.07/2.35 |
| | 230 V AC | ±15 V DC / 0.5 A | 1SVR 419 512 R 1100 | 1 | | 1.07/2.35 |

¹⁾Pack. unit

Switching power supplies

CP-5/3.0, CP-6/3.0, CP-12/2.0 (adj), CP-24/3.0

Technical data

| | CP-5/3.0 | CP-6/3.0 | CP-12/2.0 | CP-12/2.0 adj | CP-24/0.3 | |
|--|---|----------------------|----------------------|------------------------|----------------------|------------------|
| Order code | 1 SVR 423 418 ... | R 3000 | R 4000 | R 1000 | R 1100 | R 2000 |
| Input | | | | | | |
| Supply voltage | 90-260 V AC 105-260 V DC | | | | | |
| Frequency, AC input | 47-440 Hz | | | | | |
| Supply voltage fail. bridging time at 100 % load | 10 ms min. | | | | | |
| Input current at nom. load | at 90 V AC | 0.4 A | 0.5 A | 0.6 A | 0.7 A | 0.2 A |
| | at 260 V AC | 0.2 A | 0.25 A | 0.27 A | 0.3 A | 0.1 A |
| Inrush current at 25 °C (≤ 2 ms) | 7.5 A | | | | | |
| Internal input fuse | 3 A (slow-acting) | | | | | |
| Output | | | | | | |
| Output voltage | 5 V DC ± 3 % | 6 V DC ± 3 % | 12 V DC ± 3 % | 12 V DC ± 3 % | 24 V DC ± 3 % | |
| Output voltage adjustment range | - | - | - | 9-15 V DC 36 W max. | - | |
| Output current / power | 3 A / 15 W | 3 A / 18 W | 2 A / 24 W | 2 A / 24 W | 0.3 A / 7 W | |
| Max. residual ripple | 50 mV _{pp} | 50 mV _{pp} | 300 mV _{pp} | 200 mV _{pp} | 100 mV _{pp} | |
| Max. input voltage regulation | ± 0.5 % | ± 0.5 % | ± 0.1 % | ± 0.5 % | ± 0.5 % | |
| Max. deviation of output with static load change | ± 2.5 % | ± 2.5 % | ± 0.5 % | | | |
| Max. deviation of output with dyn. load change (load change 10-90 %) | 5 % | | | | | |
| Short-circuit protection | overcurrent switch-off with automatic restart | | | | | |
| Overload protection | overtemperature and overcurrent switch-off | | | | | |
| Reset after thermal overload switch-off | disconnection of AC input voltage 30 s min. | | | | | |
| Standards | | | | | | |
| Electrical safety | EN 50178 (VDE 0160) / UL 508 / CSA 22.2 | | | | | |
| Galvanic isolation | IEC 664-1 | | | EN 60950 | | IEC 664-1 |
| safe isolation acc. to | DIN VDE 0106-101 | | | DIN VDE 0106-101 | | DIN VDE 0106-101 |
| Isolation testing | 2.5 kV AC routine test, 3 kV AC type test | | | | | |
| Clearances and creepage distances | overvoltage category 2, degree of pollution 2 | | | | | |
| Electromagnetic compatibility acc. to EN 61000-6-2 | ESD | EN 61000-4-2 level 3 | | 6/8 kV | | |
| | HF radiation | EN 61000-4-3 level 3 | | 10 V/m | | |
| | Burst | EN 61000-4-4 level 4 | | 4 kV | | |
| | Surge | EN 61000-4-5 | | 3 kV | | |
| | conducted HF, input | EN 61000-4-6 level 3 | | 10 V | | |
| Interference emission acc. to EN 61000-6-4 | class B | | | | | |
| Radiated noise acc. to EN 55011 | no limitation | | | | | |
| Input current harmonics | IP20 | | | | | |
| Degree of protection, terminals | IP50 | IP50 | IP50 | IP20 | IP50 | |
| Degree of protection, enclosure | 1 | | | | | |
| Protection class | | | | | | |
| General data | | | | | | |
| Efficiency at nom. load | approx. | 78 % | 80 % | 80-83 % | 79-84 % | 70 % |
| Indication of operational states | green LED, output voltage OK | | | | | |
| Operating temperature | 0 °C ... +55 °C | | | | | |
| Storage temperature | -25 °C ... +75 °C | | | | | |
| Wire size | screw terminals, 2 x 2.5 mm ² (AWG 14) | | | | | |
| Weight | approx. | 0.22 kg (0.49 lb) | | | | |
| Dimensions (W x H x D) | mm | 45 x 78 x 100 | 45 x 78 x 100 | 45 x 78 x 100 | 45 x 78 x 100 | 45 x 78 x 120 |

4

Normal mounting position: Horizontally, mounted on DIN rail.
Clearances to other devices: Left-hand side 1 cm, vertically 5 cm.

