Primary switch mode power supplies

CP range

Content

4

Primary switch mode power supplies
CP range
Overview

Special features of CP range primary switch power supplies

- **Primary switch mode power supplies**
  - High efficiency of approx. 90 %
  - Low power dissipation and low heating
  - Long lifetime
- **Wide range of AC or DC supply voltages**
  - World wide use also in high fluctuating networks and battery-powered plants
- **Constant or adjustable output voltage (depending on type)**
- **Use in very harsh industrial environments**
  - Reliable construction
  - According to EMC Directives EN 61000-6-2 (Interference immunity) and EN 61000-6-4 (Interference emission)
- **Open-circuit, overload and short-circuit proof**
- **Integrated input fuse**
- **Safety**
  - Closed construction
  - Touch-proof connecting terminals
  - Electrical isolation
- **Easy and fast mounting**
  - Mounting on DIN rail
- **LED(s) for status indication**
- **Example of application**
  - Supply of programmable logic controllers (PLC) e. g. AC31, AC500

Primary switch mode power supplies
CP range
Selection table

			CP-D						CP-E								CP-T							CP-S			CP-C		
Rated output current			0.42 A	0.83 A	1.3 A	2.1 A	2.5 A	4.2 A	0.625 A	0.75 A	1.25 A	2.5 A	3 A	5 A	10 A	20 A	5 A	10 A	20 A	40 A	5 A	10 A	20 A	5 A	10 A	20 A	5 A	10 A	20 A
Rated output voltage		5 V DC											■																
		12 V DC		■		■						■			■														
		24 V DC	■		■		■	■		■	■	■		■	■	■	■	■	■	■				■	■	■	■	■	■
		48 V DC							■		■			■	■						■	■	■						
Rated output power / voltage	10 W	12 V DC		■																									
		24 V DC	■																										
	15 W	5 V DC											■																
	18 W	24 V DC								■																			
	30 W	12 V DC				■						■																	
		24 V DC			■						■																		
		48 V DC							■																				
	60 W	24 V DC					■					■																	
		48 V DC									■																		
	100 W	24 V DC						■																					
	120 W	12 V DC													■														
		24 V DC												■			■							■			■		
	240 W	24 V DC													■			■							■			■	
		48 V DC												■							■								
	480 W	24 V DC														■			■							■			■
		48 V DC													■						■								
	960 W	24 V DC																		■									
		48 V DC																					■						
Rated input voltage		100-240 V AC	■	■	■	■	■	■	■	■	■	■	■											■			■		
		115 / 230 V AC auto select												■	■[1]														
		115-230 V AC													■[2]	■													
		110-240 V AC																						■			■	■	■
		110-120 V AC / 220-240 V AC																							■	■			
		400-500 V AC															■	■	■	■	■	■	■						
Accessories		Redundancy unit							■	■	■	■	■	■	■	■	■	■	■		■	■	■	■	■	■	■	■	■
		Control module																						■	■	■	■	■	■
		Messaging module																									■	■	■
Structure of the type designation			**CP-x y/z.z** CP: Power supply x: Product range y: Rated output voltage z: Rated output current																										

[1] CP-E 12/10.0 and CP-E 24/10.0

[2] CP-E 48/10.0

Primary switch mode power supplies
CP range
Approvals and marks

■ existing
□ pending

Approvals		CP-D						
		CP-D 12/0.83	CP-D 12/2.1		CP-D 24/0.42	CP-D 24/1.3	CP-D 24/2.5	CP-D 24/4.2
	UL 508, CAN/CSA C22.2 No.14	■[1]	■[1]		■[1]	■[1]	■[1]	■[1]
	UL 1310, CAN/CSA C22.2 No.223 (Class 2 Power Supply)	■[1]	■[1]		■[1]	■[1]	■[1]	
	UL 60950, CAN/CSA C22.2 No.60950	■[1]	■[1]		■[1]	■[1]	■[1]	■[1]
	GOST	■	■		■	■	■	■
	CCC	■[1]	■[1]		■[1]	■[1]	■[1]	■[1]
Marks								
CE	CE	■	■		■	■	■	■
	C-Tick	□	□		□	□	□	□

■ existing
□ pending

Approvals		CP-E														CP-T							
		CP-E 5/3.0	CP-E 12/2.5	CP-E 12/10.0	CP-E 24/0.75	CP-E 24/1.25	CP-E 24/2.5	CP-E 24/5.0	CP-E 24/10.0	CP-E 24/20.0	CP-E 48/0.62	CP-E 48/1.25	CP-E 48/5.0	CP-E 48/10.0		CP-RUD		CP-T 24/5.0	CP-T 24/10.0	CP-T 24/20.0	CP-T 24/40.0		CP-T 48/5.0	CP-T 48/10.0	CP-T 48/20.0
	UL 508, CAN/CSA C22.2 No.14	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]				■[1]	■[1]	■[1]	■[1]		■[1]	■[1]	■[1]
	UL 1310, CAN/CSA C22.2 No.223 (Class 2 Power Supply)	■	■		■	■	■				■	■													
	ANSI/ISA-12.12 (Class I, Div. 2, hazardous locations) CAN/CSA C22.2 No. 213	■	■	■	■	■	■	■	■	■	■	■	■	■				■	■	■	■		■	■	■
	UL 60950, CAN/CSA C22.2 No.60950	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]				■[1]	■[1]	■[1]	■[1]		■[1]	■[1]	■[1]
	GOST	■	■	■	■	■	■	■	■	■	■	■	■	■				□	□	□	□		□	□	□
	CCC	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]	■[1]				□[1]	□[1]	□[1]	□[1]		□[1]	□[1]	□[1]
Marks																									
CE	CE	■	■	■	■	■	■	■	■	■	■	■	■	■		■		■	■	■	■		■	■	■
	C-Tick	■	■	□	■	■	■	□	□	□	■	■	□	□		■		□	□	□	□		□	□	□

■ existing
□ pending

Approvals		CP-S				CP-C					CP-A		
		CP-S 24/5.0	CP-S 24/10.0	CP-S 24/20.0		CP-C 24/5.0	CP-C 24/10.0	CP-C 24/20.0		CP-C MM		CP-A RU	CP-A CM
	UL 508, CAN/CSA C22.2 No.14	■[1]	■[1]	■[1]		■[1]	■[1]	■[1]					
	UL 508, CAN/CSA C22.2 No.14											■[1]	□
	UL 1604 (Class I, Div. 2, hazardous locations), CAN/CSA C22.2 No.213	■[1]	■[1]	■[1]		■[1]	■[1]	■[1]				■	■
	UL 60950, CAN/CSA C22.2 No.60950	■[1]	■[1]	■[1]		■[1]	■[1]	■[1]				■[1]	■[1]
	GOST	■	■	■		■	■	■		■		■	■
CB	CB scheme	■	■	■		■	■	■		□		■	■
	CCC	■[1]				■[1]	■[1]	■[1]					
Marks													
CE	CE	■	■	■		■	■	■		■		■	■
	C-Tick	■	■	■		■	■	■		■		■	□

[1] Approvals refer to the rated input voltage U_{in}.

2CDC110004C0207

Primary switch mode power supplies

CP-D range

Content

Primary switch mode power supplies
CP-D range
Benefits and advantages


2CDC 275 031 F0b07

- Output voltages 12 V, 24 V DC
- Adjustable output voltages (devices > 10 W)
- Output currents 0.42 A / 0.83 A / 1.3 A / 2.1 A / 2.5 A / 4.2 A
- Power range 10 W, 30 W, 60 W, 100 W
- Wide range input 100-240 V AC (90-264 V AC, 120-370 V DC)
- High efficiency of up to 89 %
- Low power dissipation and low heating
- Free convection cooling (no forced cooling with ventilators)
- Ambient temperature range during operation -40 °C...+70 °C
- Open-circuit, overload and short-circuit stable
- Integrated input fuse
- U/I characteristic (fold-forward behaviour at overload – no switch-off)
- LEDs for status indication
- Light-grey enclosure in RAL 7035
- Approvals / Marks (depending on device, partly pending):

Width and structural form

With their width between 18 to 90 mm only, the CP-D range switch mode power supplies are ideally suited for installation in distribution panels.


2CDC 271 027 F0007

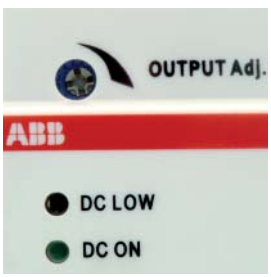
Wide range input

Optimised for world-wide applications: The CP-D power supplies can be supplied with 90-264 V AC or 120-370 V DC.

2CDC 276 033 F0007

Adjustable output voltage

The CP-D range types > 10 W feature a continuously adjustable output voltage. Thus, they can be optimally adapted to the application, e.g. compensating the voltage drop caused by a long line length.



2CDC 276 032 F0007-a

Primary switch mode power supplies
CP-D range
Ordering details

CP-D 12/0.83,
CP-D 24/0.42

CP-D 12/2.1
CP-D 24/1.3

CP-D 24/2.5

CP-D 24/4.2

Type	Input voltage range	Rated output voltage / current	Order code	Pack. unit pieces	Price 1 piece	Weight 1 piece kg / lb
CP-D 12/0.83	90-264 V AC/ 120-370 V DC	12 V DC / 0.83 A	**1SVR 427 041 R1000**	1		0.06 / 0.13
CP-D 12/2.1	90-264 V AC/ 120-370 V DC	12 V DC / 2.1 A	**1SVR 427 043 R1200**	1		0.19 / 0.41
CP-D 24/0.42	90-264 V AC/ 120-370 V DC	24 V DC / 0.42 A	**1SVR 427 041 R0000**	1		0.06 / 0.13
CP-D 24/1.3	90-264 V AC/ 120-370 V DC	24 V DC / 1.3 A	**1SVR 427 043 R0100**	1		0.19 / 0.41
CP-D 24/2.5	90-264 V AC/ 120-370 V DC	24 V DC / 2.5 A	**1SVR 427 044 R0200**	1		0.25 / 0.55
CP-D 24/4.2	90-264 V AC/ 120-370 V DC	24 V DC / 4.2 A	**1SVR 427 045 R0400**	1		0.32 / 0.71

• Approvals **4**/4
• Technical data ..... **4**/8 • Technical diagrams .....**4**/12 • Dimensional drawings **4**/12

Primary switch mode power supplies
CP-D range (12 V DC)
Technical data

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

Type		CP-D 12/0.83	CP-D 12/2.1
Input circuit - supply circuit		**L, N**	
Rated input voltage U_{in}		100-240 V AC	
Input voltage range		90-264 V AC / 120-370 V DC	
Frequency range AC		47-63 Hz	
Typical input current / typical power consumption	at 110 V AC	200 mA / 12.68 W	502 mA / 31.14 W
	at 230 V AC	128.3 mA / 13.01 W	277 mA / 31.2 W
Inrush current limiting	at 230 V AC	30 A (max. 3 ms)	50 A (max. 3 ms)
Power failure buffering time		min. 30 ms	
Internal input fuse		1 A slow-acting / 250 V AC	2 A slow-acting / 250 V AC
Power factor correction (PFC)		no	
Indication of operational states			
Output voltage	DC ON: green LED	⎍: output voltage applied	
	DC LOW: red LED	⎍: output voltage too low	
Output circuit		**+, -**	**++, --**
Rated output voltage		12 V DC	
Tolerance of the output voltage		±1 %	
Adjustment range of the output voltage		-	12-14 V DC
Rated output power		10 W	30 W
Rated output current I_r	$T_a \leq 60$ °C	0.83 A	2.1 A
Derating of the output current	60 °C < $T_a \leq$ 70 °C	2.5 %/K	
Maximum deviation with	load change statical	1 %	
	change of output voltage within the input voltage range	1 %	
Control time		< 1 ms	
Starting time after applying the supply voltage	at I_r	1000 ms	
Rise time	at rated load	typ. 1 ms	
Residual ripple and switching peaks	BW = 20 MHz	50 mV	
Parallel connection		no	
Series connection		yes, to increase voltage	
Resistance to reverse feed		18 V / 1 s	
Output circuit - No-load, overload and short-circuit behaviour			
Characteristic curve of output		U/I characteristic curve	
Short-circuit protection		continuous short-circuit stability	
Short-circuit behaviour		continuation with output power limiting	
Current limiting at short circuit		typ. 1.4 A	typ. 5.9 A
Overload protection		output power limiting	
No-load protection		continuous no-load stability	
Starting of capacitive loads		unlimited	
Gerneral data			
Efficiency		typ. 78 %	typ. 82 %
Duty time		100 %	
Dimensions (WxHxD)		18 x 91 x 57.5 mm [0.71 x 3.58 x 2.26 in]	53 x 91 x 57.5 mm [2.09 x 3.58 x 2.26 in]
Weight		0.066 kg (0.13 lb)	0.196 kg (0.41 lb)
Material of enclosure		plastic	
Mounting		DIN rail (IEC/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	IP20 / IP20	
Protection class		II	

Primary switch mode power supplies
CP-D range (12 V DC)
Technical data

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

Type		CP-D 12/0.83	CP-D 12/2.1
Electrical connection - Input circuit / Output circuit			
Wire size	fine-strand with wire end ferrule	0.2-2 mm² (24-14 AWG)	
	fine-strand without wire end ferrule		
	rigid		
Stripping length		6 mm (0.24 in)	
Tightening torque		0.36-0.56 Nm	
Environmental data			
Ambient temperature range	operation	-40…+70 °C	
	rated load	-40…+60 °C	
	storage	-40…+85 °C	
Damp heat (cyclic) (IEC/EN 60068-2-30)		4 x 24 cycles, 40 °C, 95 % RH	
Vibration (sinusoidal) (IEC/EN 60068-2-6)		50 m/s², 10 Hz - 2 kHz	
Shock (half-sine) (IEC/EN 60068-2-27)		40 m/s², 22 ms	
Isolation data			
Rated insulation voltage U_i	input circuit / output circuit	3 kV AC	
Pollution degree		2	
Overvoltage category (UL/IEC/EN 60950-1)		II	
Standards			
Product standard		EN 61204	
Low Voltage Directive		2006/95/EC	
EMC Direcitve		2004/108/EC	
Electrical safety		UL 508, UL 60950-1, EN 60950-1	
Protective low voltage		SELV (EN 60950-1)	
Electromagnetic compatibility			
Interference immunity to		EN 61000-6-2	
electrostatic discharge	IEC/EN 61000-4-2	Level 4 (4 kV / 8 kV)	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 3 (2 kV L-L)	
conducted disturbances, induced by radio-frequency fields	IEC/EN 61000-4-6	Level 3 (10 V)	
Interference emission		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** **4**/4

