Type CP-S, CP-C & CP-A Switch mode Power supplies

# Switch mode power supplies
## CP-S, CP-C & CP-A Range



### Characteristics
### CP-S and CP-C range

- Output current 5 A, 10 A and 20 A
- Integrated power reserve of up to 50 %
- 5 A and 10 A devices with pluggable connecting terminals
- Approvals / marks (depending on device, partly pending)

### CP-S range

- 10 A and 20 A device with front-face selector switch to adjust rated input voltage range: 110-120 V AC or 220-240 V AC
- Output voltage fixed at 24 V DC
- Parallel operation for redundancy

### CP-C range

- Wide range input 110-240 V AC (85-264 V AC, 100-350 V DC)
- Output voltage adjustable in a range of 22-28 V DC
- Parallel operation for increased capacity and redundancy
- Power factor correction (PFC) acc. to EN 61000-3-2
- Function module pluggable onto the front side

### Messaging module CP-C MM:

- LED for status indication
- Relay outputs "Input OK" and "Output OK"
- REMOTE ON/OFF function to switch on and off the power supply externally
- Output voltage monitoring is only possible in decoupled parallel operation

### CP-A range

**Redundancy unit CP-A RU**

- Redundancy unit with 2 inputs / channels for decoupling of 2 CP-S or 2 CP-C power supplies up to 20 A per input / channel and output up to 40 A
- True redundancy by 100 % decoupling with 2 integrated diodes

**Control module CP-A CM**

- Puggable onto redundancy unit CP-A RU
- One relay output per monitored input / channel
- Threshold values adjustable (14-28 V)
- Indicates the presence of both input voltages (of the CP-A RU) via LEDs and energized output relays

### Benefits

**Integrated power reserve**
The new CP-S and CP-C range power supplies feature an integrated power reserve of up to 50 %. No oversized electricity supply is needed, especially under heavy load conditions.

**Pluggable connecting terminals**
Extended flexibility in operation due to pluggable connecting terminals (this feature is not offered on all devices).

**Adjustable output voltage**
The CP-C range types feature a continuously adjustable output voltage from 22 to 28 V. Thus, they can be optimally adapted to the application, e.g. compensating the voltage drop caused by long line length.

**Pluggable function modules**
The CP-C range power supplies can be equipped with pluggable modules to add additional functions (e.g. messaging module). Thus, the power supplies can be ideally adapted to the relevant application.

# CP-S, CP-C & CP-A Range
## Ordering details

CP-S 24/5.0

CP-C 24/10.0



CP-S 24/20.0

CP-A RU + CP-A CM

### Description

The power supply units in the CP-S and CP-C range are ABB's high-end solutions. Designed with an integrated 50 % power reserve and an efficiency of approximately 89 % these are the perfect products for all complex, highly reliable applications. All the devices cover the U-I output characteristic and are built with thermal protection which switches off in case of overheating. In particular, the devices of the CP-C range feature a much broader functionality, including active power factor correction and pluggable function modules.

These products are designed to trip MCB's in the 24VDC output circuit. Coordination tables are available.

### Ordering details

| Input voltage range | Rated output voltage / current | Type | Catalog number | Weight (1 pce) kg (lb) |
|---|---|---|---|---|
| 85-264 V AC / 110-350 V DC | 24 V DC / 5 A | CP-S 24/5.0 | 1SVR427014R0000 | 0.96 (2.11) |
| 85-132 V AC, 184-264 V AC / 220-350 V DC | 24 V DC / 10 A | CP-S 24/10.0 | 1SVR427015R0100 | 1.07 (2.35) |
| 85-132 V AC, 184-264 V AC / 220-350 V DC | 24 V DC / 20 A | CP-S 24/20.0 | 1SVR427016R0100 | 2.83 (6.23) |
| 85-264 V AC / 110-350 V DC | 24 V DC / 5 A | CP-C 24/5.0 | 1SVR427024R0000 | 0.96 (2.11) |
| 85-264 V AC / 110-350 V DC | 24 V DC / 10 A | CP-C 24/10.0 | 1SVR427025R0000 | 1.34 (2.95) |
| 85-264 V AC / 110-350 V DC | 24 V DC / 20 A | CP-C 24/20.0 | 1SVR427026R0000 | 3.15 (6.94) |

| Description | Type | Catalog number | Weight (1 pce) kg (lb) |
|---|---|---|---|
| Messaging module for CP-C range power supplies | CP-C MM | 1SVR427081R0000 | 0.065 (0.14) |
| Redundancy unit | CP-A RU | 1SVR427071R0000 | 0.89 (1.96) |
| Control module for CP-A RU redundancy units | CP-A CM | 1SVR427075R0000 | 0.063 (0.14) |