Switching power supplies

CP-24/0.5, CP-24/1.0, CP-24/1.5 adj, CP-24/2.0

Technical data

| | CP-24/0.5 | CP-24/1.0 | CP-24/1.5 adj | CP-24/2.0 | CP-24/2.0 | |
|--|---|---|--------------------------------|--|--|----------------------------|
| Order code | 1 SVR 423 ... | 414 R 0000 | 418 R 0000 | 418 R 5000 | 417 R 0000 | 417 R 1000 |
| Input | | | | | | |
| Supply voltage | 90-260 V AC 105-260 V DC | | | 90-140 V AC - | 140-260 V AC 160-260 V DC | |
| Frequency, AC input | 47-440 Hz | | | 47-63 Hz | 47-440 Hz | |
| Supply voltage fail. bridging time at 100 % load | 10 ms min. | | | | | |
| Input current at nom. load | max. at 90 V AC max. at 140 V AC max. at 260 V AC typ. at 115 V AC typ. at 230 V AC | 0.35 A - - 0.27 A 0.14 A | 0.6 A - 0.27 A - - | 0.8 A - 0.38 A - - | 1 A - - - - | - 0.65 A - - - |
| Inrush current at 25 °C (≤ 2 ms) | at 140 V at 260 V | - 33 A | - 7.5 A | - 33 A | 18 A - | - 7.5 A |
| Internal input fuse | 0.8 A (slow-acting) | | 3 A (slow-acting) | | | |
| Output | | | | | | |
| Output voltage | 24 V DC ± 3 % | | | | | |
| Output voltage adjustment range | - | | 21-28 V DC 36 W max. | - | | - |
| Output current / power | 0.5 A / 12 W | 1 A / 24 W | 1.5 A / 36 W | 2 A / 48 W | | |
| Max. residual ripple | 200 mV _{pp} | | 300 mV _{pp} | 200 mV _{pp} | 200 mV _{pp} | |
| Max. input voltage regulation | ± 0.5 % | | ± 0.1 % | ± 0.5 % | ± 0.5 % | |
| Max. deviation of output with static load change | ± 0.5 % | | | | | |
| Max. deviation of output with dyn. load change (load change 10-90 %) | 5 % | | | | | |
| Short-circuit protection | overcurrent switch-off with automatic restart | | | | | |
| Overload protection | overtemperature and overcurrent switch-off | | | | | |
| Reset after thermal overload switch-off | automatic reset after cooling | disconnection of AC input voltage 30 s min. | | | | |
| Standards | | | | | | |
| Electrical safety | EN 50178 (VDE 0160) / UL 508 / CSA 22.2 | | | | | |
| Galvanic isolation safe isolation acc. to | EN 60950 DIN VDE 0106-101 | IEC 664-1 DIN VDE 0106-101 | EN 60950 DIN VDE 0106-101 | IEC 664-1 DIN VDE 0106-101 | IEC 664-1 DIN VDE 0106-101 | |
| Isolation testing | 2.5 kV AC routine test, 3 kV AC type test | | | | | |
| Clearances and creepage distances | overvoltage category 2, degree of pollution 2 | | | | | |
| Electromagnetic compatibility acc. to EN 61000-6-2 | ESD HF radiation Burst Surge conducted HF, input | 2/4 kV | | EN 61000-4-2 level 3 EN 61000-4-3 level 3 EN 61000-4-4 level 4 EN 61000-4-5 EN 61000-4-6 level 3 | 6/8 kV 10 V/m 4 kV 3 kV 10 V | |
| Interference emission Radiated noise | acc. to EN 61000-6-4 acc. to EN 55011 | class B | | | | |
| Input current harmonics | no limitation | | | | | |
| Degree of protection, terminals | IP20 | | IP50 | IP20 | IP20 | IP20 |
| Degree of protection, enclosure | IP20 | | IP50 | IP20 | IP20 | IP20 |
| Protection class | 2 (terminal cover required) | | 1 | | | |
| General data | | | | | | |
| Efficiency at nom. load | approx. | 80-84 % (90-260 V AC) | 82-84 % (90-260 V AC) | 83-85 % (90-260 V AC) | 86 % (90-260 V AC) | |
| Operational state indication | green LED, output voltage OK | | | | | |
| Operating temperature | 0 °C ... +55 °C | | | | | |
| Storage temperature | -25 °C ... +75 °C | | | | | |
| Wire size | screw terminals, 2 x 2.5 mm ² (AWG 14) | | | | | |
| Weight | approx. | 0.22 kg (0.49 lb) | | | 0.3 kg | |
| Dimensions (W x H x D) | mm | 22,5 x 78 x 120 | 45 x 78 x 100 | | 45 x 78 x 120 | |

Normal mounting position: Horizontally, mounted on DIN rail.
Clearances to other devices: Left-hand side 1 cm, vertically 5 cm.