Primary switch mode power supplies
CP-D range (24 V DC)
Technical data

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

Type		CP-D 24/0.42	CP-D 24/1.3	CP-D 24/2.5	CP-D 24/4.2
Input circuit - supply circuit		**L, N**			
Rated input voltage U_{in}		100-240 V AC			
Input voltage range		90-264 V AC / 120-370 V DC			
Frequency range AC		47-63 Hz			
Typical input current / typical power consumption	at 110 V AC	184 mA / 11.62 W	600 mA / 37.92 W	1120 mA / 69.3 W	1800 mA / 117.3 W
	at 230 V AC	120.6 mA / 12 W	344 mA / 38.16 W	660 mA / 70.1 W	900 mA / 114.4 W
Inrush current limiting	at 230 V AC	30 A (max. 3 ms)	50 A (max. 3 ms)	60 A (max. 3 ms)	
Power failure buffering time		min. 30 ms		min. 60 ms	
Internal input fuse		1 A slow-acting / 250 V AC	2 A slow-acting / 250 V AC		3.15 A slow-acting / 250 V AC
Power factor correction (PFC)		no			
Indication of operational states					
Output voltage	DC ON: green LED	⎍: output voltage applied			
	DC LOW: red LED	⎍: output voltage too low			
Output circuit		**+, -**	**++, --**		
Rated output voltage		24 V DC			
Tolerance of the output voltage		±1 %			
Adjustment range of the output voltage		-	24-28 V DC		
Rated output power		10 W	30 W	60 W	100 W
Rated output current I_r	$T_a \leq 60$ °C	0.42 A	1.3 A	2.5 A	4.2 A
Derating of the output current	60 °C < $T_a \leq$ 70 °C	2.5 %/K			
Maximum deviation with	load change statical	1 %			
	change of output voltage within the input voltage range	1 %			
Control time		< 1 ms			
Starting time after applying the supply voltage	at I_r	1000 ms			
Rise time	at rated load	typ. 1 ms			
Residual ripple and switching peaks	BW = 20 MHz	50 mV			
Parallel connection		no			
Series connection		yes, to increase voltage			
Resistance to reverse feed		35 V / 1 s			
Output circuit - No-load, overload and short-circuit behaviour					
Characteristic curve of output		U/I characteristic curve			
Short-circuit protection		continuous short circuit stability			
Short-circuit behaviour		continuation with output power limiting			
Current limiting at short circuit		typ. 0.78 A	typ. 4.2 A	typ. 6.05 A	typ. 11.5 A
Overload protection		output power limiting			
No-load protection		continuous no-load stability			
Starting of capacitive loads		unlimited			
Gerneral data					
Efficiency		typ. 80 %	typ. 83 %	typ. 86 %	typ. 89 %
Duty time		100 %			
Dimensions (WxHxD)		18 x 91 x 57.5 mm [0.71 x 3.58 x 2.26 in]	53 x 91 x 57.5 mm [2.09 x 3.58 x 2.26 in]	71 x 91 x 57.5 mm [2.80 x 3.58 x 2.26 in]	89.9 x 91 x 57,5 mm [3.54 x 3.58 x 2.26 in]
Weight		0.066 kg (0.13 lb)	0.196 kg (0.41 lb)	0.252 kg (0.55 lb)	0.386 kg / (0.72 lb)
Material of enclosure		plastic			
Mounting		DIN rail (IEC/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	IP20 / IP20			
Protection class		II			

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

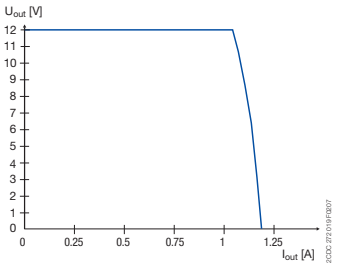
Type		CP-D 24/0.42	CP-D 24/1.3	CP-D 24/2.5	CP-D 24/4.2
Electrical connection - Input circuit / Output circuit					
Wire size	fine-strand with wire end ferrule	0.2-2 mm² (24-14 AWG)			
	fine-strand without wire end ferrule				
	rigid				
Stripping length		6 mm (0.24 in)			
Tightening torque		0.36-0.56 Nm			
Environmental data					
Ambient temperature range	operation	-40…+70 °C			
	rated load	-40…+60 °C			
	storage	-40…+85 °C			
Damp heat (cyclic) (IEC/EN 60068-2-30)		4 x 24 cycles, 40 °C, 95 % RH			
Vibration (sinusoidal) (IEC/EN 60068-2-6)		50 m/s², 10 Hz - 2 kHz			
Shock (half-sine) (IEC/EN 60068-2-27)		40 m/s², 22 ms			
Isolation data					
Rated insulation voltage U_i	input circuit / output circuit	3 kV AC		4 kV AC	3 kV AC
Pollution degree		2			
Overvoltage category (UL/IEC/EN 60950-1)		II			
Standards					
Product standard		EN 61204			
Low Voltage Directive		2006/95/EC			
EMC Direcitve		2004/108/EC			
Electrical safety		UL 508, UL 60950-1, EN 60950-1			
Protective low voltage		SELV (EN 60950-1)			
Electromagnetic compatibility					
Interference immunity to		EN 61000-6-2			
electrostatic discharge	IEC/EN 61000-4-2	Level 4 (4 kV / 8 kV)	Level 4 (8 kV / 15 kV)		Level 4 (4 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 (4 kV)			
surge	IEC/EN 61000-4-5	Level 3 (2 kV L-L)			
conducted disturbances, induced by radio-frequency fields	IEC/EN 61000-4-6	Level 3 (10 V)			
Interference emission		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** **4**/4

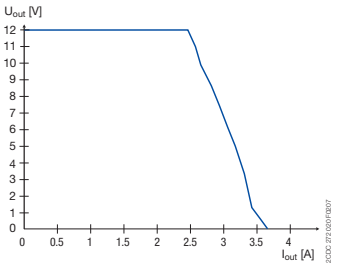
Primary switch mode power supplies
CP-D range
Technical diagrams, Dimensional drawings

Technical diagrams

Output curve at T_a = 25 °C

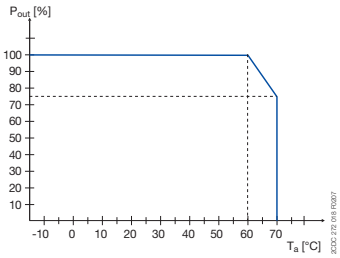


CP-D 12/0.83

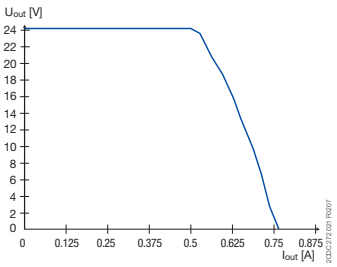


CP-D 12/2.1

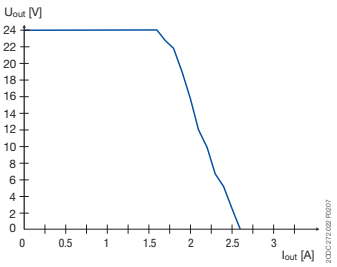
Temperature curve at rated output voltage



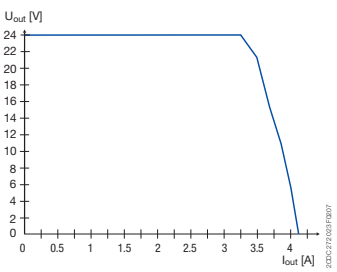
CP-D



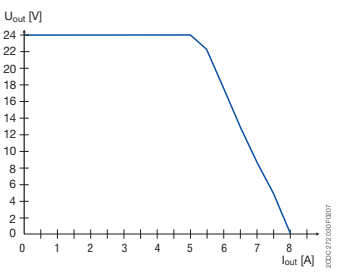
CP-D 24/0.42



CP-D 24/1.3



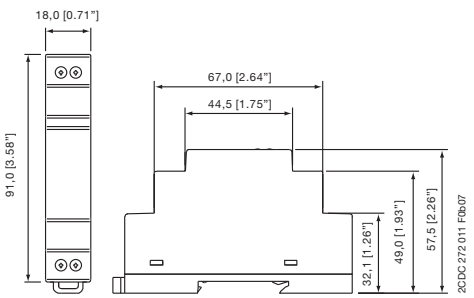
CP-D 24/2.5



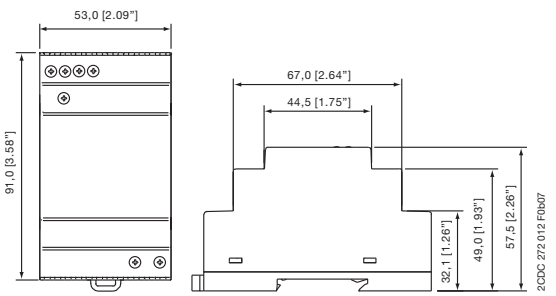
CP-D 24/4.2

Dimensional drawings

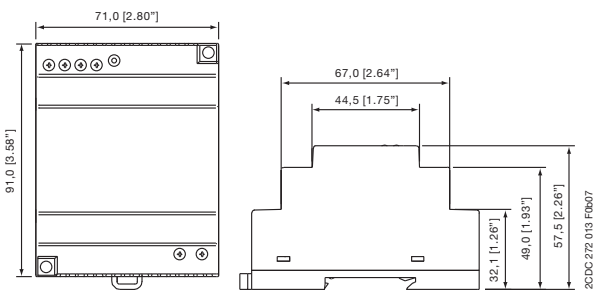
dimensions in mm



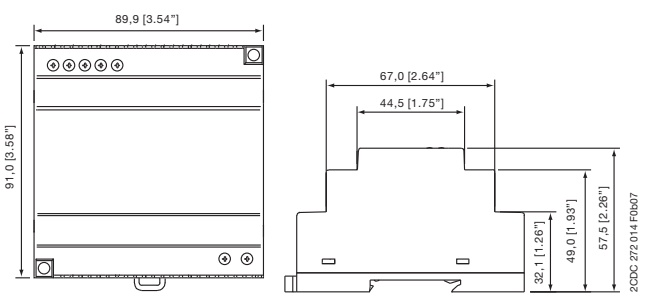
CP-D 12/0.83, CP-D 24/0.42



CP-D 12/2.1, CP-D 24/1.3



CP-D 24/2.5



CP-D 24/4.2

Primary switch mode power supplies

CP-E range

Content

Primary switch mode power supplies
CP-E range
Benefits and advantages


2CDC 275 004 F0b06

- Output voltages 5 V, 12 V, 24 V, 48 V DC
- Adjustable output voltages
- Output currents 0.625 A / 0.75 A / 1.25 A / 2.5 A / 3 A / 5 A / 10 A / 20 A
- Power range 15 W, 18 W, 30 W, 60 W, 120 W, 240 W, 480 W
- High efficiency of up to 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
- U/I characteristic curve on devices > 18 W (fold-forward behaviour at overload – no switch-off)
- Redundancy units offering true redundancy
- LED(s) for status indication
- Signalling output/contact for output voltage OK
  - Transistor on 24 V devices > 18 W and < 120 W
  - Relay on 24 V devices ≥ 120 W
- Approvals / Marks (depending on device, partly pending):

Signalling output/contact

The CP-E range 24 V devices > 18 W offer an output/contact for monitoring of the output voltage and remote diagnosis.

2CDC 276 008 F0006

Wide range input

Optimised for world-wide applications: The CP-E power supplies can be supplied within a wide range of AC or DC voltage.

2CDC 276 009 F0006

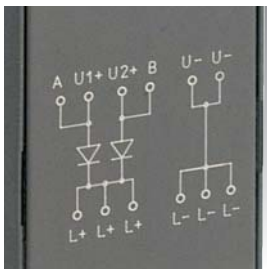
Adjustable output voltage

The CP-E range types feature a continuously adjustable output voltage. Thus, they can be optimally adapted to the application, e.g. compensating the voltage drop caused by a long line length.

2CDC 276 008 F0006

Redundancy units

For decoupling of parallelized power supply units ≤ 40 V. Thus, true redundancy can be achieved.



2CDC 271 006 F0003

Primary switch mode power supplies
CP-E range
Ordering details

CP-E 5/3.0

CP-E 12/2.5

CP-E 24/0.75

CP-E 24/2.5

CP-E 48/0.62

CP-RUD

Type	Input voltage range	Rated output voltage / current	Order code	Pack. unit pieces	Price 1 piece	Weight 1 piece kg / lb
CP-E 5/3.0	90-265 V AC/ 120-370 V DC	5 V DC / 3 A	**1SVR 427 033 R3000**	1		0.15 / 0.33
CP-E 12/2.5	85-264 V AC/ 90-375 V DC	12 V DC / 2.5 A	**1SVR 427 032 R1000**	1		0.29 / 0.64
CP-E 12/10.0	90-132 V AC, 186-264 V AC/ 210-370 V DC	12 V DC / 10 A	**1SVR 427 035 R1000**	1		1.00 / 2.20
CP-E 24/0.75	90-265 V AC/ 120-370 V DC	24 V DC / 0.75 A	**1SVR 427 030 R0000**	1		0.15 / 0.33
CP-E 24/1.25	85-264 V AC/ 90-375 V DC	24 V DC / 1.25 A	**1SVR 427 031 R0000**	1		0.29 / 0.64
CP-E 24/2.5	85-264 V AC/ 90-375 V DC	24 V DC / 2.5 A	**1SVR 427 032 R0000**	1		0.36 / 0.79
CP-E 24/5.0	90-132 V AC, 186-264 V AC/ 210-370 V DC	24 V DC / 5 A	**1SVR 427 034 R0000**	1		1.00 / 2.20
CP-E 24/10.0	93-132 V AC, 186-264 V AC/ 210-370 V DC	24 V DC / 10 A	**1SVR 427 035 R0000**	1		1.36 / 3.01
CP-E 24/20.0	90-264 V AC/ 120-370 V DC	24 V DC / 20 A	**1SVR 427 036 R0000**	1		1.90 / 4.19
CP-E 48/0.62	85-264 V AC/ 90-375 V DC	48 V DC / 0.625 A	**1SVR 427 030 R2000**	1		0.29 / 0.64
CP-E 48/1.25	85-264 V AC/ 90-375 V DC	48 V DC / 1.25 A	**1SVR 427 031 R2000**	1		0.36 / 0.79
CP-E 48/5.0	93-132 V AC, 186-264 V AC/ 210-370 V DC	48 V DC / 5 A	**1SVR 427 034 R2000**	1		1.36 / 3.01
CP-E 48/10.0	90-264 V AC/ 120-370 V DC	48 V DC / 10 A	**1SVR 427 035 R2000**	1		1.90 / 4.19

Redundancy units
for decoupling of two CP-E power supply units

Type	suitable for decoupling of CP-E power supply units	Order code	Pack. unit pieces	Price 1 piece	Weight 1 piece kg / lb
CP-RUD: 2 inputs each up to 2.5 A and 1 output up to 5 A					
CP-RUD	≤ 35 V and < 5 A	**1SVR 423 418 R9000**	1		0.15 / 0.33
CP-A RU: 2 inputs each up to 20 A and 1 output up to 40 A					
CP-A RU	≤ 40 V and ≥ 5 A	**1SVR 427 071 R0000**	1		0.89 / 1.96

• Approvals **4**/4
• Technical data **4**/16
• Technical diagrams **4**/25
• Wiring instructions **4**/25
• Dimensional drawings **4**/26

Primary switch mode power supplies
CP-E range (5 V DC and 12 V DC)
Technical data