# CP-S, CP-C & CP-A Range

## Technical data

Data at $T_a$ = 25 °C, $U_{in}$ = 230 V AC and rated values, unless otherwise indicated

| Type | | | CP-C 24/5.0<br>CP-S 24/5.0 | CP-C 24/10.0<br>CP-S 24/10.0 | CP-C 24/20.0<br>CP-S 24/20.0 |
|---|---|---|---|---|---|
| **Input circuit - supply circuit** | | | **L, N** | | |
| Rated input voltage $U_{in}$ | | CP-C | 110-240 V AC | | |
| | CP-S switch position 115 | | 110-240 V AC | 110-120 V AC | |
| | CP-S switch position 230 | | | 220-240 V AC | |
| Input voltage range | | CP-C | 85-264 V AC / 100-350 V DC [1] | | |
| | CP-S switch position 115 | | 85-264 V AC / 100-350 V DC [1] | 85-132 V AC | |
| | CP-S switch position 230 | | | 184-264 V AC / 220-350 V DC [1] | |
| Frequency range AC | | | 47-63 Hz | | |
| Typical input current | CP-C at 110-240 V AC | | approx. 2.2-1.2 A | approx. 2.6-1.2 A | approx. 5.5-2.5 A |
| | CP-S at 110-120 V AC | | - | approx. 4.2-4.0 A | approx. 9.0-8.0 A |
| | CP-S at 220-240 V AC | | - | approx. 2.4-2.2 A | approx. 4.5-4.0 A |
| Power consumption | | | typ. 135 W | typ. 269 W | typ. 538 W |
| Inrush current limiting / $I^2t$ ( cold start) | | CP-C | < 23 A / approx. 0.9 $A^2s$ | < 33 A / approx. 0.2 $A^2s$ | < 40 A / approx. 1.9 $A^2s$ |
| | | CP-S | | < 40 A / approx. 1.8 $A^2s$ | < 70 A / approx. 8 $A^2s$ |
| Power failure buffering time | | | min. 100 ms | min. 40 ms | min. 40 ms |
| Transient overvoltage protection | | | varistors | | |
| Internal input fuse (apparatus protection, not accessible) | | | 4 A (slow-acting) | 6.3 A (slow-acting) | 12 A (fast-acting) |
| Power factor correction (PFC) | | CP-C | yes, active | | |
| | | CP-S | no | | |
| **Indication of operational states** | | | | | |
| Output voltage | OUTPUT OK: green LED | | ⎍: output voltage OK | | |
| **Output circuit** | | | **L+, L+, L-, L- : short-circuit, no-load and overload proof** | | |
| Rated output voltage | | | 24 V DC | | |
| Tolerance of the output voltage | | CP-C | ±1 % | | |
| | | CP-S | -1...+5 % | | |
| Adjustment range of the output voltage | | CP-C | 22-28 V DC, default setting 24 V ±0.5 % | | |
| | | CP-S | fixed | | |
| Rated output power | | | 120 W | 240 W | 480 W |
| Rated output current | $T_a \leq 60$ °C | | 5 A | 10 A | 20 A |
| Peak output current (power reserve) | $T_a \leq 40$ °C | | typ. ≤ 7.25 A | typ. ≤ 12.25 A | typ. ≤ 22.5 A |
| Derating | 60 °C < $T_a \leq$ 70 °C | | 2.5 % per Kelvin temperature increase | | |
| Deviation with | CP-C load change statical 10-90 % | | typ. < ±0.05 % | | |
| | CP-S load change statical 10-90 % | | typ. < ±0.1 % | | |
| | load change dynamical 10-90 % | | typ. < ±3 % | | |
| | change of the input voltage of ±10 % | | typ. < ±0.05 % | | |
| Control time | | | typ. < 1 ms | | |
| Starting time after applying supply voltage | | CP-C | < 200 ms | < 200 ms | typ. < 200 ms |
| | | CP-S | | < 250 ms | typ. < 300 ms |
| Rise time 10-90 % | | CP-C | typ. < 30 ms | typ. < 4 ms | typ. < 12 ms |
| | | CP-S | | typ. < 5 ms | typ. < 15 ms |
| Residual ripple and switching peaks | BW = 20 MHz | | typ. < 50 $mV_{PP}$ | | |
| Parallel connection | | | yes, up to 5 devices, to enable redundancy and to increase power, current not symmetrical (CP-S only redundancy) | | |
| Series connection | | | yes, to increase voltage | | |
| Resistance to reverse feed | | | approx. 35 V DC | | |
| **Output circuit - No-load, overload and short-circuit behavior** | | | **see also U/I- and I/T-characteristic curves** | | |
| Characteristic curve of output | | | U/I characteristic curve with power reserve | | |
| Current limiting at short circuit | | | approx. 11 A | approx. 19 A | approx. 25 A |
| Short-circuit protection | | | continuous short-circuit stability | | |
| Overload protection | | | thermal protection | | |
| Starting of capacitive loads | | | unlimited | | |
| **General data** | | | | | |
| Power dissipation | | | typ. < 15 W | typ. < 29 W | typ. < 58 W |
| Efficiency | | | typ. 89 % | | |
| Discharge current for PE | | | < 3.5 mA | | |
| MTBF | | CP-C | 500.000 h | | |
| | | CP-S | 350.000 h | | |
| Dimensions (W x H x D) | | | 56.5 (60 [2]) x 130 x 135.5 mm [2.22 (2.36 [2]) x 5.12 x 5.35 in] | 90 (93.5 [2]) x 130 x 135.5 mm [3.54 (3.68 [2]) x 5.12 x 5.35 in] | 200 (203.5 [2]) x 130 x 135.5 mm [7.87 (8.01 [2]) x 5.12 x 5.35 in] |
| Weight | | CP-C | approx. 0.96 kg (2.12 lb) | approx. 1.34 kg (2.95 lb) | approx. 3.15 kg (6.94 lb) |
| | | CP-S | | approx. 1.07 kg (2.36 lb) | approx. 2.83 kg (6.23 lb) |
| Minimum distance to other units | horizontal / vertical | | 10 mm / 80 mm (0.39 in / 3.15 in) | | |
| Degree of protection | housing / terminals | | IP20 / IP20 | | |
| Material of housing | housing shell / cover | | aluminium / zinc-coated sheet steel | | |