Switching power supplies

CP-24/2.0 adj, CP-24/4.2, CP-24/5.0 (adj), CP-48/0.7

Technical data

| | CP-24/2.0 adj | CP-24/4.2 | CP-24/5.0 | CP-24/5.0 adj | CP-48/0.7 | |
|--|--|---|---|--|--|--------------------------|
| Order code | 1 SVR 423 ... | 417 R 1100 | 416 R 1000 | 416 R 0000 | 416 R 0100 | 418 R 6000 |
| Input | | | | | | |
| Supply voltage | 140-260 V AC 160-260 V DC | | 90-260 V AC 127-260 V DC | | 90-260 V AC 105-260 V DC | |
| Frequency, AC input | 47-440 Hz | | 47-63 Hz | | 47-440 Hz | |
| Supply voltage fail. bridging time at 100 % load | | | 20 ms min. | | 10 ms min. | |
| Input current at nom. load | | | | | | |
| max. at 90 V AC | - | 1.5 A | 1.8 A | 1.8 A | 0.8 A | |
| max. at 140 V AC | 0.7 A | - | - | - | - | |
| max. at 260 V AC | 0.45 A | - | - | - | 0.4 A | |
| typ. at 115 V AC | - | 1.1 A | 1.3 A | 1.3 A | - | |
| typ. at 230 V AC | - | 0.52 A | 0.63 A | 0.63 A | - | |
| Inrush current at 25 °C (≤ 2 ms) at 260 V AC | 33 A | | 40 A | | 33 A | |
| Internal input fuse | 3 A (slow-act.) | | 2 A (slow-acting) | | 3 A (slow-acting) | |
| Output | | | | | | |
| Output voltage | | | 24 V DC ± 3 % | | 48 V DC ± 3 % | |
| Output voltage adjustment range | 21-28 V DC 48 W max. | - | - | 23-28 V 120 W max. | - | |
| Output current / power | 2 A / 48 W | 4.2 A / 100 W (T _a ≤ 55 °C) | 5 A / 120 W / T _a ≤ 40 °C | | 0.7 A / 33 W | |
| Derating | - | - | -1.33 W/°C / T _a > 40 °C 4.2 A / 100 W / T _a = 55 °C | - | - | |
| Derating for T _a > 45 °C | - | - | - | - | -10 mA/°C | |
| Derating for V _{in} < 105 V AC / 120 V DC | - | - | - | - | -6,667 mA/V | |
| Max. residual ripple | 100 mV _{pp} | 200 mV _{pp} | 200 mV _{pp} | 200 mV _{pp} | 300 mV _{pp} | |
| Max. input voltage regulation | ± 0.5 % | | ± 0.05 % | | ± 0.5 % | |
| Max. deviation of output with static load change | | | ± 0.5 % | | | |
| Max. deviation of output with dyn. load change (load change 10-90 %) | | | 5 % | | | |
| Short-circuit protection | | | overcurrent switch-off with automatic restart | | | |
| Overload protection | | | overtemperature and overcurrent switch-off | | | |
| Reset after thermal overload switch-off | | | disconnection of AC input voltage 30 s min. | | | |
| Standards | | | | | | |
| Electrical safety | EN 50178 (VDE 0160) / UL 508 / CSA 22.2 | | | | | |
| Galvanic isolation | safe isolation acc. to EN 60950, DIN VDE 0106-101 | | | | | |
| Isolation testing | routing test type test | 2.5 kV AC 3 kV AC | 1.5 kV AC 3 kV AC | 1.5 kV AC 3 kV AC | 1.5 kV AC 3 kV AC | 2.5 kV AC 3 kV AC |
| Clearances and creepage distances | overvoltage category degree of pollution | 2 2 | | | | |
| Electromagnetic compatibility acc. to EN 61000-6-2 | ESD HF radiation Burst Surge conducted HF, input | level 4 4 kV 3 kV | | EN 61000-4-2 level 3 EN 61000-4-3 level 3 EN 61000-4-4 level 3 EN 61000-4-5 EN 61000-4-6 level 3 | 6/8 kV 10 V/m 2 kV 2 kV 10 V | 4 kV 3 kV |
| Interference emission acc. to EN 61000-6-4 | | | | | | |
| Radiated noise acc. to EN 55011 | | class B | class A | class A | class A | class B |
| Input current harmonics | | no limitation | | acc. to EN 61000-3-2 A | no limitation | |
| Degree of protection, terminals | | IP20 | | | | |
| Degree of protection, enclosure | | IP20 | | | | |
| Protection class | | 1 | | | | |
| General data | | | | | | |
| Efficiency at nom. load | approx. | 86 % (140-260 V AC) | 77-85 % (90-260 V AC) | 77-85 % (90-260 V AC) | 77-85 % (90-260 V AC) | 83-85 % (90-260 V AC) |
| Operational state indication | | green LED, output voltage OK | | | | |
| Operating temperature | | 0 °C ... +55 °C | | | | |
| Storage temperature | | -25 °C ... +75 °C | | | | |
| Wire size | | screw terminals, 2 x 2.5 mm ² (AWG 14) | | | | |
| Weight | approx. | 0.28 kg | 0.58 kg | 0.58 kg | 0.58 kg | 0.22 kg |
| Dimensions (W x H x D) | mm | 45 x 78 x 120 | 90 x 78 x 120 | 90 x 78 x 120 | 90 x 78 x 120 | 45 x 78 x 100 |