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

Type		**CP-E 5/3.0**	**CP-E 12/2.5**	**CP-E 12/10.0**
Input circuit		**L, N**		
Rated input voltage U_{in}		100-240 V AC		115 / 230 V AC auto select
Input voltage range		90-265 V AC / 120-370 V DC	85-264 V AC / 90-375 V DC	90-132 V AC, 186-264 V AC / 210-370 V DC
Frequency range AC		47-63 Hz		
Typical input current	at 115 V AC	297 mA	555 mA	2.8 A
	at 230 V AC	183.2 mA	328 mA	1.4 A
Typical power consumption		19.8 W	35.9 W	143 W
Inrush current limiting	at 115 V AC	10 A (max. 3 ms)	20 A (max. 3 ms)	24 A (max. 5 ms)
	at 230 V AC	18 A (max. 3 ms)	40 A (max. 3 ms)	48 A (max. 5 ms)
Discharge current	input / output	0.25 mA		
	input / PE	3.5 mA		
Power failure buffering time	at 115 V AC	min. 20 ms	min. 20 ms	min. 25 ms
	at 230 V AC	min. 75 ms	min. 30 ms	min. 30 ms
Internal input fuse		2 A slow-acting / 250 V AC		3.15 A slow-acting / 250 V AC
Power factor correction (PFC)		no		yes, passive, 0.7
Indication of operational states				
Output voltage	green LED	OK: ⎍: output voltage OK	OUTPUT OK: ⎍: output voltage OK	OUTPUT OK: ⎍: output voltage OK
	red LED	LOW: ⎍: output voltage too low	-	OUTPUT LOW: ⎍: output voltage too low
Output circuit		**L+,L-**	**L+, L+, L-, L-**	
Rated output voltage		5 V DC	12 V DC	
Tolerance of the output voltage		0...+1 %		
Adjustment range of the output voltage		4.7-6 V DC	12-15 V DC	11.4-14.5 V DC
Rated output power		15 W	30 W	120 W
Rated output current I_r	$T_a \leq 60$ °C	3.0 A	2.5 A	10 A
Derating of the output current	60 °C < $T_a \leq$ 70 °C	3 %/°C	2.5 %/°C	
Signalling output for output voltage OK	DC OK	-	-	-
Maximum deviation with	load change statical	±2 %	0.5 %	±1 % (single mode) ±5 % (parallel mode)
	change of output voltage within the input voltage range	±1 %	0.5 %	±0.5 %
Control time		< 2 ms		
Starting time after applying the supply voltage	at I_r	max. 1 s		
	with 3500 µF	-	max. 2 s	-
	with 7000 µF	max. 1.5 s	-	max. 1.5 s
Rise time	at rated load	max. 150 ms		
	with 3500 µF	-	max. 500 ms	-
	with 7000 µF	max. 500 ms	-	max. 500 ms
Fall time		max. 150 ms		
Residual ripple and switching peaks	BW = 20 MHz	50 mV		
Parallel connection		yes, to enable redundancy		configurable, to increase power, up to 3 devices, min. 0.1 I_r - max. 0.9 I_r
Series connection		yes, to increase voltage		yes, to increase voltage, max. 2 devices
Resistance to reverse feed		1 s-max. 7.5 V DC	1 s-max. 18 V DC	max. 18 V DC
Output circuit - No-load, overload and short-circuit behaviour				
Characteristic curve of output		Hiccup-mode	U/I characteristic curve	
Short-circuit protection		continuous short-circuit proof		
Short-circuit behaviour		Hiccup-mode	continuation with output power limiting	
Overload protection		output power limiting		
No-load protection		continuous no-load stability		
Starting of capacitive loads		7000 µF	3500 µF	7000 µF

Primary switch mode power supplies
CP-E range (5 V DC and 12 V DC)
Technical data

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

Type		CP-E 5/3.0	CP-E 12/2.5	CP-E 12/10.0
General data				
Power dissipation		typ. 5 W	typ. 5.6 W	typ. 24 W
Efficiency		typ. 75 %	typ. 84 %	typ. 84 %
Duty time		100 %		
Dimensions (W x H x D)		23.9 x 88.5 x 115 mm [0.94 x 3.48 x 4.53 in]	43.5 x 88.5 x 115 mm [1.71 x 3.48 x 4.53 in]	63.2 x 123.6 x 123.6 mm [2.49 x 4.87 x 4.87 in]
Weight		0.144 kg (0.33 lb)	0.287 kg (0.64 lb)	0.888 kg (2.20 lb)
Material of enclosure		Plastic		Metall
Mounting		DIN rail (IEC/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	IP20 / IP20		
Protection class		I		
Electrical connection - input circuit / output circuit				
Wire size	fine-strand with wire end ferrule	0.2-2 mm² (24-14 AWG)		0.2-4 mm² (24-11 AWG)
	fine-strand without wire end ferrule			0.2-6 mm² (24-10 AWG)
	rigid			
Stripping length		6 mm (0.24 in)		8 mm (0.31 in)
Tightening torque	input / output	0.5-0.6 Nm		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)		4 x 24 cycles, 40 °C, 95 % RH		95 % without condensation
Vibration (sinusoidal) (IEC/EN 60068-2-6)		10-500 Hz, 2 G, along X, Y, Z each axis, 60 min. for each axis		
Shock (half-sine) (IEC/EN 60068-2-27)		15 G, 11 ms, 3 axes, 6 faces, 3 times for each face		
Isolation data				
Rated insulation voltage U_i	input circuit / output circuit	3 kV AC		
	input / PE	1.5 kV AC		
Pollution degree		2		
Overvoltage category (UL/IEC/EN 60950-1)		II		
Standards				
Product standard		EN 61204-3		
Low Voltage Directive		2006/95/EG		
EMC directive		2004/108/EG		
RoHS directive		2002/95/EG		
Electrical safety		EN 50178, EN 60950-1, UL 60950-1, UL 508		IEC/EN 60950-1
Protective low voltage		SELV (EN 60950)		SELV
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	L-L Level 3 (2 kV), L-PE Level 4 (4 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		

• **Approvals** **4**/4

Primary switch mode power supplies
CP-E range (24 V DC)
Technical data

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

Type		**CP-E 24/0.75**	**CP-E 24/1.25**	**CP-E 24/2.5**
Input circuit		**L, N**		
Rated input voltage U_{in}		100-240 V AC		
Input voltage range		90-265 V AC / 120-370 V DC	85-264 V AC / 90-375 V DC	
Frequency range AC		47-63 Hz		
Typical input current	at 115 V AC	321 mA	543 mA	1033 mA
	at 230 V AC	197.4 mA	326.6 mA	570 mA
Typical power consumption		22.8 W	36.7 W	69.2 W
Inrush current limiting	at 115 V AC	10 A (max. 3 ms)	20 A (max. 3 ms)	30 A (max. 3 ms)
	at 230 V AC	18 A (max. 3 ms)	40 A (max. 3 ms)	60 A (max. 3 ms)
Discharge current	input / output	0.25 mA		
	input / PE	3.5 mA		
Power failure buffering time	at 115 V AC	min. 20 ms	min. 20 ms	
	at 230 V AC	min. 75 ms	min. 30 ms	
Internal input fuse		2 A slow-acting / 250 V AC		
Power factor correction (PFC)		no		
Indication of operational states				
Output voltage	green LED	OK: ⌜‾‾‾⌝: output voltage OK	OUTPUT OK: ⌜‾‾‾⌝: output voltage OK	
	red LED	LOW: ⌜‾‾‾⌝: output voltage too low	-	-
Output circuit		**L+,L-**	**L+, L+, L-, L-**	
Rated output voltage		24 V DC		
Tolerance of the output voltage		0 ... +1 %		
Adjustment range of the output voltage		21.6-28.8 V DC	24-28 V DC	
Rated output power		18 W	30 W	60 W
Rated output current I_r	$T_a \leq 60$ °C	0.75 A	1.25 A	2.5 A
Derating of the output current	60 °C < $T_a \leq$ 70 °C	3 %/°C	2.5 %/°C	
Signalling output for output voltage OK	DC OK	-	Transistor	
Maximum deviation with	load change statical	±2 %	0.5 %	
	change of output voltage within the input voltage range	±1 %	0.5 %	
Control time		< 2 ms		
Starting time after applying the supply voltage	at I_r	max. 1 s		
	with 3500 µF	-	max. 2 s	-
	with 7000 µF	max. 1.5 s	-	max. 1.5 s
Rise time	at rated load	max. 150 ms		
	with 3500 µF	-	max. 500 ms	-
	with 7000 µF	max. 500 ms	-	max. 500 ms
Fall time		max. 150 ms		
Residual ripple and switching peaks	BW = 20 MHz	50 mV		
Parallel connection		yes, to enable redundancy		
Series connection		yes, to increase voltage		
Resistance to reverse feed		1 s - max. 35 V DC		
Output circuit - No-load, overload and short-circuit behaviour				
Characteristic curve of output		Hiccup-mode	U/I characteristic curve	
Short-circuit protection		continuous short-circuit proof		
Short-circuit behaviour		Hiccup-mode	continuation with output power limiting	
Overload protection		output power limiting		
No-load protection		continuous no-load stability		
Starting of capacitive loads		7000 µF	3500 µF	7000 µF

Primary switch mode power supplies
CP-E range (24 V DC)
Technical data

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

Type		CP-E 24/0.75	CP-E 24/1.25	CP-E 24/2.5
General data				
Power dissipation		typ. 4.45 W	typ. 5.5 W	typ. 8.8 W
Efficiency		typ. 77 %	typ. 86 %	typ. 89 %
Duty time		100 %		
Dimensions (W x H x D)		23.9 x 88.5 x 115 mm [0.94 x 3.48 x 4.53 in]	43.5 x 88.5 x 115 mm [1.71 x 3.48 x 4.53 in]	
Weight		0.143 kg (0.33 lb)	0.270 kg (0.64 lb)	0.331 kg (0.79 lb)
Material of enclosure		Plastic		
Mounting		DIN rail (IEC/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	IP20 / IP20		
Protection class		I		
Electrical connection - input circuit / output circuit				
Wire size	fine-strand with wire end ferrule	0.2-2 mm² (24-14 AWG)		
	fine-strand without wire end ferrule			
	rigid			
Stripping length		6 mm (0.24 in)		
Tightening torque	input / output	0.5-0.6 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)		4 x 24 cycles, 40 °C, 95 % RH		
Vibration (sinusoidal) (IEC/EN 60068-2-6)		10-500 Hz, 2 G, along X, Y, Z each axis, 60 min. for each axis		
Shock (half-sine) (IEC/EN 60068-2-27)		15 G, 11 ms, 3 axes, 6 faces, 3 times for each face		
Isolation data				
Rated insulation voltage U_i	input circuit / output circuit	3 kV AC		
	input / PE	1.5 kV AC		
Pollution degree		2		
Overvoltage category (UL/IEC/EN 60950-1)		II		
Standards				
Product standard		EN 61204-3		
Low Voltage Directive		2006/95/EG		
EMC directive		2004/108/EG		
RoHS directive		2002/95/EG		
Electrical safety		EN 50178, EN 60950-1, UL 60950-1, 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 / 4 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		

• **Approvals** **4**/4

Primary switch mode power supplies
CP-E range (24 V DC)
Technical data

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

Type		**CP-E 24/5.0**	**CP-E 24/10.0**	**CP-E 24/20.0**
Input circuit		**L, N**		
Rated input voltage U_{in}		115 / 230 V AC auto select		115-230 V AC
Input voltage range		90-132 V AC, 186-264 V AC / 210-370 V DC	93-132 V AC, 186-264 V AC / 210-370 V DC	90-264 V AC, 120-370 V DC
Frequency range AC		47-63 Hz		
Typical input current	at 115 V AC	2.8 A	5.4 A	7 A
	at 230 V AC	1.4 A	2.2 A	3.5 A
Typical power consumption		140 W	270 W	539 W
Inrush current limiting	at 115 V AC	24 A (max. 5 ms)	30 A (max. 5 ms)	25 A (max. 5 ms)
	at 230 V AC	48 A (max. 5 ms)	60 A (max. 5 ms)	50 A (max. 5 ms)
Discharge current	input / output	0.25 mA		
	input / PE	3.5 mA		
Power failure buffering time	at 115 V AC	min. 25 ms		min. 30 ms
	at 230 V AC	min. 30 ms		
Internal input fuse		3.15 A slow-acting / 250 V AC	6.3 A slow-acting / 250 V AC	10 A slow-acting / 250 V AC
Power factor correction (PFC)		yes, passive, 0.7		yes, active 115 V AC: 0.99 230 V AC: 0.97
Indication of operational states				
Output voltage	green LED	OUTPUT OK: ⎍: output voltage OK		
	red LED	OUTPUT LOW: ⎍: output voltage too low		
Output circuit		**L+, L+, L-, L-**		
Rated output voltage		24 V DC		
Tolerance of the output voltage		0...+1 %		
Adjustment range of the output voltage		22.5-28.5 V DC		
Rated output power		120 W	240 W	480 W
Rated output current I_r	$T_a \leq 60$ °C	5 A	10 A	-
	$T_a \leq 55$ °C	-	-	20 A
Derating of the output current	60 °C < $T_a \leq 70$ °C	2.5 %/°C		-
	55 °C < $T_a \leq 70$ °C	-	-	2.5 %/°C
Signalling contact for output voltage OK	13-14	Relay (max. 60 V DC, 0.3 A)		
Maximum deviation with	load change statical	±1 % (single mode) ±5 % (parallel mode)		±0.5 % (single mode) ±5 % (parallel mode)
	change of output voltage within the input voltage range	±0.5 %		
Control time		< 2 ms		
Starting time after applying the supply voltage	at I_r	max. 1 s		
	with 3500 µF	max. 1.5 s	-	-
	with 7000 µF	-	max. 1.5 s	
Rise time	at rated load	max. 150 ms		
	with 3500 µF	max. 500 ms	-	-
	with 7000 µF	-	max. 500 ms	
Fall time		max. 150 ms		
Residual ripple and switching peaks	BW = 20 MHz	50 mV	100 mV	
Parallel connection		configurable, to increase power, up to 3 devices, min. 0.1 I_r - max. 0.9 I_r		
Series connection		yes, to increase voltage, max. 2 devices		
Resistance to reverse feed		max. 35 V DC		
Output circuit - No-load, overload and short-circuit behaviour				
Characteristic curve of output		U/I characteristic curve		
Short-circuit protection		continuous short-circuit proof		
Short-circuit behaviour		continuation with output power limiting		
Overload protection		output power limiting		
No-load protection		continuous no-load stability		
Starting of capacitive loads		3500 µF	7000 µF	

