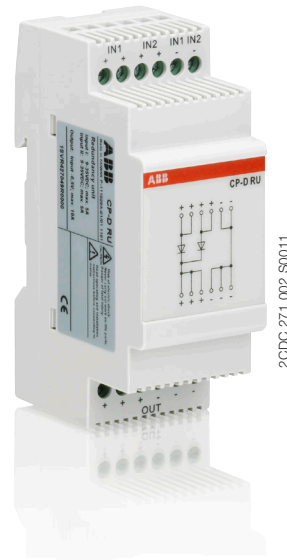


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Redundancy unit CP-D RU

Accessory for CP range power supplies (e.g. switch mode power supplies CP-D range)

The CP-D RU provides decoupling of two power supply units and ensures automatic redundant power supply operation for critical applications. The redundancy unit in MDRC design (modular DIN rail components) fits into all domestic installation and distribution panels.



Characteristics

- Decoupling of CP range power supply units
- Two inputs, each up to 5 A per input / channel
- True redundancy or increased power by 100 % decoupling of two parallel connected power supplies.
- Output up to 5 A for true redundancy or up to 10 A for increased power

Approvals

ERC EAC

Order data

Redundancy unit

| Type | Rated voltage | Input voltage range | Rated input current | Rated output current | Order code |
|---------|---------------|---------------------|---------------------|----------------------|--------------------|
| CP-D RU | 24 V DC | 9-35 V DC | 2 x 5 A | 1 x 10 A | 1SVR 427 049 R0000 |

Functions

Terminals



- 1** Input terminals
IN 1+ +, IN 2+ +, IN 1- -, IN 2- -
- 2** Output terminals
OUT + + +, OUT - - -

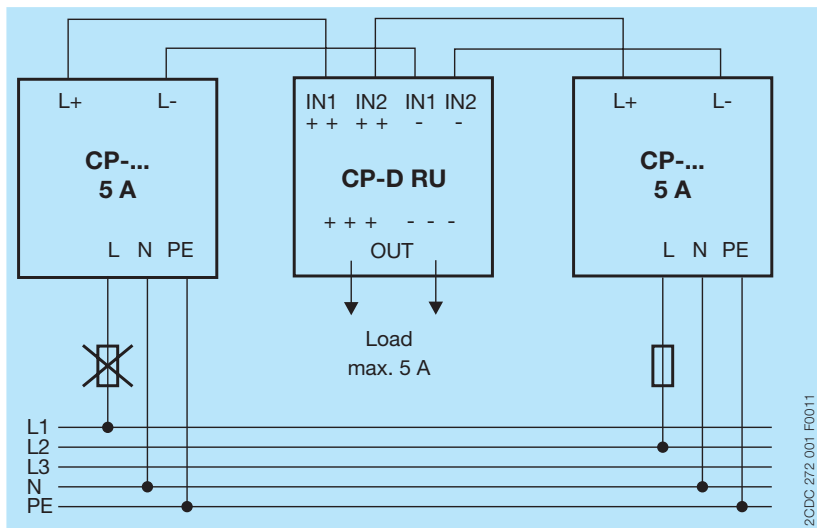
Application

The redundancy unit CP-D RU provides decoupling of two power supply units (e.g. switch mode power supplies CP-D range). It has two inputs, each up to 5 A per channel and 1 output up to 10 A. It ensures automatic redundant power supply operation for critical applications or enables increased power by two parallel connected power supplies.