Normal mounting position: Horizontally, mounted on DIN rail.
Clearances to other devices: Left-hand side 1 cm, vertically 5 cm.

Switching power supplies

CP-24/10 adj, CP-24/20 adj

Technical data

| | | CP-24/10 adj | CP-24/20 adj | | |
|--|---|---|--------------------------------|--|--|
| Order code | 1 SVR 423 ... | 415 R 0000 | 415 R 1000 | | |
| Input | | | | | |
| Supply voltage | | 93-132 V AC 187-264 V AC | 93-132 V AC 187-264 V AC | | |
| Frequency, AC input | | 47-63 Hz | 47-63 Hz | | |
| Supply voltage fail. bridging time at 100 % load | | 20 ms (115 V) | 15 ms (115 V AC) | | |
| Input current at nom. load | max. at 93 V AC typ. at 115 V AC typ. at 230 V AC | 4,3 V 3.5 A 1.7 A | 8.9 A 7.2 A 3.5 A | | |
| Inrush current at 25 °C | at 115 V AC at 230 V AC | 35 A (≤ 1 ms) 69 A (≤ 1 ms) | 33 A (≤ 2 ms) 65 A (≤ 2 ms) | | |
| Internal input fuse | | 6.3 A (slow-act.) | 12 A (slow-acting) | | |
| Output | | | | | |
| Output voltage | | 24 V DC ± 1 % | | | |
| Output voltage adjustment range | | 24-28 V DC | | | |
| Output current / power | | | | | |
| Derating for V_{in} 93-132 V AC | $T \leq 60\text{ °C}$ | 10 A / 240 W | 20 A / 480 W | | |
| or V_{in} 187-264 V DC | $T > 60\text{ °C}$ | -2%/°C | -2 %/°C | | |
| | $T = 70\text{ °C}$ | 8 A / 192 W | 16 A / 384 W | | |
| Max. residual ripple | | 50 mV _{pp} | | | |
| Max. input voltage regulation | | ± 0.2 % | | | |
| Max. deviation of output with static load change | | - | | | |
| Max. deviation of output with dyn. load change (load change 10-90 %) | | ± 0.3 % max. (± 1.5 % parallel operation) | | | |
| Short-circuit and overload protection | | overload limiting (typ. 110 % of nom. current) | | | |
| Reset after thermal overload | | - | | | |
| Overvoltage protection | | triggered at typ. 140 % of nominal output voltage | | | |
| Parallel operation (optional) | | up to 5 units (has to be activated by internal jumper) | | | |
| Standards | | | | | |
| Electrical safety | | EN 60950 / UL 508 / UL 60950 / CSA 22.2 | | | |
| Galvanic isolation | | safe isolation acc. to EN 60950 | | | |
| Isolation testing | type test | 3 kV AC | | | |
| Clearances and overvoltage category | | 2 | | | |
| creepage distances | degree of pollution | 2 | | | |
| Electromagnetic compatibility | ESD | EN 61000-4-2 | 4/8 kV | | |
| acc. to EN 61000-6-2 | HF radiation | EN 61000-4-3 level 3 | 10 V/m | | |
| | Burst | EN 61000-4-4 level 3 | 2 kV | | |
| | Surge | EN 61000-4-5 | 2/4 kV | | |
| | conducted HF, input | EN 61000-4-6 | 10 V | | |
| Interference emission | acc. to EN 61000-6-4 | | | | |
| Radiated noise | acc. to EN 55011 | class B | | | |
| Input current harmonics | | no limitation | | | |
| Degree of protection, terminals | | IP20 | | | |
| Degree of protection, enclosure | | IP20 | | | |
| Protection class | | 1 | | | |
| General data | | | | | |
| Efficiency at nominal load | typ. | 90 % (230 V AC) | 88 % (230 V AC) | | |
| Operational state indication | | green LED, output voltage OK | | | |
| Operating temperature | | -25 °C ... +70 °C | | | |
| Storage temperature | | -25 °C ... +85 °C | | | |
| Wire size | | screw terminals 2.5 mm ² (AWG 14) | | | |
| Weight | approx. | 1.05 kg (2.31 lb) | 2.2 kg (4.84 lb) | | |
| Dimensions (W x H x D) | mm | 100 x 125 x 125 | 220 x 125 x 125 | | |