2CDC110004C0207

Primary switch mode power supplies
CP-E range (24 V DC)
Technical data

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

Type		CP-E 24/5.0	CP-E 24/10.0	CP-E 24/20.0
General data				
Power dissipation		typ. 20 W	typ. 35 W	typ. 63 W
Efficiency		typ. 86 %	typ. 89 %	typ. 89 %
Duty time		100 %		
Dimensions (W x H x D)		63.2 x 123.6 x 123.6 mm [2.49 x 4.87 x 4.87 in]	83 x 123.6 x 123.6 mm [3.27 x 4.87 x 4.87 in]	175 x 123.6 x 123.6 mm [6.89 x 4.87 x 4.87 in]
Weight		0.882 kg (2.20 lb)	1.334 kg (3.01 lb)	1.850 kg (4.19 lb)
Material of enclosure		Metall		
Mounting		DIN rail (IEC/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	IP20 / IP20		
Protection class		I		
Electrical connection - input circuit / output circuit				
Wire size	fine-strand with wire end ferrule	0.2-4 mm² (24-11 AWG)		
	fine-strand without wire end ferrule	0.2-6 mm² (24-10 AWG)		
	rigid			
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		-25...+55 °C
	storage	-25…+85 °C		
Damp heat (cyclic) (IEC/EN 60068-2-30)		95 % without condensation		
Vibration (sinusoidal) (IEC/EN 60068-2-6)		10-500 Hz, 2 G, along X, Y, Z each axis, 60 min. for each axis		
Shock (half-sine) (IEC/EN 60068-2-27)		15 G, 11 ms, 3 axes, 6 faces, 3 times for each face		
Isolation data				
Rated insulation voltage U_i	input circuit / output circuit	3 kV AC		
	input / PE	1.5 kV AC		
Pollution degree		2		
Overvoltage category (UL/IEC/EN 60950-1)		II		
Standards				
Product standard		EN 61204-3		
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 to		IEC/EN 61000-6-2		
electrostatic discharge	IEC/EN 61000-4-2	Level 4		
radiated, radio-frequency, electromagnetic field	IEC/EN 61000-4-3	Level 3		
electrical fast transient/burst	IEC/EN 61000-4-4	Level 4		
surge	IEC/EN 61000-4-5	L-N Level 3, L/N-FG Level 4		
conducted disturbances, induced by radio-frequency fields	IEC/EN 61000-4-6	Level 3		
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** **4**/4

Primary switch mode power supplies
CP-E range (48 V DC)
Technical data

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

Type		CP-E 48/0.62	CP-E 48/1.25	CP-E 48/5.0	CP-E 48/10.0
Input circuit		**L, N**			
Rated input voltage U_{in}		100-240 V AC		115 / 230 V AC auto select	115-230 V AC
Input voltage range		85-264 V AC / 90-375 V DC		93-132 V AC, 186-264 V AC / 210-370 V DC	90-264 V AC, 120-370 V DC
Frequency range AC		47-63 Hz			
Typical input current	at 115 V AC	541 mA	1033 mA	5.4 A	7 A
	at 230 V AC	320 mA	573 mA	2.2 A	3.5 A
Typical power consumption		35.7 W	69.0 W	267 W	528 W
Inrush current limiting	at 115 V AC	20 A (max. 3 ms)	30 A (max. 3 ms)	30 A (max. 5 ms)	25 A (max. 5 ms)
	at 230 V AC	40 A (max. 3 ms)	60 A (max. 3 ms)	60 A (max. 5 ms)	50 A (max. 5 ms)
Discharge current	input / output	0.25 mA			
	input / PE	3.5 mA			
Power failure buffering time	at 115 V AC	min. 20 ms		min. 25 ms	min. 30 ms
	at 230 V AC	min. 30 ms			
Internal input fuse		2 A slow-acting / 250 V AC		6.3 A slow-acting / 250 V AC	10 A slow-acting / 250 V AC
Power factor correction (PFC)		no		yes, passive, 0.7	yes, active 115 V AC: 0.99 230 V AC: 0.97
Indication of operational states					
Output voltage	green LED	OUTPUT OK: ⌜‾‾‾⌝: output voltage OK			
	red LED	-	-	OUTPUT LOW: ⌜___⌝: 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		48-55 V DC		47-56 V DC	
Rated output power		30 W	60 W	240 W	480 W
Rated output current I_r	$T_a \leq 60$ °C	0.625 A	1.25 A	5 A	-
	$T_a \leq 55$ °C	-	-	-	10 A
Derating of the output current	60 °C < $T_a \leq$ 70 °C	2.5 %/°C			-
	55 °C < $T_a \leq$ 70 °C	-	-	-	2.5 %/°C
Signalling output for output voltage OK	DC OK	-	-	-	-
Maximum deviation with	load change statical	0.5 %		±1 % (single mode) ±5 % (parallel mode)	±0.5 % (single mode) ±5 % (parallel mode)
	change of output voltage within the input voltage range	0.5 %		±0.5 %	
Control time		< 2 ms			
Starting time after applying the supply voltage	at I_r	max. 1 s			
	with 3500 µF	max. 2 s	-	-	-
	with 7000 µF	-	max. 1.5 s	max. 1.5 s	
Rise time	at rated load	max. 150 ms			
	with 3500 µF	max. 500 ms	-	-	-
	with 7000 µF	-	max. 500 ms	max. 500 ms	
Fall time		max. 150 ms			
Residual ripple and switching peaks	BW = 20 MHz	50 mV		100 mV	
Parallel connection		yes, to enable redundancy		configurable, to increase power, up to 3 devices, min. 0.1 I_r - max. 0.9 I_r	
Series connection		yes, to increase voltage		yes, to increase voltage, max. 2 devices	
Resistance to reverse feed		1 s - max. 63 V DC			
Output circuit - No-load, overload and short-circuit behaviour					
Characteristic curve of output		U/I characteristic curve			
Short-circuit protection		continuous short-circuit proof			
Short-circuit behaviour		continuation with output power limiting			
Overload protection		output power limiting			
No-load protection		continuous no-load stability			
Starting of capacitive loads		3500 µF	7000 µF		

2CDC110004C0207

Primary switch mode power supplies
CP-E range (48 V DC)
Technical data

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

Type		CP-E 48/0.62	CP-E 48/1.25	CP-E 48/5.0	CP-E 48/10.0
Gerneral data					
Power dissipation		typ. 4.9 W	typ. 7.8 W	typ. 32 W	typ. 60 W
Efficiency		typ. 86 %	typ. 89 %	typ. 90 %	
Duty time		100 %			
Dimensions (W x H x D)		43.5 x 88.5 x 115 mm [1.71 x 3.48 x 4.53 in]		83 x 123.6 x 123.6 mm [3.27 x 4.87 x 4.87 in]	175 x 123.6 x 123.6 mm [6.89 x 4.87 x 4.87 in]
Weight		0.264 kg (0.64 lb)	0.316 kg (0.79 lb)	1.322 kg (3.01 lb)	1.839 kg (4.19 lb)
Material of enclosure		Plastic		Metall	
Mounting		DIN rail (IEC/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	0.2-2 mm² (24-14 AWG)		0.2-4 mm² (24-11 AWG)	
	fine-strand without wire end ferrule			0.2-6 mm² (24-10 AWG)	
	rigid				
Stripping length		6 mm (0.24 in)		8 mm (0.31 in)	
Tightening torque	input / output	0.5-0.6 Nm		1 Nm / 0.6 Nm	
Environmental data					
Ambient temperature range	operation	-25…+70 °C			
	rated load	-25...60 °C			-25...+55 °C
	storage	-25…+85 °C			
Damp heat (cyclic) (IEC/EN 60068-2-30)		4 x 24 Zyklen, 40 °C, 95 % RH		95 % without condensation	
Vibration (sinusoidal) (IEC/EN 60068-2-6)		10-500 Hz, 2 G, along X, Y, Z each axis, 60 min. for each axis			
Shock (half-sine) (IEC/EN 60068-2-27)		15 G, 11 ms, 3 axes, 6 faces, 3 times for each face			
Isolation data					
Rated insulation voltage U_i	input circuit / output circuit	3 kV AC			
	input / PE	1.5 kV AC			
Pollution degree		2			
Overvoltage category (UL/IEC/EN 60950-1)		II			
Standards					
Product standard		EN 61204-3			
Low Voltage Directive		2006/95/EG			
EMC directive		2004/108/EG			
RoHS directive		2002/95/EG			
Electrical safety		EN 50178, EN 60950-1, UL 60950-1, UL508		IEC/EN 60950-1	
Protective low voltage		SELV (EN 60950)		SELV	
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	L-L Level 3 (2 kV), L-PE Level 4 (4 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			

• **Approvals** **4**/4

Primary switch mode power supplies
Redundancy units for CP-E range
Technical data

Data at T_a = 25 °C, unless otherwise indicated

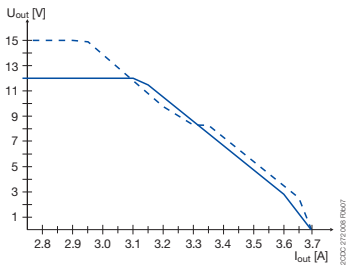
Type		**CP-RUD**	**CP- A RU**
Input circuit - Supply circuit		**A: U1+/-U ; B: U2+/-U**	**(+/ -, +/ -)**
Rated input voltage U_{in}		24 V DC	
Input voltage range		5-35 V DC	10-40 V DC
Rated input current I_{in} per channel		0.5-2.5 A	1-20 A
Maximum input current per channel		10 A for 300 s	30 A for 300 s
Transient overvoltage protection		no	yes
Output circuit		**L+, L+, L+, L-, L-, L-**	**(++/--)**
Rated output voltage U_{out}		24 V DC	
Voltage drop		typ. 0.6 V, max. 0.7 V	typ. 0.6 V, max. 0.9 V
Rated output current I_{out}		0.5-5 A	1-40 A
Peak output current		20 A for 150 s	60 A for 300 s
Resistance to reverse feed		< 35 V	< 40 V
General data			
Dimensions (W x H x D)		22.5 x 78 x 100 mm (0.89 x 3.07 x 4.02 in)	56.5 (60 [1]) x 130 x 135.5 mm (2.22 (2.36 [1]) x 5.12 x 5.39 in)
Weight		0.135 kg (0.30 lb)	0.89 kg (1.96 lb)
Minimum distance to other units	horizontal / vertical	10 mm / 10 mm (0.39 in / 0.39 in)	10 mm / 50 mm (0.39 in / 1.97 in)
Degree of protection	enclosure / terminals	IP20 / IP20	
Material of enclosure	enclosure shell / cover	plastic / plastic	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 x 0.75-2.5 mm² (2 x 18-14 AWG)	2.5-10 mm² (14-8 AWG)
	fine-strand without wire end ferrule		0.5-10 mm² (20-8 AWG)
	rigid	2 x 0.5-4 mm² (2 x 20-12 AWG)	0.5-16 mm² (20-6 AWG)
Stripping length		7 mm (0.28 in)	12 mm (0.47 in)
Tightening torque		0.6-0.8 Nm	1.2-1.5 Nm
Environmental data			
Ambient temperature range	operation	-20...+60 °C	-25...+70 °C
	rated load	-20...+60 °C	-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 / enclosure	-	500 V AC (routine test)
Pollution degree (EN 50178)		2	
Standards			
Product standard			IEC/EN 61204
Low Voltage Directive		2006/95/EG	
EMC Directive		2004/108/EG	
Electrical safety		EN 50178	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

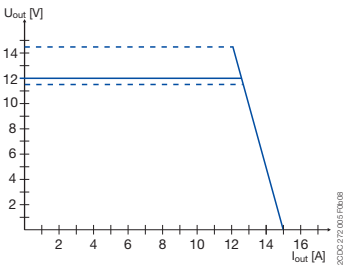
[2] This device is designed for connection to a safety extra-low voltage source. If no safety extra-low voltage is used at the input side, the lateral screw can be used for grounding of the enclosure (protection class I).