# CP-S, CP-C & CP-A Range

## Technical data

Data at $T_a$ = 25 °C, $U_{in}$ = 230 V AC and rated values, unless otherwise indicated

| Type | | | CP-C 24/5.0<br>CP-S 24/5.0 | CP-C 24/10.0<br>CP-S 24/10.0 | CP-C 24/20.0<br>CP-S 24/20.0 |
|---|---|---|---|---|---|
| Protection class (EN 61140) | | | I | | |
| Mounting | | | DIN rail (IEC/EN 60715), snap-on mounting | | |
| Mounting position | | | horizontal | | |
| **Electrical connection - Input circuit** | | | [3] | [3] | - |
| Wire size | fine-strand with wire end ferrule | | 0.2-2.5 mm² (24-14 AWG) | | 2.5-10 mm² (14-8 AWG) |
| | fine-strand without wire end ferrule | | | | 0.5-10 mm² (20-8 AWG) |
| | rigid | | | | 0.5-16 mm² (20-6 AWG) |
| Stripping length | | | 7 mm (0.28 in) | | 12 mm (0.47 in) |
| Tightening torque | | | 0.4 Nm | | 1.2-1.5 Nm |
| **Electrical connection - Output circuit** | | | [3] | [3] | - |
| Wire size | fine-strand with wire end ferrule | | 0.12-2.5 mm² (26-14 AWG) | | 2.5-10 mm² (14-8 AWG) |
| | fine-strand without wire end ferrule | | | | 0.5-10 mm² (20-8 AWG) |
| | rigid | | | | 0.5-16 mm² (20-6 AWG) |
| Stripping length | | | 8 mm (0.31 in) | | 12 mm (0,47 in) |
| Tightening torque | | | 0.4 Nm | | 1.2-1.5 Nm |
| **Environmental data** | | | | | |
| Ambient temperature range | | operation | -25...+70 °C | | |
| | | rated load | 0...+60 °C (without derating) | | |
| | | storage | -40...+85 °C | | |
| Damp heat (IEC/EN 60068-2-3) | | | 93 % at +40 °C, no condensation | | |
| Climatic category (IEC/EN 60721) | | | 3K3 | | |
| Vibration (IEC/EN 60068-2-6) | | | | | |
| Shock (IEC/EN 60068-2-27) | | | | | |
| **Isolation data** | | | | | |
| Rated insulation voltage $U_i$ between all isolated circuits (IEC/EN 60950-1; EN 50178) | | input / output | 300 V | | |
| | | input / PE | 300 V | | |
| | | output / PE | 50 V | | |
| Rated impulse withstand voltage $U_{imp}$ between all isolated circuits (IEC/EN 60950-1; EN 50178) | | input / output | 4 kV; 1.2/50 µs | | |
| | | input / PE | 2.5 kV; 1.2/50 µs | | |
| | | output / PE | 500 V; 1.2/50 µs | | |
| Power-frequency withstand voltage test (test voltage) (routine test / type test) | | input / output | 1.5 kV AC / 3.0 kV AC | | |
| | | input / PE | 1.5 kV AC / 3.0 kV AC | | |
| | | output / PE | 500 V DC / 500 V DC | | |
| Pollution degree (IEC/EN 60950-1; EN 50178) | | | 2 | | |
| Overvoltage category (IEC/EN 60950-1; EN 50178) | | | II | | |
| **Standards** | | | | | |
| Product standard | | | IEC/EN 61204 | | |
| Low Voltage Directive | | | 2006/95/EC | | |
| EMC Directive | | | 2004/108/EC | | |
| Electrical safety | | | EN 50178, EN 60950, UL 60950, UL 508 | | |
| Protective low voltage | | | SELV (EN 60950) | | |
| **Electromagnetic compatibility** | | | | | |
| Interference immunity to | | | IEC/EN 61000-6-2 | | |
| electrostatic discharge | IEC/EN 61000-4-2 | | Level 4 (8 kV / 15 kV) | | |
| radiated, radio-frequency, electromagnetic field | IEC/EN 61000-4-3 | | Level 3 (10 V/m) | | |
| electrical fast transient / burst | IEC/EN 61000-4-4 | | Level 4 (4 kV) | | |
| surge | IEC/EN 61000-4-5 | | Level 4 (2 kV symmetrical, level 3 - 3 kV asymmetrical) | | |
| conducted disturbances, induced by radio-frequency fields | IEC/EN 61000-4-6 | | Level 3 (10 V) | | |
| Interference emission | | | IEC/EN 61000-6-3 | | |
| high-frequency radiated | IEC/CISPR 22; EN 55022 | | Class B | | |
| high-frequency conducted | IEC/CISPR 22; EN 55022 | | Class B | | |