Normal mounting position: Horizontally, mounted on DIN rail.
Clearances to other devices: 5 cm on both sides, vertically 8 cm.

Linear power supplies

CP-L range

Technical data

| 115 V AC supply | | CP-L5/1.0 | CP-L12/0.5 CP-L12/1.0 | CP-L15/0.5 CP-L15/1.0 | CP-L24/0.25 CP-L24/0.75 | CP-L± 12/0.5 CP-L± 15/0.5 |
|--|--|---|--|--|--|-------------------------------------|
| Order code | 1 SVR 419 ... | 500 R 3000 | 501 R 1000 501 R 3000 | 502 R 1000 502 R 3000 | 503 R 0000 503 R 2000 | 511 R 1000 512 R 1000 |
| Input | | | | | | |
| Supply voltage | | 103-127 V AC | | | | |
| Frequency, AC input | | 47-63 Hz | | | | |
| Supply voltage fail. bridging time at 100 % load | | 5 ms min. | | | | |
| Input current at nom. load | typ. at 0.25 A typ. at 0,5 A typ. at 0.75 A typ. at 1 A | - - - 0.16 A | - 0.14 A - 0.32 A | - 0.14 A - 0.35 A | 0.14 A - 0.35 A - | - 0.32 A / 0.35 A - - |
| Internal input fuse | typ. at 0,25 A typ. at 0.5 A typ. at 0.75 A typ. at 1 A | - - - 0.2 A | - 0.2 A (slow-act.) - 0.4 A (slow-act.) | - 0.2 A (slow-act.) - 0.4 A (slow-act.) | 0.2 A (slow-act.) - 0.4 A (slow-act.) - | - 0.4 A (slow-act.) - - |
| Output | | | | | | |
| Output voltage | | 5 V DC | 12 V DC | 15 V DC | 24 V DC | ± 12 V DC / ± 15 V DC |
| Output current | | 1 A | 0.5 A / 1 A | 0.5 A / 1 A | 0.25 A / 0.75 A | 0.5 A |
| Residual ripple | | ± 1 % | | | | |
| Short-circuit protection | | overcurrent switch-off with automatic restart | | | | |
| Overload protection | | overtemperature and overcurrent switch-off | | | | |
| Reset after thermal overload switch-off | | automatic reset after cooling | | | | |
| Standards | | | | | | |
| Electrical safety | | EN 50178 (VDE 0160) | | | | |
| Galvanic isolation | | safe isolation acc. to EN 60950 | | | | |
| Isolation testing | | type test 4 kV AC, routine test 4 kV AC | | | | |
| Clearances and creepage distances | | overvoltage category 3, degree of pollution 2 | | | | |
| Electromagnetic compatibility acc. to EN 61000-6-2 | ESD HF radiation Burst Surge conducted HF, input | | | EN 61000-4-2 EN 61000-4-3 level 3 EN 61000-4-4 level 3 EN 61000-4-5 EN 61000-4-6 | 6/8 kV 10 V/m 2 kV 2 kV 10 V | |
| Input current harmonics | | no limitation | | | | |
| Degree of protection, terminals | | IP20 | | | | |
| Degree of protection, enclosure | | IP20 | | | | |
| Protection class | | 2, if the unit is covered additionally | | | | |
| General data | | | | | | |
| Operational state indication | | green LED | | | | |
| Operating temperature | | -20 °C - +50 °C | | | | |
| Storage temperature | | -40 °C - +80 °C | | | | |
| Wire size | | screw terminals 2.5 mm ² (AWG 14) | | | | |
| Weight | approx. | 0.82 kg* | 0.82 kg/0.78 kg* | 0.82 kg/0.78 kg* | 0.82 kg/1.05 kg* | 1.07 kg* |
| Dimensions (W x H x D) in mm | at 0.25 A | - | - | - | 100 x 104 x 79 (3.94x4.09x3.11") | - |
| | at 0.5 A | - | 100 x 104 x 79 (3.94x4.09x3.11") | | - | 135 x 104 x 90 (5.31x4.09x3.54") |
| | at 0.75 A | - | - | - | 135 x 104 x 90 (5.31x4.09x3.54") | - |
| | at 1 A | | 100 x 104 x 90 (3.94x4.09x3.54") | | - | - |
| Mounting note | | Normal mounting position: Horizontally, mounted on DIN rail. Clearances to other devices: 20 mm on both sides, top 100 mm, bottom 50 mm. | | | | |