Technical diagrams

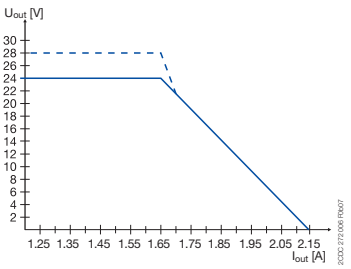
Output curve at T_a = 25 °C



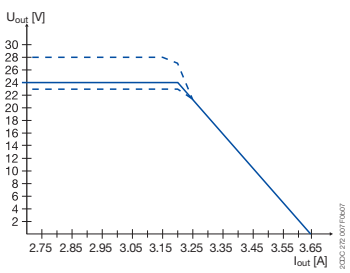
CP-E 12/2.5



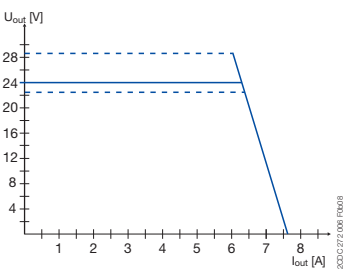
CP-E 12/10.0



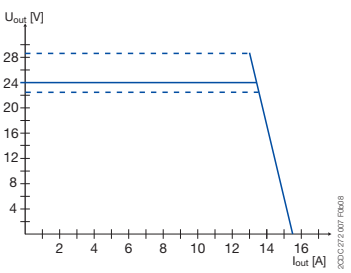
CP-E 24/1.25



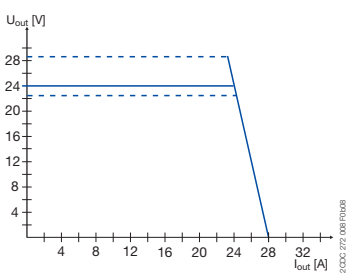
CP-E 24/2.5



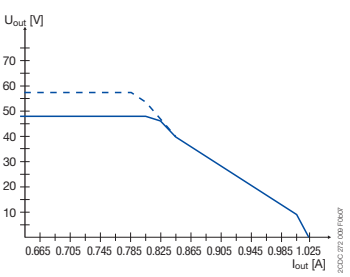
CP-E 24/5.0



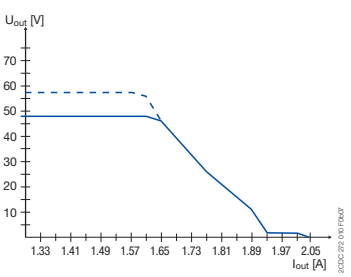
CP-E 24/10.0



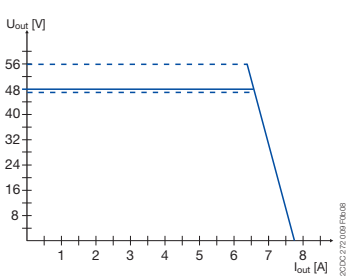
CP-E 24/20.0



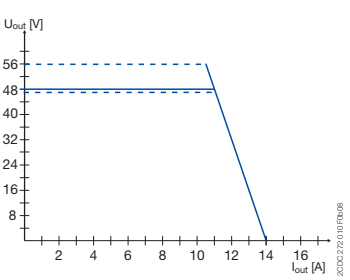
CP-E 48/0.62



CP-E 48/1.25

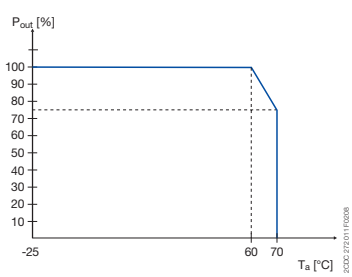


CP-E 48/5.0

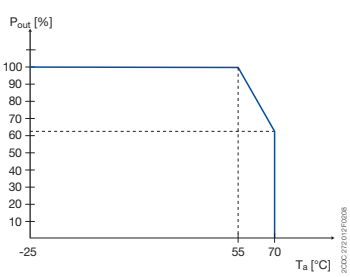


CP-E 48/10.0

Temperature curve at rated output voltage

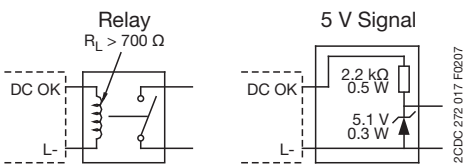


CP-E < 480 W



CP-E 480 W

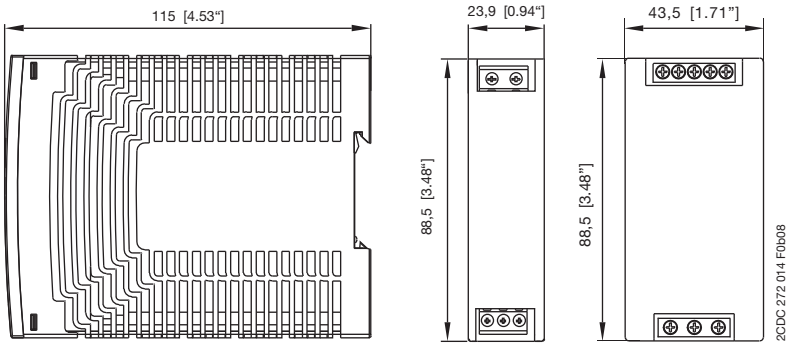
Wiring instructions



CP-E 24/1.25, CP-E 24/2.5

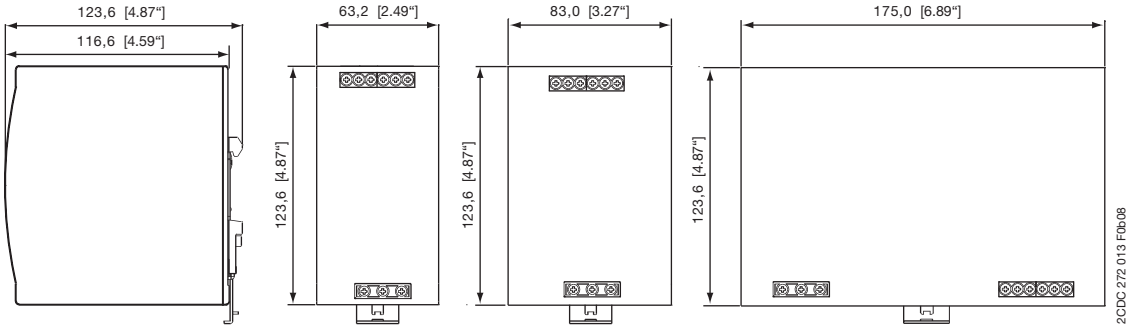
Dimensional drawings

dimensions in mm



CP-E 5/3.0,
CP-E 24/0.75

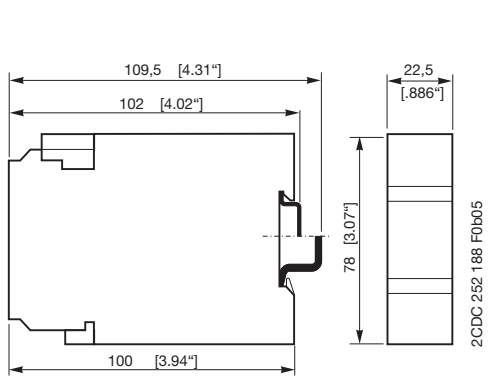
CP-E 12/2.5,
CP-E 24/1.25,
CP-E 24/2.5,
CP-E 48/0.62,
CP-E 48/1.25



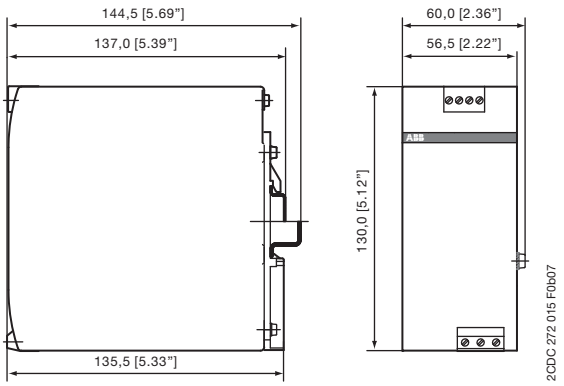
CP-E 12/10.0,
CP-E 24/5.0

CP-E 24/10.0,
CP-E 48/5.0

CP-E 24/20.0,
CP-E 48/10.0



CP-RUD



CP-A RU

NEW

Primary switch mode power supplies

CP-T range

Content

NEW

Primary switch mode power supplies CP-T range

Benefits and advantages

4

- Rated output voltages 24 V, 48 V DC
- Output voltage adjustable via front-face rotary potentiometer “OUTPUT Adjust”
- Rated output currents 5 A, 10 A, 20 A, 40 A
- Rated output powers 120 W, 240 W, 480 W, 960 W
- Three-phase or two-phase operation (see derating note)
- Supply range 3 x 400 – 500 V AC (3 x 340 – 575 V AC, 480 – 820 V DC)
- Typical efficiency of 93 %
- 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
- Redundancy unit CP-A RU offering true redundancy, available as accessory
- LEDs for status indication
- Signalling contact "13-14" (Relay) for output voltage OK
- Approvals / marks (depending on device, partly pending):

„DC OK“ output

The devices of the CP-T series offer a relay contact for function monitoring and remote diagnostics.

Wide range

Wide range input optimized for world-wide applications:
The CP-T power supplies can be used in 3x340 - 575 V AC or 480 - 820 V DC supply systems.

Adjustable output voltage

The CP-T range feature a continuously adjustable output voltage. Thus, they can be optimally adapted to the application, e.g. compensating the voltage drop caused by a long line length.

NEW

Primary switch mode power supplies
CP-T range
Ordering details


2CDC271043S0009

CP-T 24/5.0


2CDC271045S0009

CP-T 24/10.0
CP-T 48/5.0


2CDC271047S0009

CP-T 24/20.0
CP-T 48/10.0


2CDC271049S0009

CP-T 24/40.0
CP-T 48/20.0


2CDC271010F0006

CP-A RU

Type	Input voltage range	Rated output voltage / current	Order code	Pack. unit pieces	Price 1 piece	Weight 1 piece kg / lb
CP-T 24/5.0	340-575 V AC/ 480-820 V DC	24 V DC / 5 A	**1SVR 427 054 R0000**	1		0.8 / 1.77
CP-T 24/10.0	340-575 V AC/ 480-820 V DC	24 V DC / 10 A	**1SVR 427 055 R0000**	1		1.05 / 2.31
CP-T 24/20.0	340-575 V AC/ 480-820 V DC	24 V DC / 20 A	**1SVR 427 056 R0000**	1		1.75 / 3.86
CP-T 24/40.0	340-575 V AC/ 480-820 V DC	24 V DC / 40 A	**1SVR 427 057 R0000**	1		3.20 / 7.05
CP-T 48/5.0	340-575 V AC/ 480-820 V DC	48 V DC / 5 A	**1SVR 427 054 R2000**	1		1.05 / 2.31
CP-T 48/10.0	340-575 V AC/ 480-820 V DC	48 V DC / 10 A	**1SVR 427 055 R2000**	1		1.75 / 3.86
CP-T 48/20.0	340-575 V AC/ 480-820 V DC	48 V DC / 20 A	**1SVR 427 056 R2000**	1		3.4 / 7.50

Redundancy units
for decoupling of two CP-T power supply units

Type	suitable for decoupling of two CP-24 V DC power supply units	Order code	Pack. unit pieces	Price 1 piece	Weight 1 piece kg / lb
CP-A RU: 2 inputs each up to 20 A and 1 output up to 40 A					
CP-A RU	≤ 40 V and ≥ 5 A	**1SVR 427 071 R0000**	1		0.89 / 1.96

• Approvals **4**/4
• Technical diagrams ..... **4**/34 • Technical data .....**4**/30 • Dimensional drawings **4**/34

NEW

Primary switch mode power supplies CP-T range (24 V DC)
Technical data

Data at T_a = 25 °C, U_{in} = 3 x 400 V AC and rated values, unless otherwise indicated

Type		CP-T 24/5.0	CP-T 24/10.0	CP-T 24/20.0	CP-T 24/40.0
Input circuit		**L1, L2, L3**			
Rated input voltage U_{in}		3 x 400-500 V AC			
Input voltage range		340-575 V AC			
		480-820 V DC			
Frequency range AC		47-63 Hz			
Typical current consumption		0.36 A	0.85 A	1.1 A	1.72 A
Typical power consumption		135 W	270 W	538 W	1058 W
Inrush current limiting		10 A	20 A		30 A
Power failure buffering time		min. 20 ms			min. 15 ms
Internal input fuse	per phase	2 A / 600 V AC		T3.15 A / 500 V AC	T 5 A / 500 V AC
Recommended backup fuse		3 pole miniature circuit breaker ABB Type S203			
Power factor correction (PFC)		Yes, passive			
Discharge current	towards PE	< 3.5 mA			
	input / output	< 0.25 mA			
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		24 V DC			
Tolerance of the output voltage		0...+1 %			
Adjustment range of the output voltage		22.5-28.5 V DC			
Rated output power		120 W	240 W	480 W	960 W
Rated output current Ir	Ta ≤ 60 °C	5 A	10 A	20 A	40 A
Derating of the output current	60 °C < Ta ≤ 70 °C	2.5 %/°C			3.5 %/°C
Signalling contact for output voltage OK	13-14	Relay (max. 60 V DC, 0.3 A)			
	Threshold	17.6-19.4 V			
	Isolation voltage	500 V DC			
Maximum deviation with	load change statical	±1 % (single mode)			
			± 5 % (parallel mode)		
	change of output voltage within the input voltage range	± 0.5 %			
Control time	at nominal load	< 2 ms			
Starting time after applying the supply voltage	at Ir	max. 1 s			
	with 3500 µF	max. 1.5 s			
Rise time	at nominal load	max. 150 ms			
	with 3500 µF	max. 500 ms			
Fall time		max. 150 ms			
Residual ripple and switching peaks	BW = 20 MHz	100 mV			80 mV
Parallel connection		not supported	configurable, to increase power, up to 2 devices, reduction: (number of devices x I_r) x 0.9		to increase power, up to 2 devices, reduction: (number of devices x I_r) x 0.9, use active current balancing
Series connection		not supported	yes, to increase voltage, max. 2 devices		
Resistance to reverse feed		approx. 35 V			
Output circuit - No-load, overload and short-circuit behaviour					
Characteristic curve of output		combined U/I characteristic curve and hiccup mode		U/I- or Hiccup-mode adjustable	hiccup / fold back behavior
Short-circuit protection		continuous short-circuit proof			
Short-circuit behaviour		current limiting			

NEW

Primary switch mode power supplies CP-T range (24 V DC)
Technical data

Data at T_a = 25 °C, U_{in} = 3 x 400 V AC and rated values, unless otherwise indicated

Type		CP-T 24/5.0	CP-T 24/10.0	CP-T 24/20.0	CP-T 24/40.0
Overload protection		hiccup mode			
No-load protection		continuous no-load stability			
Overtemperature protection		yes, automatic recovery after temperature went down			
Starting of capacitive loads		3500 µF	7000 µF	7000 µF	7000 µF
General data					
Efficiency		typ. 89 %	typ. 90 %		typ. 92 %
Duty time		100%			
Dimensions (W x H x D)		74.3 x 124 x 118.8 mm [2.92 x 4.88 x 4.68 in]	89 x 124 x 118.8 mm [3.5 x 4.88 x 4.68 in]	150 x 124 x 118.8 mm [5.91 x 4.88 x 4.68 in]	275.8 x 124 x 118.8 mm [10.86 x 4.88 x 4.68 in]
Weight		24 / 5.0 0.78 kg (1.72 lb)	24 / 0.0 1.045 kg (2.30 lb)	24 / 20.0 1.657 kg (3.653 lb)	24 / 40.0 3.275 kg (7.220 lb)
Material of enclosure		Metal			
Mounting		DIN rail (IEC 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	IP20 / IP20			
Protection class		I			
Electrical connection - input circuit / output circuit					
Wire size	fine-strand with wire end ferrule	0.2-4 mm² (24-11 AWG)			0.2-4 mm² (24-11 AWG) / 0.5-10 mm² (20-6 AWG)
	fine-strand without wire end ferrule	0.2-6 mm² (24-10 AWG)			
	rigid				
Stripping length		8 mm (0.31 in)			
Tightening torque	input / output	1 Nm / 0.6 Nm			1 Nm / 1.8 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)		Random wave, 10-500 Hz, 2G, each along X, Y, Z axes 10 min / cycle, 60 min			
Shock (half-sine) (IEC/EN 60068-2-27)		Half sine wave, 4G, 22 ms, 3 axes, 6 Faces, 3 times for each face			
Isolation data					
Rated insulation voltage U_i	input circuit / output circuit	3 kV AC			
	input / PE	1.5 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 to		IEC/EN 61000-6-2			
electrostatic discharge	IEC/EN 61000-4-2	Level 4			
radiated, radio-frequency, electromagnetic field	IEC/EN 61000-4-3	Level 3			
electrical fast transient/burst	IEC/EN 61000-4-4	Level 4			
surge	IEC/EN 61000-4-5	L-N Level 3, L / N-FG Level 4	L-N Level 3, L / N-G Level 4		
conducted disturbances, induced by radio-frequency fields	IEC/EN 61000-4-6	Level 3			
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** **4**/4

NEW

Primary switch mode power supplies CP-T range (48 V DC)
Technical data

Data at T_a = 25 °C, U_{in} = 3 x 400 V AC and rated values, unless otherwise indicated

Type		CP-T 48/5.0	CP-T 48/10.0	CP-T 48/20.0
Input circuit		**L1, L2, L3**		
Rated input voltage U_{in}		3 x 400-500 V AC		
Input voltage ranget		340-575 V AC		
		480-820 V DC		
Frequency range AC		t		
Typical current consumption		0.85 A	1.1 A	1.72 A
Typical power consumption		264 W	535 W	1050 W
Inrush current limiting		20 A		30 A
Power failure buffering time		min. 20 ms		min. 15 ms
Internal input fuse	per phase	2 A / 600 V AC	T3.15 A / 500 V AC	T 5 A / 500 V AC
Power factor correction (PFC)		yes, passive		
Discharge current	towards PE	< 3.5 mA		
	input / output	< 0.25 mA		
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	480 W	960 W
Rated output current I_r	$T_a \leq 60$ °C	5 A	10 A	20 A
Derating of the output current	60 °C < $T_a \leq$ 70 °C	2.5 %/°C		3.5 %/°C
Maximum deviation with	load change statical	±1 % (single mode)		
		± 5 % (parallel mode)		
	change of output voltage within the input voltage range	±0.5 %		
Control time	at rated load	< 2 ms		
Starting time after applying the supply voltage	at Ir	max. 1 s		
	with 7000 µF	max. 1.5 s		
Rise time	at rated load	max. 150 ms		
	with 7000 µF	max. 500 ms		
Fall time		max. 150 ms		
Residual ripple and switching peaks	BW = 20 MHz	100 mV		80 mV
Parallel connection		configurable, to increase power, up to 2 devices, reduction: (number of devices x I_r) x 0.9		to increase power, up to 2 devices, reduction: (number of devices x I_r) x 0.9, use active current balancing
Series connection		yes, to increase voltage, max. 2 devices		
Resistance to reverse feed		approx. 35 V	approx. 63 V	approx. 63 V
Output circuit - No-load, overload and short-circuit behaviour				
Characteristic curve of output		combined U/I and hiccup mode	U/I or hiccup mode, configurable	hiccup mode / fold back behavior
Short-circuit protection		continuous short-circuit proof		
Short-circuit behaviour		current limiting		
Overload protection		hiccup mode		
No-load protection		continuous no-load stability		
Over temperature protection		yes, automatic recovery after temperature went down		
Starting of capacitive loads		7000 µF		