[1] at U > 264 V use additionally an appropriate external fuse

[2] with lateral screw

[3] pluggable connecting terminals, actuate only when power is off

Approvals and marks on page 11.3.

# CP-S, CP-C & CP-A Range
## Technical data

Data at Ta = 25 °C, Uin = 230 V AC and rated values, unless otherwise indicated

| Type | | | | CP-C MM |
|---|---|---|---|---|
| **Input circuit - Supply circuit** | | | | |
| Rated input voltage Uin | | | | powered by the output circuit of the power supply |
| Input voltage range | | | | 70-264 V AC / 80-350 V DC |
| Power consumption | | | | 2.5 VA / 1.5 W |
| **Input circuit - Control circuit** | | | | |
| Kind of triggering | | | | volt-free triggering |
| Control input, control function | | Remote OFF | | remote off |
| Threshold "Switching-off power supply unit" | | | | R m 1 kq |
| Threshold "Switching-on power supply unit" | | | | R M 10 kq |
| Input current | | | | typ. 1 mA (200 mA for 200 µs) |
| Maximum cable length to the control input | | | | 25 m - 100 pF/m |
| **Measuring circuit - INPUT** | | | | |
| Monitoring function | | | | undervoltage monitoring of input voltage of the power supply unit |
| Thresholds | | | | 85 V AC / 90 V DC |
| Hysteresis, related to the threshold value | | | | AC: typ. -8 % / DC -30 % |
| Accuracy, tolerance | | | | -5 % at AC and DC |
| Maximum measuring cycle | | | | typ. < 50 ms |
| **Measuring circuit - OUTPUT** | | | | |
| Monitoring function | | | | undervoltage monitoring of output voltage of the power supply unit |
| Thresholds | | | | 20 V DC |
| Hysteresis, related to the threshold value | | | | typ. 5 % |
| Accuracy, tolerance | | | | ±1 % |
| Maximum measuring cycle | | | | typ. < 10 ms |
| **Indication of operational states** | | | | |
| Remote off | REMOTE OFF: green LED | | | "REMOTE OFF" input R m 1kq |
| Status of power supply input | | Input OK: green LED | | relay "INPUT OK" energized |
| Status of power supply output | OUTPUT OK: green LED | | | relay "OUTPUT OK" energized |
| **Output circuits** | | | | 11-12/14, 21-22/24 |
| Kind of output | | | | relays, 2 x 1 c/o contacts |
| Operating principle | | | | closed-circuit principle |
| Contact material | | | | AgNi |
| Rated voltage (VDE 0110, IEC/EN 60947-1) | | | | 250 V |
| Minimum switching voltage / Minimum switching current | | | | 24 V / 10 mA |
| Maximum switching voltage / Maximum switching current | | | | 250 V / 1 A |
| Rated operating current Ie (IEC/EN 60947-1) | | AC12 (resistive) at 230 V | | 1 A |
| | | AC15 (inductive) at 230 V | | 1 A |
| | | DC12 (resistive) at 24 V | | 1 A |
| | | DC13 (inductive) at 24 V | | 1 A |
| Mechanical lifetime | | | | 30 x 106 switching cycles |
| Electrical lifetime | | | | 0.1 x 106 switching cycles |
| Short circuit proof, maximum fuse rating | | | n/c contact | 2 A, gL |
| | | | n/o contact | 2 A, gL |
| **General data** | | | | |
| Duty time | | | | 100 % |
| Dimensions (W x H x D, when mounted) | | | | 56.5 x 54 x 24 mm (2.22 x 2.13 x 0.94 in) |
| Weight | | | | 0.065 kg (0.14 lb) |
| Degree of protection | housing / terminals | | | IP20 / IP20 |
| Material of housing | | | | Plastic |
| Protection class (EN 61140) | | | | II |
| Mounting | | | | snap-on mounting, without any tool |
| Mounting position | | | | plugged onto the power supply unit |
| **Electrical connection** | | | | |
| Wire size | fine-strand with wire end ferrule | | | 0.2-2.5 mm2 (24-14 AWG) |
| | fine-strand without wire end ferrule | | | |
| | rigid | | | 0.2-4 mm2 (24-12 AWG) |
| Stripping length | | | | 7.5 mm (0.3 inch) |
| Tightening torque | | | | 0.4-0.6 Nm |
| Environmental data | | | | |
| Ambient temperature range | | | operation | -25...+70 °C |
| | | | storage | -40...+85 °C |