* 0.78 kg = 1.72 lb
0.82 kg = 1.80 lb
1.05 kg = 2.31 lb
1.07 kg = 2.35 lb

Linear power supplies

CP-L range

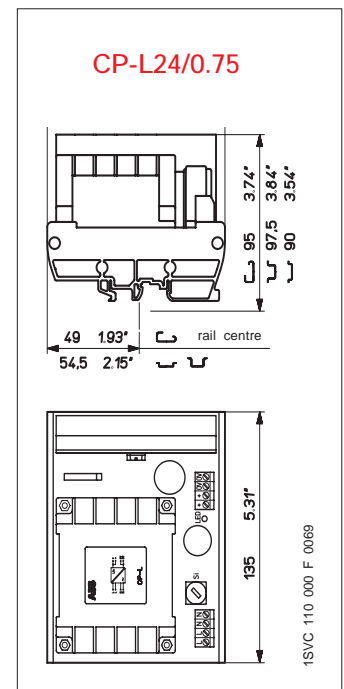
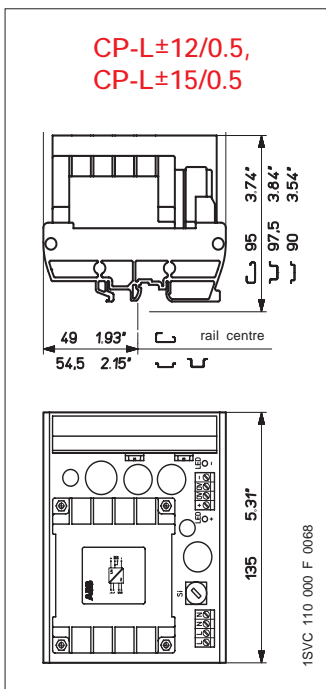
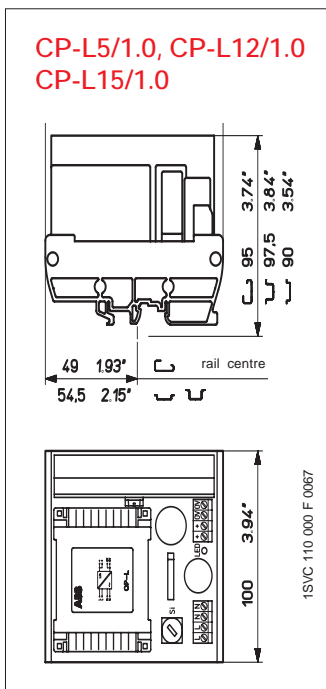