Operating modes

Parallel operation, true redundancy

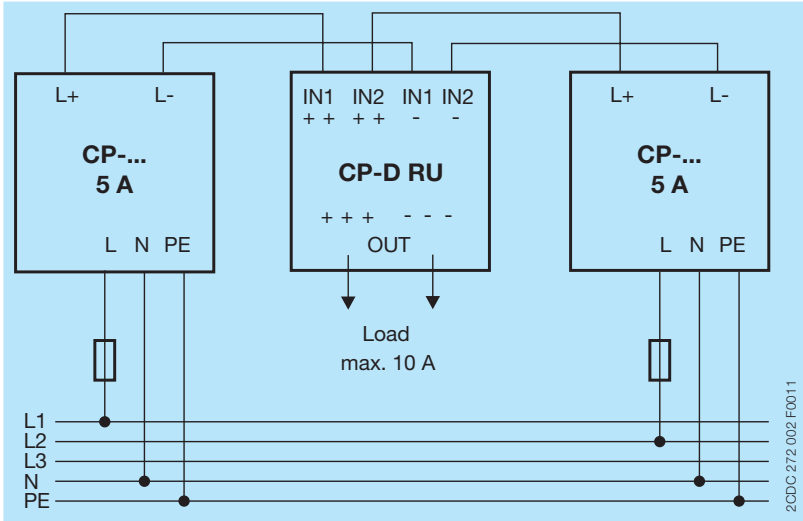
Redundant circuits are suitable to increase the operational reliability and eliminate power supply outages. Events that can cause a power supply failure include: incorrect wiring, blown fuses, or failure of a single devices power supply. If a fault event occurs (called initial fault) in the first power supply circuit, power to all loads is then supplied by the second, redundant power supply. For this reason, both power supplies must be sized to handle the total current requirement of all loads. The CP-D RU ensures that the primary power supply is decoupled from the redundant power supply. It prevents the initial fault from shorting or comprising the redundant supply's output. In this way, uninterrupted supply of power to all loads is guaranteed. When available, the two power supplies should be connected to different input voltage phases, to avoid loss of power caused by a blown fuse on the primary side of the power supplies (see figure below).



Example of application: Parallel operation, true redundancy

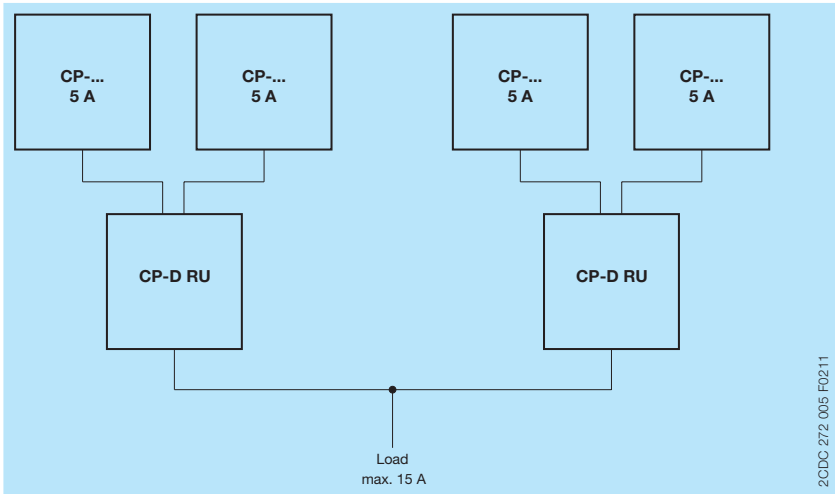
Parallel operation, increased power

If a power supply unit can not handle the current requirement of the most powerful load, it is advisable to increase the power by parallel connected power supplies. For this, the primary and redundant power supplies are decoupled from one another by the CP-D RU unit, as shown in the figure below. Otherwise the loads should be spread among individual devices of each other. The functionality of increased power is to the account of true redundancy.



Example of application: Parallel operation, increased power

Parallel operation, increased power and true redundancy



Example of application: Parallel operation, increased power and true redundancy

Installation

Before any installation, maintenance or modification work



DANGER!

Components with high stored energy

Danger to be electrocuted!

Disconnect the system from the supply network and protect against switching on.

Do not introduce any objects into the unit and do not open the unit.