NEW

Primary switch mode power supplies CP-T range (48 V DC)
Technical data

Data at T_a = 25 °C, U_{in} = 3 x 400 V AC and rated values, unless otherwise indicated

Type		CP-T 48/5.0	CP-T 48/10.0	CP-T 48/20.0
General data				
Efficiency		typ. 91 %		typ. 93 %
Duty time		100%		
Dimensions (W x H x D)		89 x 124 x 118.8 mm [3.5 x 4.88 x 4.68 in]	150 x 124 x 118.8 mm [5.91 x 4.88 x 4.68 in]	275.8 x 124 x 118.8 mm [10.86 x 4.88 x 4.68 in]
Weight		48 / 5.0 1.045 kg (2.30 lb)	48 / 10.0 1.657 kg (3.653 lb)	48 / 20.0 3.275 kg (7.22 lb)
Material of enclosure		Metal		
Mounting		DIN rail (IEC 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	IP20 / IP20		
Protection class		I		
Electrical connection - input circuit / output circuit				
Wire size	fine-strand with wire end ferrule	0.2-4 mm² (24-11 AWG)		0.2-4 mm² (24-11 AWG) / 0.5-10 mm² (20-6 AWG)
	fine-strand without wire end ferrule	0.2-6 mm² (24-10 AWG)		
	rigid			
Stripping length		8 mm (0.31 in)		
Tightening torque	input / output	1 Nm / 0.6 Nm		1 Nm / 1.8 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)		Random wave, 10-500 Hz, 2G, each along X, Y, Z axes 10 min / cycle, 60 min		
Shock (half-sine) (IEC/EN 60068-2-27)		Half sine wave, 4G, 22 ms, 3 axes, 6 Faces, 3 times for each face		
Isolation data				
Rated insulation voltage U_i	input circuit / output circuit	3 kV AC		
	input / PE	1.5 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 to		IEC/EN 61000-6-2		
electrostatic discharge	IEC/EN 61000-4-2	Level 4		
radiated, radio-frequency, electromagnetic field	IEC/EN 61000-4-3	Level 3		
electrical fast transient/burst	IEC/EN 61000-4-4	Level 4		
surge	IEC/EN 61000-4-5	L-N Level 3, L / N-G Level 4		
conducted disturbances, induced by radio-frequency fields	IEC/EN 61000-4-6	Level 3		
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		

4

• **Approvals** **4**/4

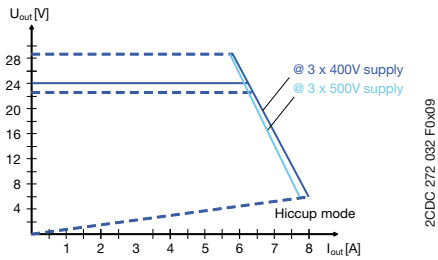
NEW

Primary switch mode power supplies
CP-T range
Dimensional drawings

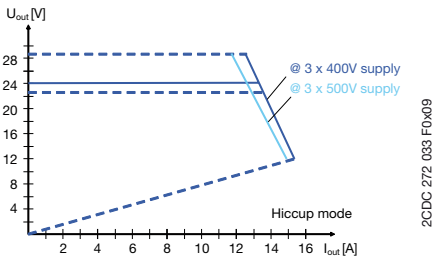
Technical diagrams

dimensions in mm

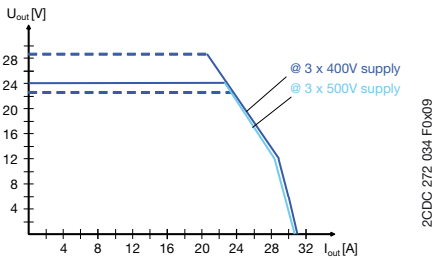
Output curve at T_U = 25 °C



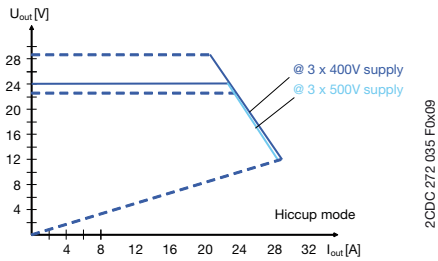
CP-T 24/5.0



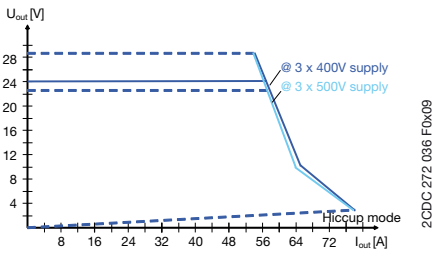
CP-T 24/10.0



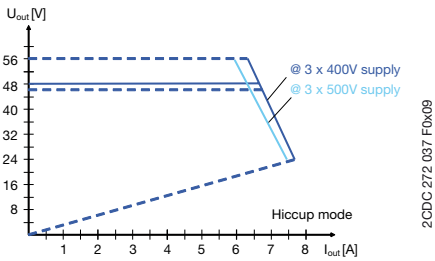
CP-T 24/20.0 U/I curve



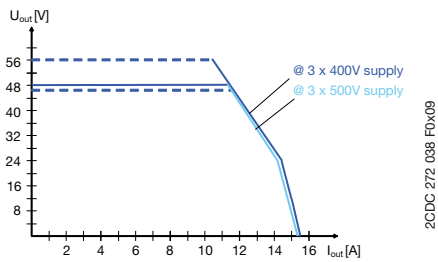
CP-T 24/20.0 Hiccup mode



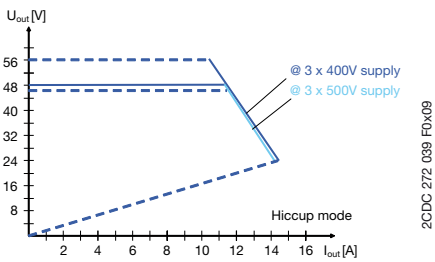
CP-T 24/40.0 (preliminary curve)



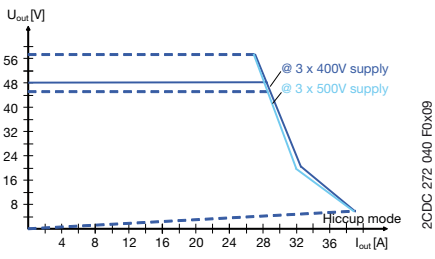
CP-T 48/5.0



CP-T 48/10.0 U/I curve

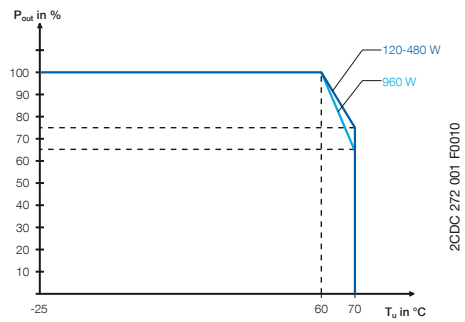


CP-T 48/10.0 Hiccup mode



CP-T 48/20.0 (preliminary curve)

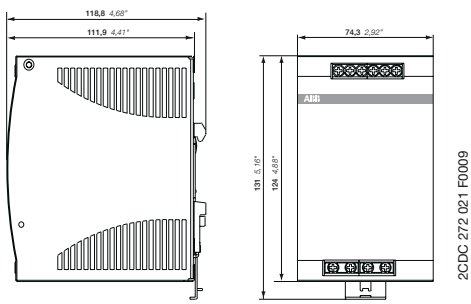
Temperature curve at rated load



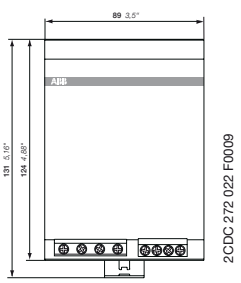
CP-T < 960 W

Dimensional drawings

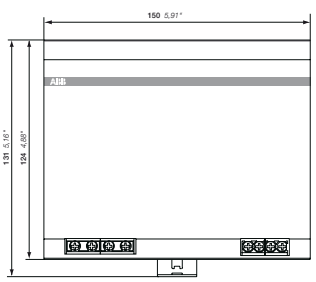
dimensions in mm



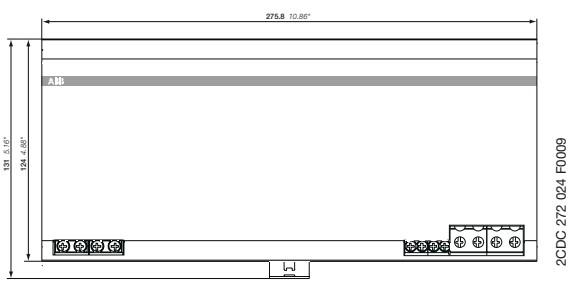
CP-T 24/5.0



CP-T 24/10.0, CP-T 48/5.0



CP-T 24/20.0, CP-T 48/10.0



CP-T 24/40.0, CP-T 48/20.0

Primary switch mode power supplies

CP-S, CP-C, CP-A range

Content

4

Primary switch mode power supplies CP-S, CP-C and CP-A range
Benefits and advantages


2CDC 275 015 F0b04

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

- pluggable 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

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.


2CDC 273 056 F0004

Pluggable connecting terminals

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


2CDC 273 057 F0004

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.

2CDC 273 046 F0004

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.


2CDC 273 058 F0004


2CDC 271 003 F0b05

CP-A RU + CP-A CM

Primary switch mode power supplies
CP-S, CP-C and 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

Type	Input voltage range	Rated output voltage / current	Order code	Pack. unit pieces	Price 1 piece	Weight 1 piece kg / lb
CP-S range						
CP-S 24/5.0	85-264 V AC/ 110-350 V DC	24 V DC / 5 A	**1SVR 427 014 R0000**	1		0.96 / 2.11
CP-S 24/10.0	85-132 V AC, 184-264 V AC/ 220-350 V DC	24 V DC / 10 A	**1SVR 427 015 R0100**	1		1.07 / 2.35
CP-S 24/20.0	85-132 V AC, 184-264 V AC/ 220-350 V DC	24 V DC / 20 A	**1SVR 427 016 R0100**	1		2.83 / 6.23
CP-C range						
CP-C 24/5.0	85-264 V AC/ 110-350 V DC	24 V DC / 5 A	**1SVR 427 024 R0000**	1		0.96 / 2.11
CP-C 24/10.0	85-264 V AC/ 110-350 V DC	24 V DC / 10 A	**1SVR 427 025 R0000**	1		1.34 / 2.95
CP-C 24/20.0	85-264 V AC/ 110-350 V DC	24 V DC / 20 A	**1SVR 427 026 R0000**	1		3.15 / 6.94

Type	Description	Order code	Pack. unit pieces	Price 1 piece	Weight 1 piece kg / lb
Accessories for CP-C range					
CP-C MM	Messaging module	**1SVR 427 081 R0000**	1		0.065 / 0.14
Accessories for CP-S and C range					
CP-A RU	Redundancy unit	**1SVR 427 071 R0000**	1		0.89 / 1.96
CP-A CM	Control module	**1SVR 427 075 R0000**	1		0.063 / 0.14

• Approvals ..... **4**/4 • Technical data .....**4**/38 • Technical diagrams **4**/44
• Dimensional drawings **4**/44

Primary switch mode power supplies
CP-S and CP-C 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 CP-S 24/5.0	CP-C 24/10.0 CP-S 24/10.0	CP-C 24/20.0 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	
		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	
		switch position 230		184-264 V AC / 220-350 V DC [1]	
Frequency range AC			47-63 Hz		
Current consumption		at 110-240 V AC	approx. 2.2-1.2 A	approx. 2.6-1.2 A	approx. 5.5-2.5 A
		at 110-120 V AC	-	approx. 4.2-4.0 A	approx. 9.0-8.0 A
		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	CP-C		min. 100 ms	min. 40 ms	min. 40 ms
	CP-S			min. 50 ms	min. 50 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 behaviour			**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]

2CDC110004C0207

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

Type			CP-C 24/5.0 CP-S 24/5.0	CP-C 24/10.0 CP-S 24/10.0	CP-C 24/20.0 CP-S 24/20.0
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		enclosure / terminals	IP20 / IP20		
Material of enclosure		enclosure shell / cover	aluminium / zinc-coated sheet steel		
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** **4**/4

Primary switch mode power supplies
Accessory for CP-C range
Technical data

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

Typ			CP-C MM
Input circuit - Supply circuit			
Rated input voltage U_{in}			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 ≤ 1 kΩ
Threshold "Switching-on power supply unit"			R ≥ 10 kΩ
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 ≤ 1kΩ
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 I_e (IEC/EN 60947-1)	AC12 (resistive)	230 V	1 A
	AC15 (inductive)	230 V	1 A
	DC12 (resistive)	24 V	1 A
	DC13 (inductive)	24 V	1 A
Mechanical lifetime			30 x 10^6 switching cycles
Electrical lifetime			0.1 x 10^6 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		enclosure / terminals	IP20 / IP20
Material of enclosure			UL 94 V0
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

2CDC110004C0207

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

Typ		CP-C MM
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)		
Isolation data		
Rated insulation voltage U_i (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 U_{imp} 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
Elektromagnetic 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** **4**/4

Data at T_a = 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 U_{in}		24 V DC	
Input voltage range per channel		10-28 V DC	13-28 V DC
Rated input current I_{in} per channel		1-20 A	
Maximum input current per channel		30 A for 300 s	
Transient overvoltage protection		yes	
Output circuit		(++/--)	
Rated output voltage U_{out}		24 V DC	
Voltage drop		typ. 0.6 V, max. 0.9 V	
Rated output current I_{out}		1-40 A	
Output ratings per channel	T_a = 60 °C	10-28 V DC / 40 A	13-28 V DC / 40 A
	T_a = 70 °C	10-28 V DC / 30 A	13-28 V DC / 30 A
Derating	60 °C < T_a ≤ 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	enclosure / terminals	IP20 / IP20	
Material of enclosure	enclosure 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 / enclosure	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 enclosure (protection class I).