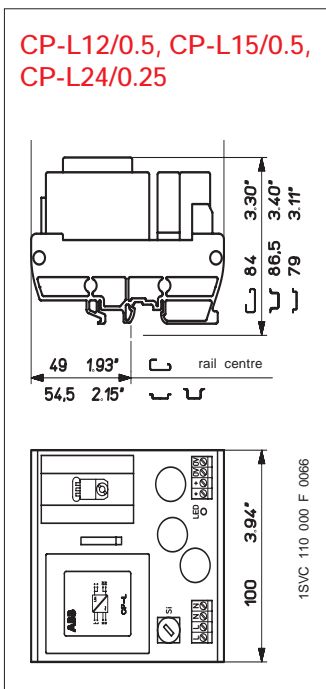
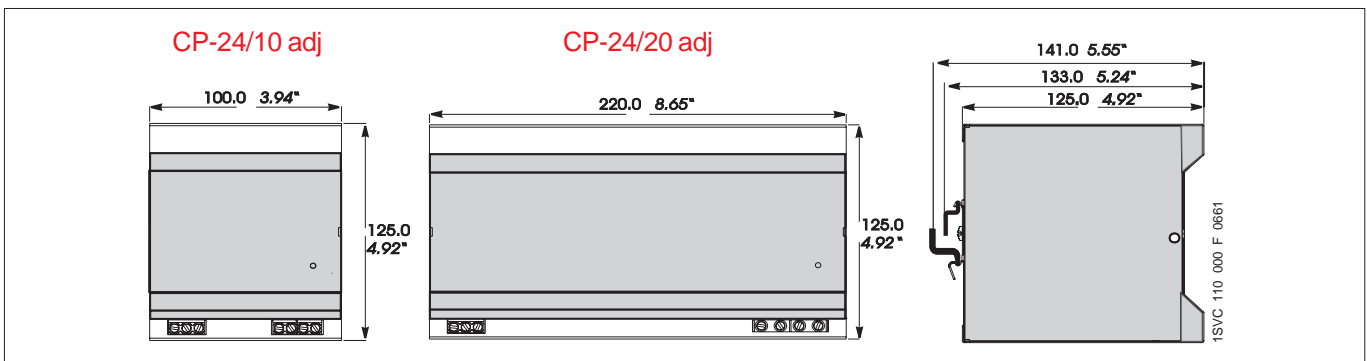
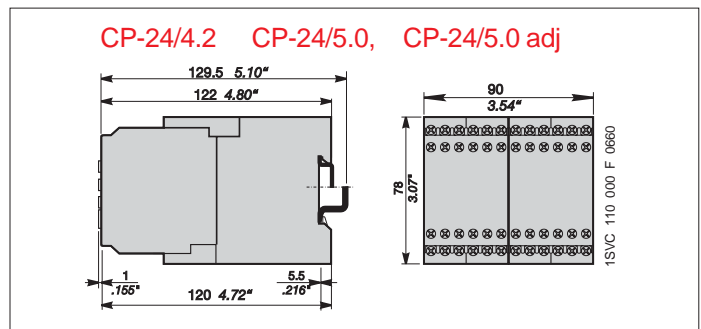
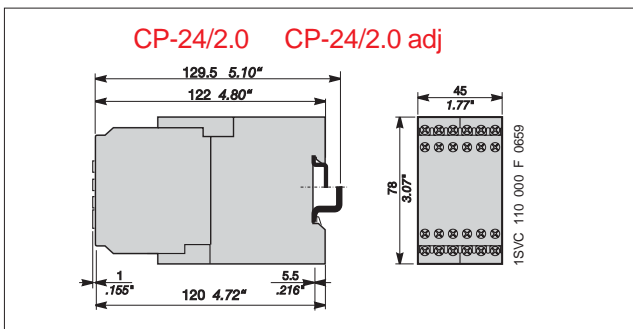
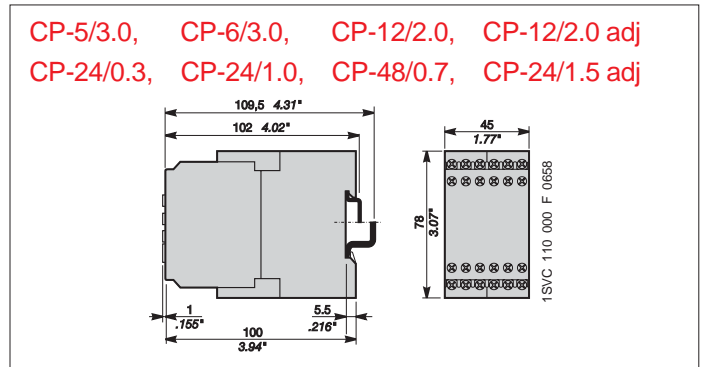
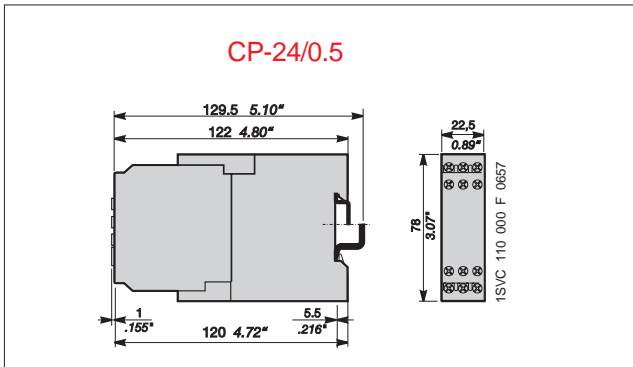
Technical data