# CP-S, CP-C & CP-A Range
## Technical data

Data at Ta = 25 °C, Uin = 230 V AC and rated values, unless otherwise indicated

| Type | | CP-C MM |
|---|---|---|
| Damp heat (IEC/EN 60068-2-3) | | 93 % at +40 °C, no condensation |
| Climatic category (IEC/EN 60721) | | 3K3 |
| Vibration (IEC/EN 60068-2-6) | | |
| Shock (IEC/EN 60068-2-27) | | |
| **Isolation data** | | |
| Rated insulation voltage Ui (IEC/EN 60974-1, EN 50178, VDE 0160) | | 250 V |
| Protective separation (EN 50178, EN 60950) supply / measuring circuits / relay outputs | | yes |
| Rated impulse withstand voltage Uimp between all isolated circuits (IEC 664, VDE 0110) | | 4 kV; 1.2/50 µs |
| Test voltage between all circuits (type test) | | 2.5 kV AC |
| Pollution degree (EN 60950) | | 2 |
| Overvoltage category (EN 60950) | | II |
| **Standards** | | |
| Product standard | | IEC/EN 61204 |
| Low Voltage Directive | | 2006/95/EC |
| EMC Directive | | 2004/108/EC |
| Electrical safety | | EN 50178, EN 60950, UL 60950, UL 508 |
| **Electromagnetic compatibility** | | |
| Interference immunity to | | IEC/EN 61000-6-2 |
| electrostatic discharge | IEC/EN 61000-4-2 | Level 3 and 4 (6 kV / 8 kV) |
| radiated, radio-frequency, electromagnetic field | IEC/EN 61000-4-3 | Level 3 (10 V/m) |
| electrical fast transient / burst | IEC/EN 61000-4-4 | Level 4 and 2 (4 kV power input / 1 kV control input) |
| surge | IEC/EN 61000-4-5 | Level 3 and 2 (4 kV symmetrical power input / 1 kV control input) |
| conducted disturbances, induced by radio-frequency fields | IEC/EN 61000-4-6 | Level (10 V) |
| Interference emission | | IEC/EN 61000-6-3 |
| high-frequency radiated | IEC/CISPR 22; EN 55022 | Class B |
| high-frequency conducted | IEC/CISPR 22; EN 55022 | Class B |

Approvals and marks on page 11.3.