• **Approvals** **4**/4

Data at T_a = 25 °C, unless otherwise indicated

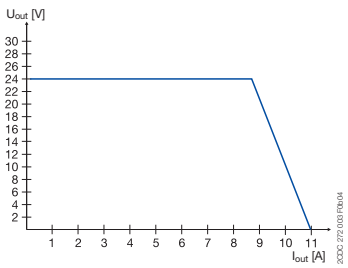
Type		**CP-A CM**
Input circuit - Supply circuit		
Rated input voltage U_{in}		24 V DC
Input voltage range		13-28 V DC
Rated input current	at rated sense load and 24 V DC	120 mA
Power consumption	at 24 V DC	approx. 1 W
Measuring circuit		**11-12/14, 21-22/24**
Monitoring function		undervoltage monitoring
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	: U_{OUT} > 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 U_e (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 I_e (IEC/EN 60947-5-1)	AC12 (resistive) 230 V	1 A
	AC15 (inductive) 230 V	1 A
	DC12 (resistive) 24 V	1 A
	DC13 (inductive) 24 V	1 A
Mechanical lifetime		30 x 10^6 switching cycles
Electrical lifetime		0.1 x 10^6 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	enclosure / terminals	IP20 / IP20
Material of enclosure		UL94V0
Protection class		II
Mounting		snap-on mounting, without any tool
Mounting position		plugged onto the redundancy unit CP-A RU
Electrical conection		
Wire size	fine-strand with wire end ferrule	0.2-2.5 mm² (24-14 AWG)
	fine-strand without wire end ferrule	0.2-2.5 mm² (24-14 AWG)
	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 U_i (IEC/EN 60947-1, EN 50178, VDE 0160)		250 V
Rated impulse withstand voltage U_{imp} (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)		

4

Primary switch mode power supplies
CP-S, CP-C and CP-A range
Technical diagrams, Dimensional drawings

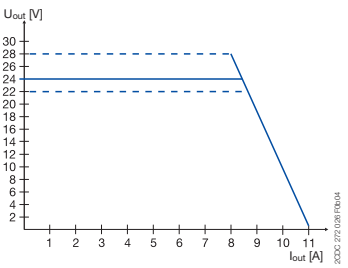
Technical diagrams

Output curve at 25 °C



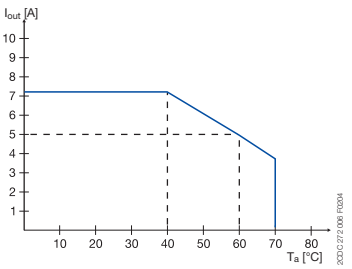
CP-S 24/5.0

Output curve at 25 °C

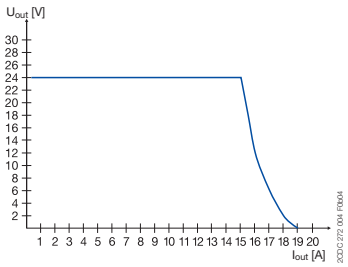


CP-C 24/5.0

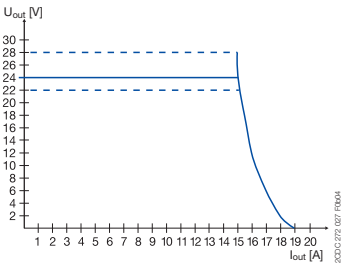
Temperature curve at U_{out} = 24 V DC



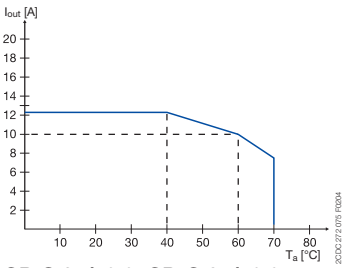
CP-S 24/5.0, CP-C 24/5.0



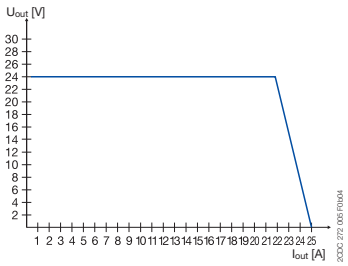
CP-S 24/10.0



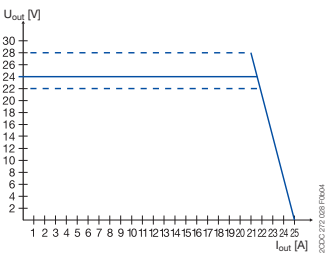
CP-C 24/10.0



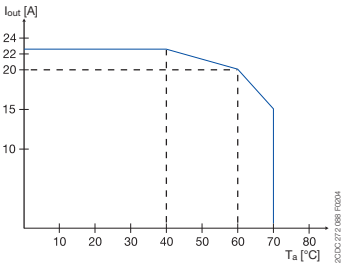
CP-S 24/10.0, CP-C 24/10.0



CP-S 24/20.0



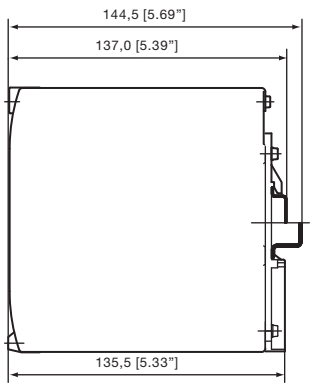
CP-C 24/20.0

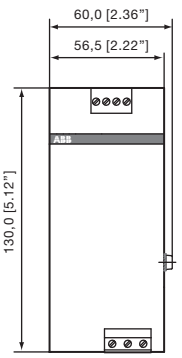


CP-S 24/20.0, CP-C 24/20.0

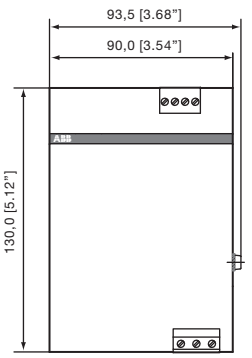
Dimensional drawings

dimensions in mm

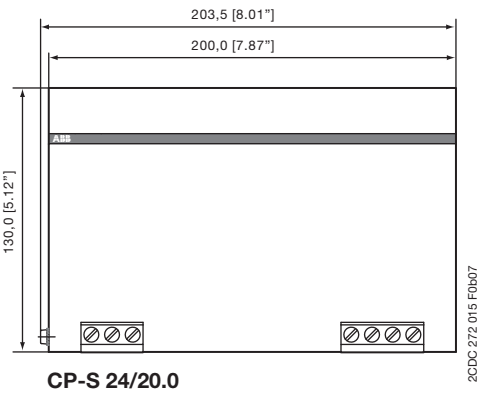




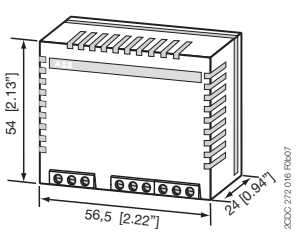
CP-S 24/5.0
CP-C 24/5.0
CP-A RU



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

NEW

Ultra capacitor based buffer modules

CP-B range

Content

NEW

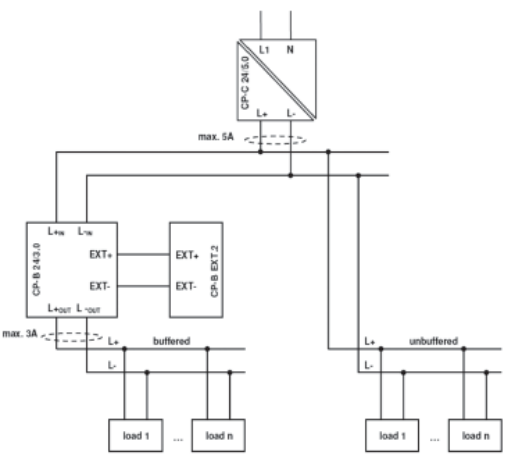
Ultra capacitor based buffer modules
CP-B range

Power supply systems have to be highly reliable in most areas of energy management and automation technology.
Often batteries are used for supporting the supply system in case of mains failures. Batteries have limited lifetimes depending on environmental parameters and have to be maintained regularly, which causes efforts and costs.

Using the latest ultra-capacitor technology, ABB offers an innovative and completely maintenance free new product for buffering the 24 V DC supply in case of interrupted mains on the primary side of the switch mode power supply.

The CP-B range is an ultra-capacitor buffer energy storage for power supply units which ensures a short term uninterrupted power supply system. In case of a power loss, the energy stored in the capacitor guarantees that the load is continually provided up to several hundred seconds depending on the load current.

Application example



Characteristics

- 3 buffer modules for buffering 24 V DC:
  CP-B 24/3.0 (3 A / 1 kWs[1])
  CP-B 24/10.0 (10 A / 10 kWs[1])
  CP-B 24/20.0 (20 A / 8 kWs[1])
- CP-B 24/3.0 and CP-B 24/20.0 expandable with additional extension module(s) CP-B EXT.2 (2 kWs[1])
- LEDs for status indication
- Relay contacts for status messaging
- Very high backup times (e.g. with CP-B 24/10.0 up to 8 minutes at 1 A load current)
- Short charging times
- High efficiency, higher than 90%
- Wide temperature range
- DIN rail mountable, compact enclosures
- Advantages in comparison to battery buffers
  - Maintenance free
  - No deep discharge
  - Temperature resistant
- c UL us LISTED approval (UL508, CSA22.2 No 14)[2]

[1] internal energy buffer; [2] pending

NEW

Ultra capacitor based buffer modules
CP-B range

Product selection table

		CP-B 24/3.0	CP-B 24/10.0	CP-B 24/20.0	CP-B EXT.2
Order code		1SVR427060R0300	1SVR427060R1000	1SVR427060R2000	1SVR427065R0000
Rated input voltage		24 V DC	24 V DC	24 V DC	–
Rated current		3 A DC	10 A DC	20 A DC	–
Energy storage (min.)		1.000 Ws	10.000 Ws	8.000 Ws	2.000 Ws
Typical charging time at load current	100 %	65 s	120 s	68 s	
	0 %	56 s	82 s	62 s	
Typical buffer time[1] at load current	100 %	14 s	40 s	15 s	
	50 %	28 s	80 s	30 s	
	25 %	74 s	140 s	60 s	
	10 %	148 s	380 s	150 s	
Dimensions					
Width		60.00 mm	127.00 mm	84.00 mm	60.00 mm
Height		92.50 mm	163.00 mm	192.00 mm	92.50 mm
Depth		116.00 mm	150.00 mm	198.00 mm	116.00 mm

[1] buffering time = $\frac{\text{energy storage x 0.9}}{\text{current x output voltage}}$

2CDC 271 001 S0010

CP-B 24/3.0

2CDC 271 002 S0010

CP-B 24/10.0

2CDC 271 003 S0010

CP-B 24/20.0

2CDC 271 004 S0010

CP-B EXT.2

Type	Rated input voltage	Rated current	Order code	Pack. unit pieces	Price 1 piece	Weight 1 piece kg / lb
CP-B range						
CP-B 24/3.0	24 V DC	3 A DC	**1SVR 427 060 R0300**	1		0.55 / 1.21
CP-B 24/10.0	24 V DC	10 A DC	**1SVR 427 060 R1000**	1		2.10 / 4.63
CP-B 24/20.0	24 V DC	20 A DC	**1SVR 427 060 R2000**	1		2.20 / 4.85
CP-B EXT.2	–	–	**1SVR 427 065 R0000**	1		1.00 / 2.21

Notes

NEW

Electronic protection devices
EPD range

Content

NEW

Electronic Protection Devices
for use behind 24 V DC Switch Mode Power Supplies

EPD24-TB-101

The protection devices EPD24 extend the ABB product range of modular DIN rail components by electronic overcurrent protection modules for selective protection of 24V DC load circuits.

This protection is achieved by a combination of active electronic current limitation in the case of a short circuit and an overload deactivation from 1.1 x I_n upwards.

If a fault occurs in a load circuit, the protection device EPD24 will detect this rapidly and reliably, disable the power output transistor and hence interrupt the current flow in the defective circuit. The maximum possible overcurrent is always limited to 1.5…1.8 times the selected rated current. An activation of capacitive loads up to 20,000 µF is possible, deactivation only occurring in the case of overloads or short circuits. Selective deactivation of the defective current circuit means undefined error states and a complete system stop are prevented.

Features

- Selective load protection one, electronic trip characteristics.
- Active current limitation for safe connection of capacitive loads up to 20,000 µF and on overload/short circuit.
- Current ratings 0.5 A...12 A.
- Reliable overload disconnection with 1.1 x I_N
- Manual ON/OFF button
- Clear status and failure indication through LED and auxiliary contact.
- Integral fail-safe element adjusted to current rating.
- Width per unit only 12.5 mm.
- Rail mounting
- Ease of wiring through busbar LINE+ and 0 V as well as signal bars.
- UL- and CSA-approvals allow international use of the devices.

Selection table

Rated current I_n in A	Order details Type code	Order code	bbn 40 16779 EAN	Price 1 piece	Price group	Weight 1 piece kg	Pack unit pc.
0.5	**EPD24-TB-101-0.5A**	2CDE 601 101 R2905	**829960**			0.065	4
1	**EPD24-TB-101-1A**	2CDE 601 101 R2001	**829984**			0.065	4
2	**EPD24-TB-101-2A**	2CDE 601 101 R2002	**830003**			0.065	4
3	**EPD24-TB-101-3A**	2CDE 601 101 R2003	**830027**			0.065	4
4	**EPD24-TB-101-4A**	2CDE 601 101 R2004	**830041**			0.065	4
6	**EPD24-TB-101-6A**	2CDE 601 101 R2006	**830065**			0.065	4
8	**EPD24-TB-101-8A**	2CDE 601 101 R2008	**830089**			0.065	4
10	**EPD24-TB-101-10A**	2CDE 601 101 R2010	**830102**			0.065	4
12	**EPD24-TB-101-12A**	2CDE 601 101 R2012	**830126**			0.065	4

Selection table accessories

	Order details Type code	Order code	bbn 40 16779 EAN	Price 1 piece	Price group	Weight 1 piece kg	Pack unit pc.
Busbars for LINE+ and 0 V, grey insulation, length 500 mm [1)]	**EPD-BB500**	2CDE 605 100 R0500	**830140**			0.20	10
Signal Bars for aux. contacts, grey insulation, length 21 mm	**EPD-SB21**	2CDE 605 200 R0021	**830164**			0.04	10

1) Max. load with one line entry I_{max} = 50 A (recommended: center-feeding)
Max. load with two line entries I_{max} = 63 A

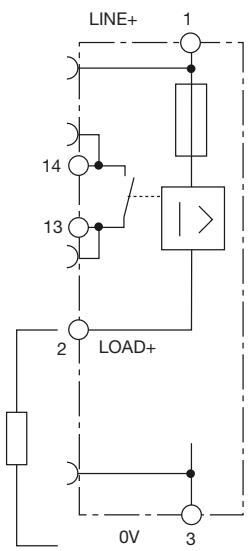
NEW

Electronic Protection Devices EPD24-TB-101
Technical data ($T_{amb.}$ = 25 °C, U_B = 24 V DC)
for use behind 24 V DC Switch Mode Power Supplies

Wiring diagramm

EPD24-TB-101
without signal input
with signal output F
(single signal, NO)

