

NEW

Primary switch mode power supplies CP-T range

Benefits and advantages



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- 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.

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CP-T range

Ordering details



2CDC2710435S0009

CP-T 24/5.0



2CDC2710455S0009

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



2CDC2710475S0009

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



2CDC2710495S0009

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
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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
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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
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NEW

Primary switch mode power supplies

CP-T range (24 V DC)

Technical data

Data at $T_a = 25\text{ °C}$, $U_{in} = 3 \times 400\text{ V AC}$ 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 I_r	$T_a \leq 60\text{ °C}$ 5 A	10 A	20 A	40 A
Derating of the output current	$60\text{ °C} < T_a \leq 70\text{ °C}$	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	$\pm 1\%$ (single mode)		
	change of output voltage within the input voltage range	$\pm 5\%$ (parallel mode)		
Control time	at nominal load	< 2 ms		
Starting time after applying the supply voltage	at I_r	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			

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

Data at $T_a = 25\text{ °C}$, $U_{in} = 3 \times 400\text{ V AC}$ 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 mm ² (24-11 AWG)		0.2-4 mm ² (24-11 AWG) / 0.5-10 mm ² (20-6 AWG)
	fine-strand without wire end ferrule rigid	0.2-6 mm ² (24-10 AWG)		
Stripping length	8 mm (0.31 in)			
Tightening torque	input / output		1 Nm / 0.6 Nm	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		

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• Approvals 4/4

NEW

Primary switch mode power supplies

CP-T range (48 V DC)

Technical data

Data at $T_a = 25\text{ °C}$, $U_{in} = 3 \times 400\text{ V AC}$ 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 range	340-575 V AC		
Frequency range AC	480-820 V DC		
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		
Power failure buffering time	min. 20 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 input / output	< 3.5 mA	
		< 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	$T_a \leq 60\text{ °C}$ 5 A	10 A	20 A
Derating of the output current	$60\text{ °C} < T_a \leq 70\text{ °C}$	2.5 %/°C	
Maximum deviation with	load change statcal	$\pm 1\%$ (single mode)	
	change of output voltage within the input voltage range	$\pm 5\%$ (parallel mode)	
Control time	at rated load	< 2 ms	
Starting time after applying the supply voltage	at I_r with 7000 μF	max. 1 s max. 1.5 s	
Rise time	at rated load with 7000 μF	max. 150 ms 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		

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Data at $T_a = 25\text{ °C}$, $U_{in} = 3 \times 400\text{ V AC}$ 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 mm ² (24-11 AWG)		0.2-4 mm ² (24-11 AWG) / 0.5-10 mm ² (20-6 AWG)
	fine-strand without wire end ferrule rigid	0.2-6 mm ² (24-10 AWG)		
Stripping length		8 mm (0.31 in)		
Tightening torque	input / output	1 Nm / 0.6 Nm		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		