# CP-S, CP-C & CP-A Range
## Technical data

Data at Ta = 25 °C, unless otherwise indicated

| Type | | | CP-A RU | CP-A RU in combination with CP-A CM |
|---|---|---|---|---|
| **Input circuit - Supply circuit** | | | (+/ -, +/ -) | |
| Rated input voltage Uin | | | 24 V DC | |
| Input voltage range per channel | | | 10-28 V DC | 13-28 V DC |
| Rated input current Iin per channel | | | 1-20 A | |
| Maximum input current per channel | | | 30 A for 300 s | |
| Transient overvoltage protection | | | yes | |
| **Output circuit** | | | (++/--) | |
| Rated output voltage Uout | | | 24 V DC | |
| Voltage drop | | | typ. 0.6 V, max. 0.9 V | |
| Rated output current Iout | | | 1-40 A | |
| Output ratings per channel | | Ta = 60 °C | 10-28 V DC / 40 A | 13-28 V DC / 40 A |
| | | Ta = 70 °C | 10-28 V DC / 30 A | 13-28 V DC / 30 A |
| Derating | | 60 °C < Ta m 70 °C | 2.5 % per Kelvin temperature increase | |
| Peak output current | | | 60 A for 300 s | |
| Resistance to reverse feed | | | < 40 V | |
| **General data** | | | | |
| Dimensions (W x H x D) | | | 56.5 (60 1)) x 130 x 135.5 mm; (2.22 (2.36 1)) x 5.12 x 5.35 in) | |
| Weight | | | 0.89 kg (1.96 lb) | |
| Minimum distance to other units | | horizontal / vertical | 10 mm / 50 mm (0.39 in / 1.97 in) | |
| Degree of protection | housing / terminals | | IP20 / IP20 | |
| Material of housing | housing shell / cover | | aluminium / zinc-coated sheet steel | |
| Protection class | | | III 2) | |
| Mounting | | | DIN rail (IEC/EN 60715) | |
| Mounting position | | | horizontal | |
| **Electrical connection - Input circuit / Output circuit** | | | | |
| Wire size | fine-strand with wire end ferrule | | 2.5-10 mm2 (14-8 AWG) | |
| | fine-strand without wire end ferrule | | 0.5-10 mm2 (20-8 AWG) | |
| | rigid | | 0.5-16 mm2 (20-6 AWG) | |
| Stripping length | | | 12 mm (0.47 in) | |
| Tightening torque | | | 1.2-1.5 Nm | |
| **Environmental data** | | | | |
| Ambient temperature range | | operation | -25...+70 °C | |
| | | rated load | -25...+60 °C (without derating) | |
| | | storage | -40...+85 °C | |
| Damp heat (IEC/EN 60068-2-3) | | | 93 % at 40 °C, no condensation | |
| Climatic category (IEC/EN 60721) | | | 3K3 | |
| Vibration (IEC/EN 60068-2-6) | | | | |
| Shock (IEC/EN 60068-2-27) | | | | |
| **Isolation data** | | | | |
| Insulation voltage | between input / output / housing | | 500 V AC (routine test) | |
| Pollution degree (EN 50178) | | | 2 | |
| Standards | | | | |
| Product standard | | | IEC/EN 61204 | |
| Low Voltage Directive | | | 2006/95/EC | |
| EMC Directive | | | 2004/108/EC | |
| Electrical safety | | | EN 50178, EN 60950, UL 60950, UL 508 | |
| **Electromagnetic compatibility** | | | | |
| Interference immunity to | | | IEC/EN 61000-6-2 | |
| electrostatic discharge | | IEC/EN 61000-4-2 | Level 3 (air discharge ±8 kV, contact discharge ±6 kV) | |
| radiated, radio-frequency, electromagnetic field | | IEC/EN 61000-4-3 | Level 3 (10 V/m) | |
| electrical fast transient / burst | | IEC/EN 61000-4-4 | Level 3 (±2 kV) | |
| surge | | IEC/EN 61000-4-5 | Level 1 (±0.5 kV) | |
| conducted disturbances, induced by radio-frequency fields | | IEC/EN 61000-4-6 | Level 3 (10 V) | |
| Interference emission | | | IEC/EN 61000-6-3 | |
| high-frequency radiated | | IEC/CISPR 22 / EN 55022 | Class B | |
| high-frequency conducted | | IEC/CISPR 22 / EN 55022 | Class B | |

[1] incl. lateral screw

2) This device is designed for connection to a safety extra-low voltage source. If no safety extra-low voltage is used at the input side, the lateral screw can be used for grounding of the housing (protection class I).

Approvals and marks on page 11.3.