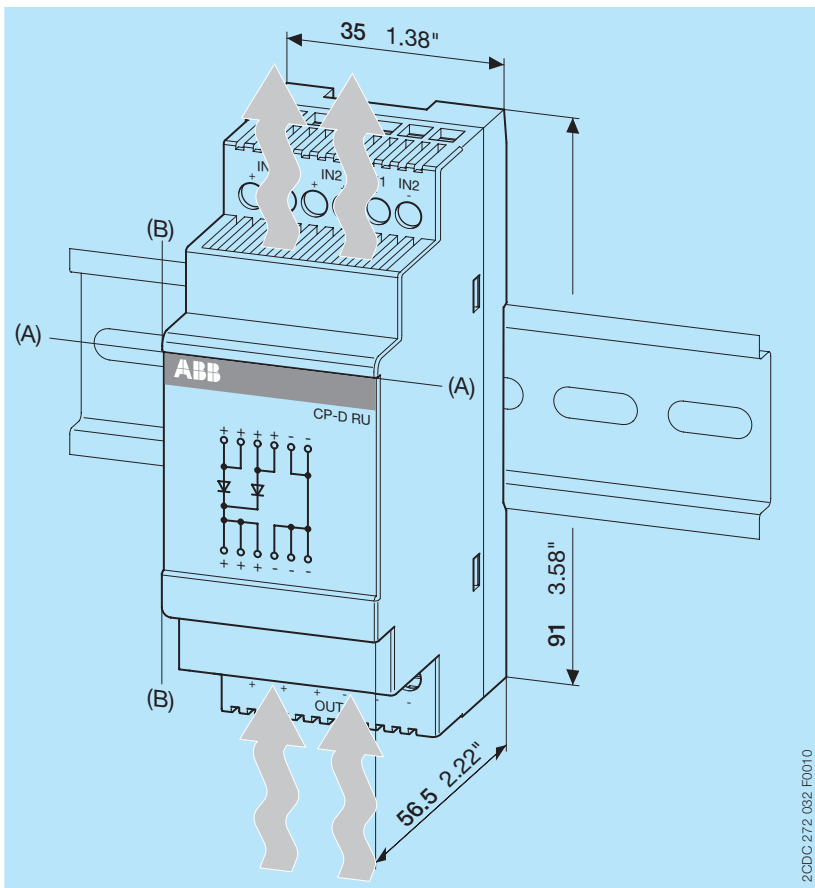
Ensure that the service personnel is protected against inadvertent contact with parts carrying energy.

Note: The CP-D RU is a chassis-mounted unit. It is maintenance-free and does not contain any integral setting elements and should therefore not be opened.

Note: The device must be installed by qualified persons only and in accordance with the specific national regulations (e. g. VDE, etc.).

Mounting position

The device has to be mounted horizontally with the input terminals on the top. In order to ensure a sufficient convection, the minimum distance to the other modules must be not less than 25 mm (0.98 in) in horizontal and vertical direction.



Operation

Before start of operation the following must be ensured

1. Connect electrical lines according to the specific national regulations for class of protection II.
2. Power supply cables and unit must be sufficiently fused.
3. Rate the lines for the maximum output current and connect them with the correct polarity.
4. In order to ensure sufficient air-cooling the distance to the other devices has to be considered.



Attention!

Improper installation/operation may impair safety and cause operational difficulties or destruction of the unit.

In operation pay attention to



DANGER!

High Current

Risk of electric arcs and electric shocks!

Do not modify the installation (primary and secondary side).
Intended use.