Operating condition: 13-14 closed
Fault condition: 13-14 open



Operating data	
Operating voltage U_B:	24 V DC (18...32 V)
Current rating I_N:	fixed current ratings: 0.5, 1, 2, 3, 4, 6, 8, 10, 12 A
Closed current I_0:	ON condition: typically 20...30 mA depending on signal output
Staus indication by means of:	– multicolour LED: Green: – unit is ON (S1 = ON) – load circuit / Power-MOSFET is switched on
	Orange: – in the event of overload or short circuit until electronic disconnection
	Red: – unit electronically disconnected – load circuit/Power-MOSFET OFF – undervoltage (U_B < 8 V) – after switch-on till the end of the delay period
	OFF: – manually switched off (S1 = OFF) or device is dead
	– potential-free auxiliary contact F
	– ON/OFF/ condition of switch S1
Load circuit	
Load output	Power-MOSFET switching output (high slide switch)
Overload disconnection	typically 1.1 x I_N (1.05...1.35 x I_N)
Short-circuit current I_K	active current limitation (see table 1)
Trip time	see time/current characteristics
For electronic disconnection	typically 3 s at I_{Load} > 1.1 x I_N typically 100 ms...3 s at I_{Load} > 1.8 x I_N (or 1.5 x I_N/1.3 x I_N,)
Temperature disconnection	internal temperature monitoring with electronic disconnection
Low voltage monitoring load output	with hysteresis, no reset required: load »OFF« at U_B< 8 V
Starting delay t_{Start}	typically 0.5 sec after every switch-on and after applying U_S
Disconnection of load circuit	electronic disconnection
Free-wheeling circuit	suitable external free-wheeling circuit to be used with inductive load
Several load outputs must not be connected in parallel	
Signal output	
Electrical data	potential-free auxiliary contact max. 30 V DC/0.5 A, min. 10 V DC/10 mA
ON condition LED green	voltage U_B applied, switch S1 is in ON position no overload, no short circuit
OFF condition LED off	– device switched off (switch S1 is in OFF position) – no voltage U_B applied
Fault condition LED orange	overload condition > 1.1 x I_N up to electronic disconnection
Fault condition LED red	– electronic disconnection upon overload or short circuit – Device switched off with control signal (switch S1 is in ON position)
Aux. contact	single signal, make contact contact open, terminal 13-14
Fault	signal output fault conditions – no operating voltage U_B – ON/OFF switch S1 is in OFF position – red LED lighted (electronic disconnection)

NEW

Electronic Protection Devices EPD24-TB-101

Technical data ($T_{amb.}$ = 25 °C, U_B = 24 V DC)

for use behind 24 V DC Switch Mode Power Supplies

General data	
Fail-Safe element	backup fuse for EPD24 not required because of the integral redundant fail-safe element
Housing material	moulded
Mounting	symmetrical rail to EN 50022-35x7.5
Ambient temperature	0...+50 °C (without condensation, see EN 60204-1)
Storage temperature	-20...+70 °C
Humidity	96 hrs/95 % RH/40 °C to IEC 60068-2-78, test Cab. climate class 3K3 to EN 60721
Vibration	3 g, test to IEC 60068-2-6 test Fc
Degree of protection	housing: IP20 DIN 40050 terminals: IP20 DIN 40050
EMC **(EMC directive, CE logo)**	emission: EN 61000-6-3 susceptibility: EN 61000-6-2
Isolations coordination **(IEC 60934)**	0.5 kV/pollution degree 2 reinforced insulation in operating area
Dielectric strength	max. 32 V DC (load circuit)
Isolation resistance (OFF condition)	n/a, only electronic disconnection
Approvals/Declarations of conformity	UL 2367 Solid State Overcurrent Protectors UL 1604, (class I, division 2, groups A, B, C, D) UL 508 CSA C22.2 No. 213 (class I, division 2) CSA C22.2 No. 142 CE logo
Dimensions (B x H x T)	12.5 x 80 x 83 mm
Weight	approx. 65 g
Terminals	**Line+/LOAD+/0V**
Screw terminals	M4
Max. cable cross section flexible with wire end ferrule w/wo plastic sleeve	0.5 – 10 mm^2
Multi-lead connection (2 identical cables) rigid/flexible	0.5 – 4 mm^2
Flexible with wire end ferrule without plastic sleeve	0.5 – 2.5 mm^2
Flexible with TWIN wire end ferrule with plastic sleeve	0.5 – 6 mm^2
Wire stripping length	10 mm
Tightening torque (EN 60934)	1.5 – 1.8 Nm
Terminals	**aux. contacts**
Screw terminals	M3
Max. cable cross section flexible **with wire end ferrule w/wo plastic sleeve**	0.25 - 2.5 mm^2
Wire stripping length	8 mm
Tightening torque (EN 60934)	0.5 Nm

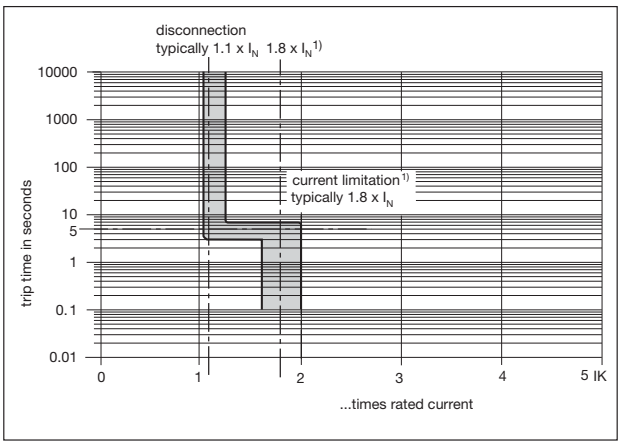
Table 1: voltage drop, current limitation, max. load current

current rating	typically voltage drop	active current	max. load current at 100 % ON duty	
I_N	U_{ON} at I_N	limitation (typically)	$T_{ambient}$ = 40 °C	$T_{ambient}$ = 40 °C
0.5 A	70 mV	1.8 x I_N	0.5 A	0.5 A
1 A	80 mV	1.8 x I_N	1 A	1 A
2 A	130 mV	1.8 x I_N	2 A	2 A
3 A	80 mV	1.8 x I_N	3 A	3 A
4 A	100 mV	1.8 x I_N	4 A	4 A
6 A	130 mV	1.8 x I_N	6 A	5 A
8 A	120 mV	1.5 x I_N	8 A	7 A
10 A	150 mV	1.5 x I_N	10 A	9 A
12 A	180 mV	1.3 x I_N	12 A	10.8 A

Attention: when mounted side-by-side without convection the ERD24 should not carry more than 80 % of its rated load with 100% ON duty due to thermal effects.

Time/Current characteristic curve (T_U = 25 °C)

- The trip time is typically 3 s in the range between 1.1 and 1.8 x I_N[1)].
- Electronic current limitation occurs at typically 1.8 x I_N[1)] which means that under all overload conditions (independent of the power supply and the resistance of the load circuit) the max. overload before disconnection will not exceed 1.8 x I_N[1)] times the current rating. Trip time is between 100 ms and 3 sec (depending on overload or at short circuit).
- Without this current limitation a considerably higher overload current would flow in the event of an overload or short circuit.



[1)] Current limitation typically 1.8 x I_N at I_N = 0.5 A...6 A
Current limitation typically 1.5 x I_N at I_N = 8 A or 10 A
Current limitation typically 1.3 x I_N at I_N = 12 A

Maximum cable lenghts

EPD24 reliably trips from 0 Ω up to max. circuit resistance R_{max}.

Calculation of R_{max}

Selected rating I_N (A)	**3**	**6**
Operating voltage U_S (V DC) (= 80 % of 24 V) [2)]	19.2	19.2
Trip current I_{ab} = 1.25 x I_N (A) (EPD24 trips after 3 s)	3.75	7.50
R_{max} (Ω) = (U_B/I_{ab}) -0.050	**5.07**	**2.51**

[2)] Voltage drop of EPD24 and tolerance of trip point (typically 1.1 x I_N = 1.05 ... 1.35 x I_N) have been taken into account

Selection table for the incoming cable lengths with different cable cross-sections

Cable cross section A (mm²)	0.14	0.25	0.34	0.5	0.75	1.00	1.50
Cable length L (m) (= single length)	**cable resistance (Ω) = (ρ_0 x 2 x L) / A** [3)]						
5	1.27	0.71	0.52	0.36	0.24	0.18	0.12
10	2.54	1.42	1.05	0.71	0.47	0.36	0.24
15	3.81	2.14	1.57	1.07	0.71	0.53	0.36
20	5.09	2.85	2.09	1.42	0.95	0.71	0.47
25	6.36	3.56	2.62	1.78	1.19	0.89	0.59
30	7.63	4.27	3.14	2.14	1.42	1.07	0.71
35	8.90	4.98	3.66	2.49	1.66	1.25	0.83
40	10.17	5.70	4.19	2.85	1.90	1.42	0.95
45	11.44	6.41	4.71	3.20	2.14	1.60	1.07
50	12.71	7.12	5.24	3.56	2.37	1.78	1.19
75	19.07	10.68	7.85	5.34	3.56	2.67	1.78
100	25.34	14.24	10.47	7.12	4.75	3.56	2.37
125	31.79	17.80	13.09	8.90	5.93	4.45	2.97
150	38.14	21.36	15.71	10.68	7.12	5.34	3.56
175	44.50	24.92	18.32	12.46	8.31	6.23	4.15
200	50.86	28.48	20.94	14.24	9.49	7.12	4.75
225	57.21	32.04	23.56	16.02	10.68	8.01	5.34
250	63.57	35.60	26.18	17.80	11.87	8.90	5.93

[3)] Resistivity of copper ρ_o = 0.0178 (Ω x mm²)/m

Example 1: max. length for 1.5 mm² and 3 A: **214 m**

Example 2: max. length for 1.5 mm² and 6 A: **106 m**

Example 3: mixed wiring: (Control cabinet --- sensor/actuator level)
R1 = 40 m for 1.5 mm² and R2 = 5 m for 0.25 mm²:
R1 = 0.95 Ω, R2 = 0.71 Ω, **total (R1 + R2) = 1.66 Ω**

Please note

The user should ensure that the cable cross sections of the relevant load circuit are suitable for the current rating of the EPD24 used.
Automatic start-up of machinery after shut down must be prevented (Machinery Directive 98/37/EG and EN 60204-1).
In the event of a short circuit or overload the load circuit will be disconnected electronically by the EPD24.

Information on UL approvals/CSA approvals

UL1604

Operating Temperature Code T5
– This equipment is suitable for use in Class I, Division 2, Groups A, B, C and D or non-hazardous locations only

WARNING:
– Exposure to some chemicals may degrade the sealing properties of materials used in the following device: relay
  Sealant Material:
    Generic Name: Modified diglycidyl ether of bisphenol A
    Supplier: Fine Polymers Corporation
    Type: Epi Fine 4616L-160PK
  Casing Material:
    Generic Name: Liquid Crystal Polymer
    Supplier: Sumitomo Chemical
    Type: E4008, E4009, or E6008

RECOMMENDATION:
– Periodically inspect the device named above for any degradation of properties and replace if degradation is found

WARNING – EXPLOSION HAZARD:
– Do not disconnect equipment unless power has been removed or the area is known to be non-hazardous
– Substitution of any components may impair suitability for Class I, Division 2

UL2367
Non-hazardous use

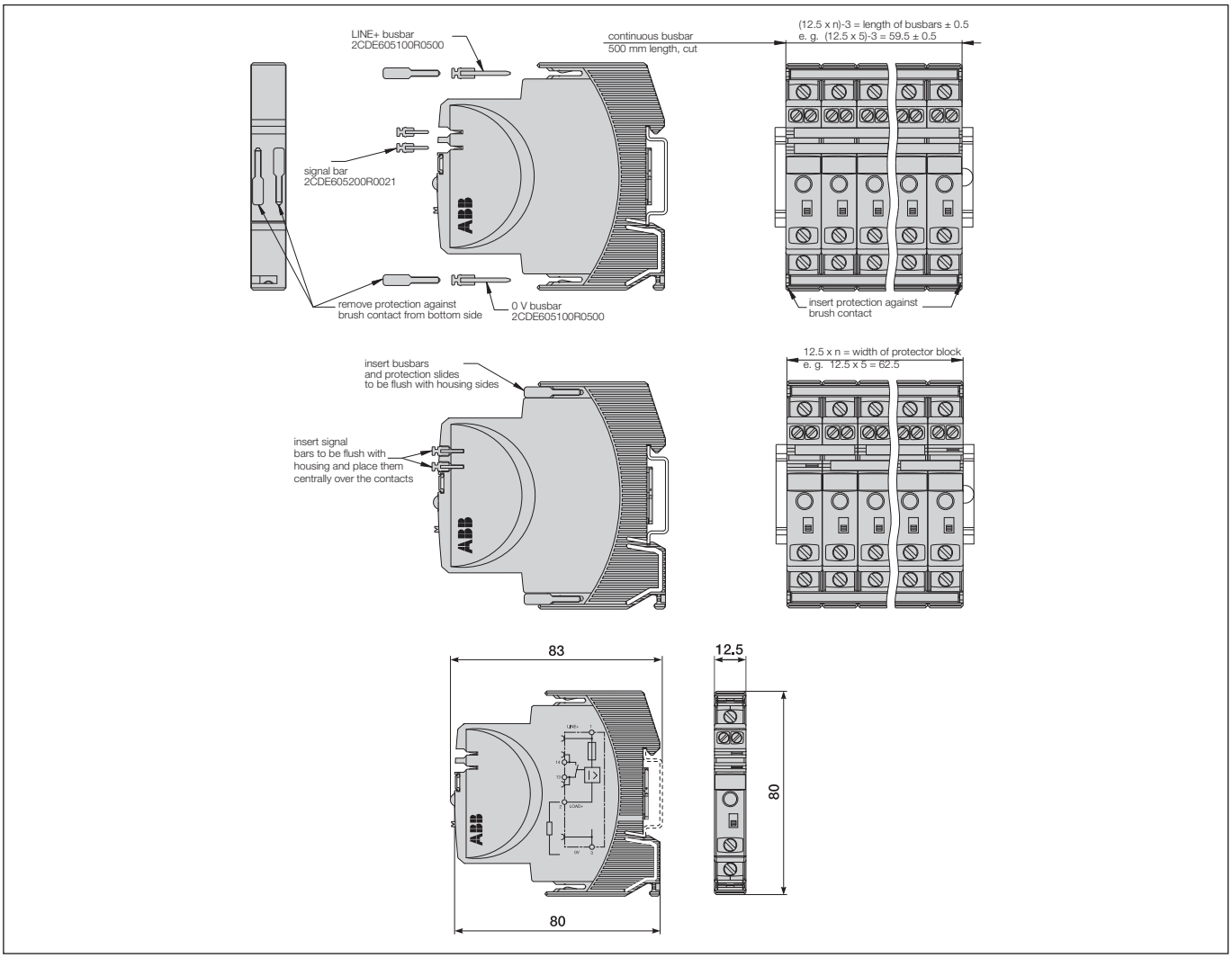
UL 508
Non-hazardous use

CSA C22.2 No. 213 (Class I, Division 2)
CSA C22.2 No. 142

Class 2
Meets requirement for Class 2 current limitation (EPD24 ... -0,5 A/1 A/2 A/3 A)

The EPD24 features an integral power distribution system.
The following wiring modes are possible with various pluggable current and signal busbars:

- LINE+ (24 V DC)
- 0 V
  Caution: The electronic devices EPD24 require a 0 V connection
- Auxiliary contacts



Mounting procedure

Before wiring insert busbars into protector block. A maximum of 10 connection cycles are permissible using connecting busbars.

Recommendation

After 10 units the busbars should be interrupted and receive a new entry live.

Table of length for busbars

(Order code 2CDE605100R0500)

No. of units	2	3	4	5	6	7	8	9	10
Length of busbar (mm) ± 0.5 mm	22	34.5	47	59.5	72	84.5	97	109.5	122

Notes