# CP-S, CP-C & CP-A Range
## Technical data

Data at Ta = 25 °C, unless otherwise indicated

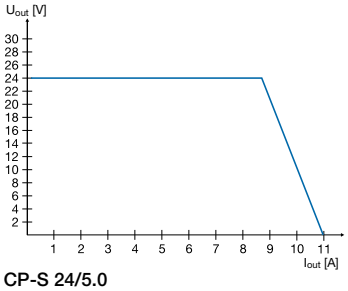
| Type | | | CP-A CM |
|---|---|---|---|
| **Input circuit - Supply circuit** | | | |
| Rated input voltage Uin | | | 24 V DC |
| Input voltage range | | | 13-28 V DC |
| Rated input current | at rated sense load and 24 V DC | | 120 mA |
| Power consumption | at 24 V DC | | approx. 1 W |
| **Measuring circuit** | | | 11-12/14, 21-22/24 |
| Monitoring function | | | undervoltage monitoring |
| Measuring voltage | | | rated operational voltage |
| Thresholds | | | 14-28 V |
| Hysteresis, related to the threshold value | | | fix: 3-5 % |
| Accuracy, tolerance | | | 10 % of full-scale value |
| Maximum measuring cycle | | | 6 ms |
| Indication of operational states | | | |
| Status of input 1 | IN 1: green LED | | ⎍: voltage at input 1 > than threshold 1 = no faults present |
| Status of input 2 | IN 2: green LED | | ⎍: voltage at input 2 > than threshold 2 = no faults present |
| Output status | OUT: green LED | | ⎍: UOUT > 3 V = no faults present |
| **Output circuit** | | | +, +, - |
| Kind of output | | | relays, 2 x 1 c/o contact |
| Contact material | | | AgNi |
| Operating principle | | | closed-circuit principle |
| Rated operational voltage Ue (IEC/EN 60947-1, VDE 0110) | | | 250 V |
| Minimum switching voltage / Minimum switching current | | | 24 V / 10 mA |
| Maximum switching voltage / Maximum switching current | | | 250 V / 1 A |
| Rated operational current Ie (IEC/EN 60947-5-1) | AC12 (resistive) at 230 V | | 1 A |
| | AC15 (inductive) at 230 V | | 1 A |
| | DC12 (resistive) at 24 V | | 1 A |
| | DC13 (inductive) at 24 V | | 1 A |
| Mechanical lifetime | | | 30 x 106 switching cycles |
| Electrical lifetime | | | 0.1 x 106 switching cycles |
| Rating according UL 508 | General purpose (GP) 250 V AC | | 1 A |
| Maximum fuse rating to achieve short-circuit protection | n/o contact | | 2 A, gL |
| | n/c contact | | 2 A, gL |
| **Sense output (+, +, -)** | | | 1 SVR 427 075 R0000 |
| Sense output voltage | | | 13-28 V DC |
| Sense output current | | | 0.1 A |
| Maximum fuse rating | | | For applications acc. UL the sense output shall be provided with a listed DC fuse 3 A |
| **General data** | | | |
| Duty time | | | 100 % |
| Dimensions (W x H x D, when mounted) | | | 56.5 x 54 x 24 mm (2.22 x 2.13 x 0.94 in) |
| Weight | | | 0.063 kg (0.14 lb) |
| Degree of protection | housing / terminals | | IP20 / IP20 |
| Protection class | | | II |
| Mounting | | | snap-on mounting, without any tool |
| Mounting position | | | plugged onto the redundancy unit CP-A RU |
| **Electrical connection** | | | |
| Wire size | fine-strand with wire end ferrule | | 0.2-2.5 mm2 (24-14 AWG) |
| | fine-strand without wire end ferrule | | |
| | rigid | | 0.2-4 mm2 (24-12 AWG) |
| Stripping length | | | 7.5 mm (0.3 in) |
| Tightening torque | | | 0.4-0.6 Nm |
| **Isolation data** | | | |
| Rated insulation voltage Ui (IEC/EN 60947-1, EN 50178, VDE 0160) | | | 250 V |
| Rated impulse withstand voltage Uimp (type test) between all circuits (IEC 664, VDE 0110) | | | 2.5 kV |
| Power-frequency withstand voltage test (routine test) between all circuits | | | 1.2 kV AC |
| Protective separation (EN 50178) between input and output | | | yes |
| Pollution degree | | | 2 |
| Overvoltage category | | | II |
| **Environmental data** | | | |
| Ambient temperature range | | operation | -25...+70 °C |
| | | storage | -40...+85 °C |
| Damp heat (IEC/EN 60068-2-3) | | | 93 %at 40 °C, no condensation |
| Climatic category (IEC/EN 60721) | | | 3K3 |
| Vibration (IEC/EN 60068-2-6) | | | |
| Shock (IEC/EN 60068-2-27) | | | |