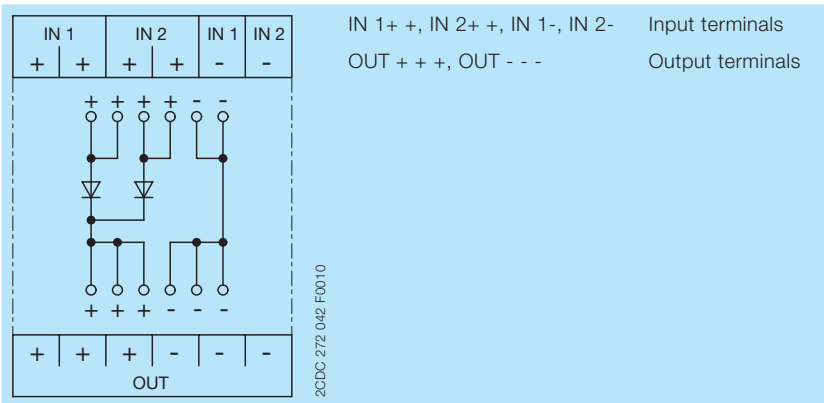


CAUTION!

Depending on the operation conditions the enclosure can become very hot.

Risk of burns!

Electrical connection



Connection diagram

- Connect the input terminals. For channel 1 input terminals IN 1 + -, for channel 2 input terminals IN 2 + -.
- Rate the lines for the maximum output current or provide a separate fuse protection.
- We recommend to choose the cable cross section as large as possible in order to minimize voltage drops.
- See technical data regarding stripping length of the cable.
- Observe the polarity.

Technical data

Data at $T_a = 25\text{ °C}$ and rated values, unless otherwise indicated.

Input circuits

| Supply circuit | | IN 1 + + -, IN 2 + + - |
|----------------------------------|-------------|------------------------|
| Rated input voltage U_{in} | | 24 V DC |
| Input voltage range | per channel | 9-35 V DC |
| Rated input current I_{in} | per channel | 5 A |
| Maximum input current | per channel | 10 A for 300 s |
| Transient overvoltage protection | | no |

Output circuits

| | | OUT + + +, - - - |
|--------------------------------|--|------------------|
| Rated output voltage U_{out} | | 24 V DC |
| Voltage drop | | typ. 0.5 V |
| Rated output current I_{out} | | 10 A |
| Resistance to reverse feed | | < 35 V |

General data

| | | |
|---------------------------------|----------------------|---|
| MTBF | | on request |
| Duty time | | 100 % |
| Dimensions (W x H x D) | product dimensions | 35 x 91 x 56.5 mm (1.38 x 3.58 x 2.22 in) |
| | packaging dimensions | 134 x 94 x 48 mm (5.28 x 3.70 x 1.89 in) |
| Weight | net weight | 0.075 kg (0.165 lb) |
| | gross weight | 0.130 kg (0.286 lb) |
| Material of enclosure | | plastic |
| Mounting | | DIN rail, snap-on mounting without any tool |
| Mounting position | | horizontal |
| Minimum distance to other units | horizontal | 25 mm (0.98 in) |
| | vertical | 25 mm (0.98 in) |

Electrical connection

| | | |
|-------------------|---|-------------------------------------|
| Wire size | fine-strand with(out) wire end ferrule | 0.2-2.5 mm ² (24-14 AWG) |
| | rigid | 0.2-2.5 mm ² (24-12 AWG) |
| Stripping length | | 7.0 mm (0.28 in) |
| Tightening torque | | 0.67 Nm (6 lb.in) |

Environmental data

| | | |
|----------------------------|-------------------|--|
| Ambient temperature ranges | operation | -40...+70 °C |
| | storage | -40...+85 °C |
| Relative humidity | RH at 40°C | 20-95 %, no condensation |
| Vibration | IEC/EN 60068-2-6 | Mounting by rail: 10-500 Hz, 2 G, along X, Y, Z each axis, 60 min for each axis |
| Shock | IEC/EN 60068-2-27 | 15 G, 11 ms, 3 axis, 6 faces, 3 times for each face |