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NEW

Primary switch mode power supplies

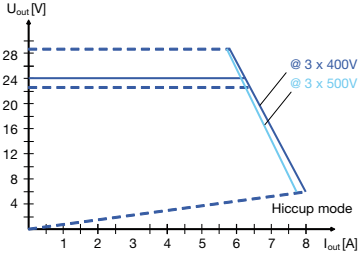
CP-T range

Dimensional drawings

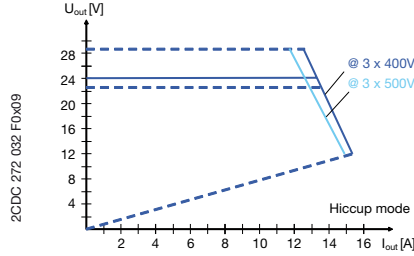
Technical diagrams

Output curve at $T_U = 25\text{ }^\circ\text{C}$

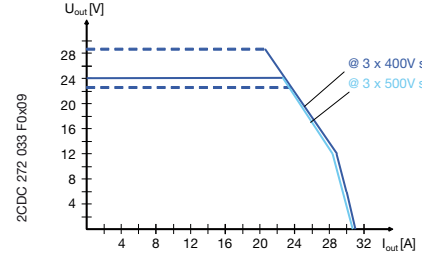
dimensions in mm



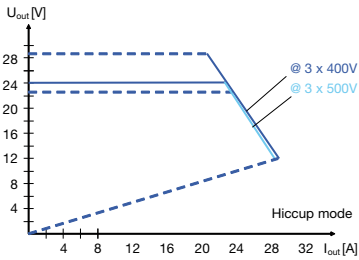
CP-T 24/5.0



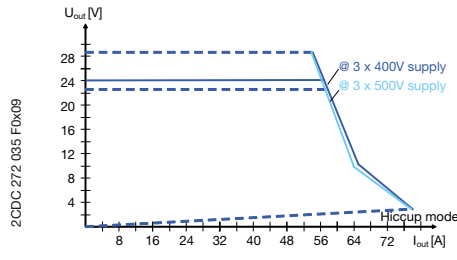
CP-T 24/10.0



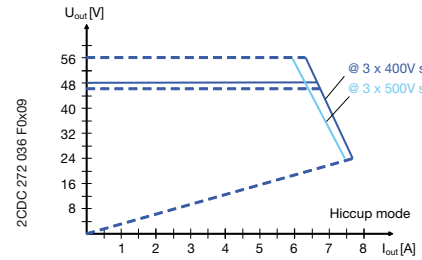
CP-T 24/20.0 U/I curve



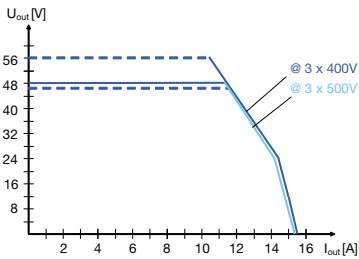
CP-T 24/20.0 Hiccup mode



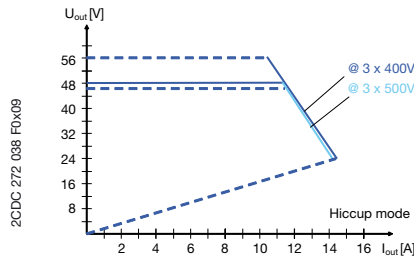
CP-T 24/40.0 (preliminary curve)



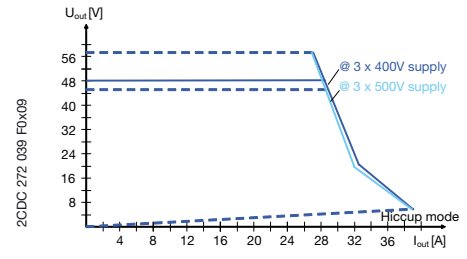
CP-T 48/5.0



CP-T 48/10.0 U/I curve



CP-T 48/10.0 Hiccup mode

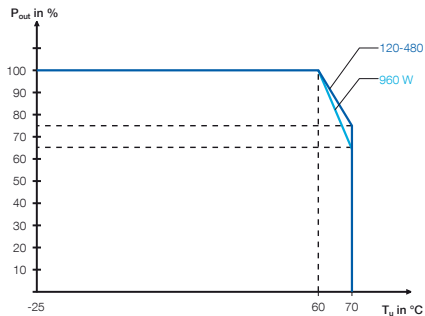


CP-T 48/20.0 (preliminary curve)

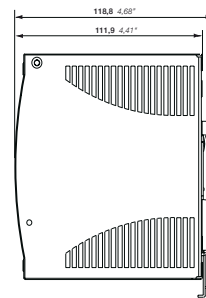
Temperature curve at rated load

Dimensional drawings

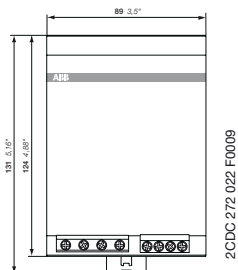
dimensions in mm



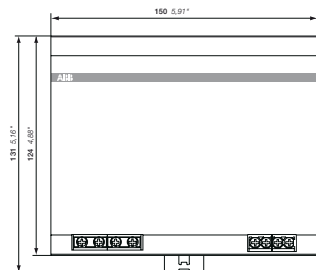
CP-T < 960 W



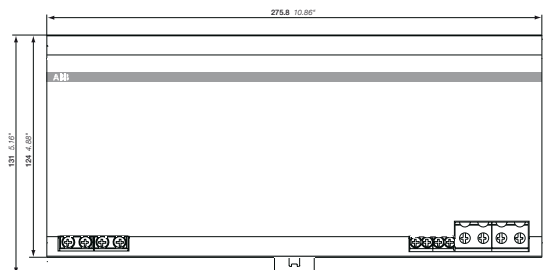
CP-T 24/5.0



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