# CP-S, CP-C & CP-A Range

## Technical diagrams, Approximate dimensions

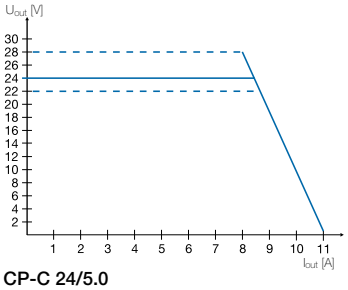
### Technical diagrams

**Output curve at 25 °C**



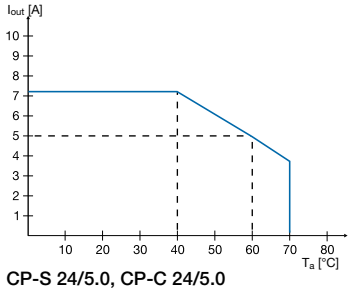

**CP-S 24/5.0**

**Output curve at 25 °C**

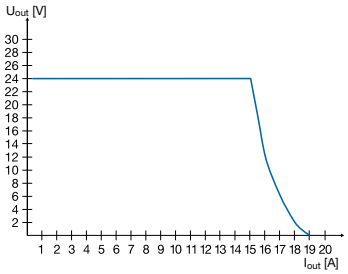



**CP-C 24/5.0**

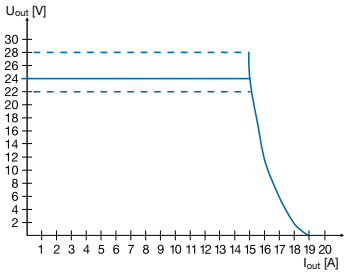
**Temperature curve at $U_{out}$ = 24 V DC**



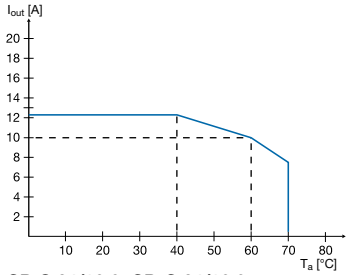

**CP-S 24/5.0, CP-C 24/5.0**



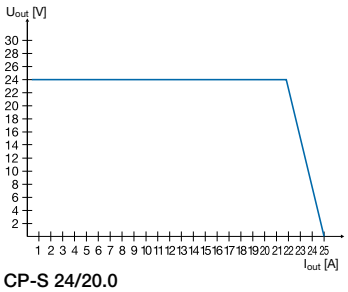

**CP-S 24/10.0**



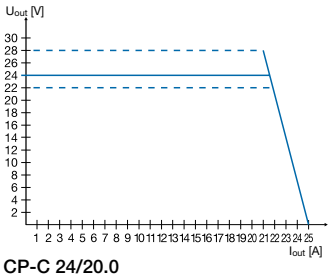

**CP-C 24/10.0**



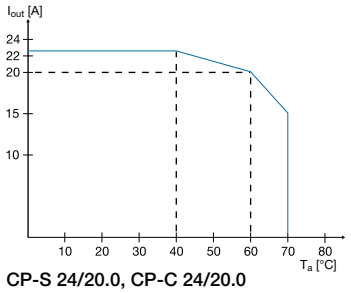

**CP-S 24/10.0, CP-C 24/10.0**




**CP-S 24/20.0**



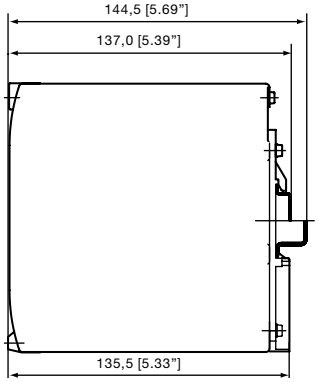

**CP-C 24/20.0**

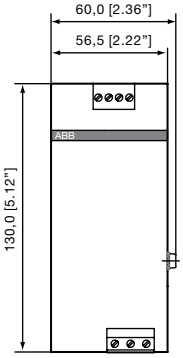



**CP-S 24/20.0, CP-C 24/20.0**

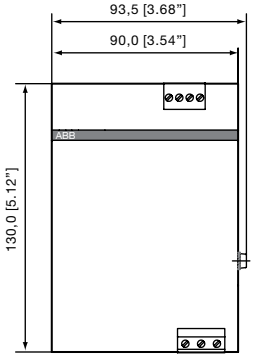
### Approximate dimensions

dimensions in mm

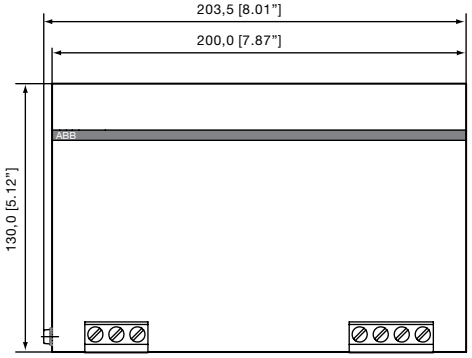


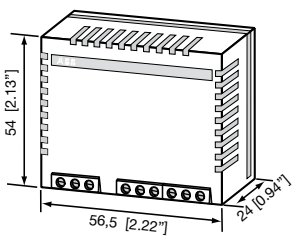

**CP-S 24/5.0**
**CP-C 24/5.0**
**CP-A RU**




**CP-S 24/10.0**
**CP-C 24/10.0**




**CP-S 24/20.0**
**CP-C 24/20.0**




**CP-C MM**
**CP-A CM**