Standards / Directives

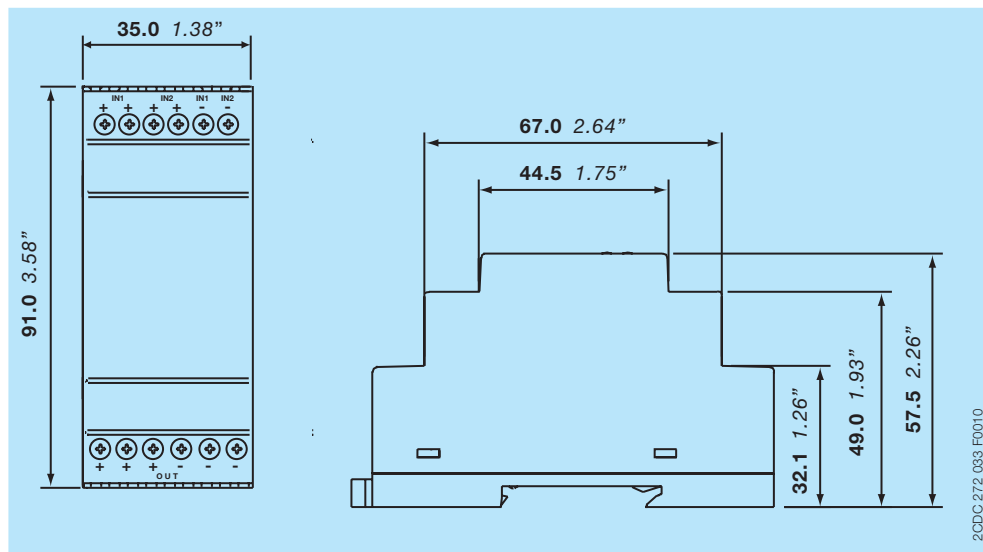
| | |
|----------------|--------------------------------|
| Standards | IEC/EN 60950-1, IEC/EN 61204-3 |
| RoHS Directive | 2011/65/EU |

Electromagnetic compatibility

| | | |
|---|------------------|---|
| Interference immunity to | | EN 55024 |
| electrostatic discharge | IEC/EN 61000-4-2 | Level 3, air discharge 8 kV, contact discharge 4 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 / 5 kHz |
| conducted disturbances, induced by radio-frequency fields | IEC/EN 61000-4-6 | Level 3, 10 V |
| Interference emission | | EN 55022 |
| high-frequency radiated | EN 50022 | Class B |
| high-frequency conducted | EN 50022 | Class B |

Dimensions

in **mm** and *inches*



Further Documentation

| Document title | Document type | Document number |
|--------------------------------|---------------------|--------------------|
| Electronic Products and Relays | Technical catalogue | 2CDC 110 004 C02xx |
| CP-D RU | Instruction sheet | 1SVC 427 044 M0000 |
| Power Supply Units | Application manual | 2CDC 114 048 M020x |
| CP-D 12/0.83 | Data sheet | 2CDC 114 052 D020x |
| CP-D 12/2.1 | Data sheet | 2CDC 114 053 D020x |
| CP-D 24/0.42 | Data sheet | 2CDC 114 054 D020x |
| CP-D 24/1.3 | Data sheet | 2CDC 114 055 D020x |
| CP-D 24/2.5 | Data sheet | 2CDC 114 056 D020x |
| CP-D 24/4.2 | Data sheet | 2CDC 114 057 D020x |

You can find the documentation on the internet at www.abb.com/lowvoltage
 -> Automation, control and protection -> Power supplies.

CAD system files

You can find the CAD files for CAD systems at <http://abb-control-products.partcommunity.com>
 -> Low Voltage Products & Systems -> Control Products -> Power Supplies.

Contact us

ABB STOTZ-KONTAKT GmbH

P. O. Box 10 16 80
69006 Heidelberg, Germany
Phone: +49 (0) 6221 7 01-0
Fax: +49 (0) 6221 7 01-13 25
E-mail: info.desto@de.abb.com

You can find the address of your
local sales organisation on the
ABB home page
<http://www.abb.com/contacts>
-> Low Voltage Products and Systems

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