| 230 V AC supply | | CP-L5/1.0 | CP-L12/0.5 CP-L12/1.0 | CP-L15/0.5 CP-L15/1.0 | CP-L24/0.25 CP-L24/0.75 | CP-L± 12/0.5 CP-L± 15/0.5 |
|--|---|-------------------------------------|--|--|--|--|
| Order code | 1 SVR 419 ... | 500 R 3100 | 501 R 1100 501 R 3100 | 502 R 1100 502 R 3100 | 503 R 0100 503 R 2100 | 511 R 1100 512 R 1100 |
| Input | | | | | | |
| Supply voltage | 207-253 V AC | | | | | |
| Frequency, AC input | 47-63 Hz | | | | | |
| Supply voltage fail. bridging time at 100 % load | 5 ms min. | | | | | |
| Input current at nom. load | typ. at 0.25 A | - | - | - | 0.07 A | - |
| | typ. at 0.5 A | - | 0.07 A | 0.07 A | - | 0.16 A / 0.175 A |
| | typ. at 0.75 A | - | - | - | 0.175 A | - |
| | typ. at 1 A | 0.08 A | 0.16 A | 0.175 A | - | - |
| Internal input fuse | at 0.25 A | - | - | - | 0.125 A (slow-act.) | - |
| | at 0.5 A | - | 0.125 A (slow-act.) | 0.125 A (slow-act.) | - | 0.2 A (slow-act.) |
| | at 0.75 A | - | - | - | 0.2 A (slow-act.) | - |
| | at 1 A | 0.125 A (slow-act.) | 0.2 A (slow-act.) | 0.2 A (slow-act.) | - | - |
| Output | | | | | | |
| Output voltage | 5 V DC | | 12 V DC | 15 V DC | 24 V DC | ± 12 V DC / ± 15 V DC |
| Output current | 1 A | | 0.5 A / 1 A | 0.5 A / 1 A | 0.25 A / 0.75 A | 0.5 A |
| Residual ripple | ± 1 % | | | | | |
| Short-circuit protection | overcurrent switch-off with automatic restart | | | | | |
| Overload protection | overtemperature and overcurrent switch-off | | | | | |
| Reset after thermal overload switch-off | automatic reset after cooling | | | | | |
| Standards | | | | | | |
| Electrical safety | EN 50178 (VDE 0160) | | | | | |
| Galvanic isolation | safe isolation acc. to EN 60950 | | | | | |
| Isolation testing | type test 4 kV AC, routine test 4 kV AC | | | | | |
| Clearances and creepage distances | overvoltage category 3, degree of pollution 2 | | | | | |
| Electromagnetic compatibility acc. to EN 61000-6-2 | ESD | EN 61000-4-2 | | 6/8 kV | | |
| | HF radiation | EN 61000-4-3 level 3 | | 10 V/m | | |
| | Burst | EN 61000-4-4 level 3 | | 2 kV | | |
| | Surge | EN 61000-4-5 | | 2 kV | | |
| | conducted HF, input | EN 61000-4-6 | | 10 V | | |
| Input current harmonics | no limitation | | | | | |
| Degree of protection, terminals | IP20 | | | | | |
| Degree of protection, enclosure | IP20 | | | | | |
| Protection class | 2, if the unit is covered additionally | | | | | |
| General data | | | | | | |
| Operational state indication | green LED | | | | | |
| Operating temperature | -20 °C - +50 °C | | | | | |
| Storage temperature | -40 °C - +80 °C | | | | | |
| Wire size | screw terminals 2.5 mm ² (AWG 14) | | | | | |
| Weight | approx. | 0.82 kg* | 0.82 kg/0.78 kg* | 0.82 kg/0.78 kg* | 0.82 kg/1.05 kg* | 1.07 kg* |
| Dimensions (W x H x D) mm | at 0.25 A | - | - | - | 100 x 104 x 79 (3.94x4.09x3.11") | - |
| | at 0.5 A | - | 100 x 104 x 79 (3.94x4.09x3.11") | | - | 135 x 104 x 90 (5.31x4.09x3.54") |
| | at 0.75 A | - | - | - | 135 x 104 x 90 (5.31x4.09x3.54") | - |
| | at 1 A | 100 x 104 x 90 (3.94x4.09x3.54") | | | - | - |
| Mounting note | Normal mounting position: Horizontally, mounted on DIN rail. Clearances to other devices: 20 mm on both sides, 100 mm on top, 50 mm on bottom. | | | | | |

* 0.78 kg = 1.72 lb
0.82 kg = 1.80 lb
1.05 kg = 2.31 lb
1.07 kg = 2.35 lb

Switching power supplies CP range, linear power supplies CP-L range Dimensional drawings

Dimensions in mm



Notes

4

