
CP-T 24/5.0
CP-T 24/10.0
CP-T 24/20.0
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CP-T 48/5.0
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CP-T range
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CP-T range
Benefits and advantages

ABB's CP-T range of three-phase power supply units perfectly complements our existing power supply offering in terms of design and functionality, giving you more advanced options for your three-phase applications.

Affordable range

Products with exactly the functions you require. Designed for best price-performance ratio.

Global availability

The product can be used in any installation in the world. Giving you the confidence of world-wide sourcing – no matter where you build, install or operate your equipment.

Speed up your projects

Data available for common planning software: Less engineering time required

CP-T range
Benefits and advantages

Characteristics

- Rated output voltages 24 V, 48 V DC
- Output voltage adjustable via front-facing 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 operation (see derating note)
- Two-phase operation (25 % derating possible, 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 -40...+70 °C [1)]
- Open-circuit, overload and short-circuit stable
- Integrated input fuse
- Redundancy unit CP-C.1-A-RU (-C) offering true redundancy, available as accessory
- LEDs for status indication
- Signalling contact "13-14" (solid-state) for output voltage OK on 24 V devices
- Various approvals and marks

[1)] 480 W variants: -30...+70°C

Main benefits

Signalling output
Some devices of the CP-T series offer a solid-state output for function monitoring and remote diagnostics.

Wide input range
Optimized for worldwide applications: The CP-T power supplies can be used in 340 - 575 V AC or 480 - 820 V DC supply systems.

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

CP-T range
Operating controls

Indication of operational states
- OUTPUT OK: green LED - green LED - output voltage OK
- OUTPUT LOW: red LED - output voltage too low

Circuit diagram

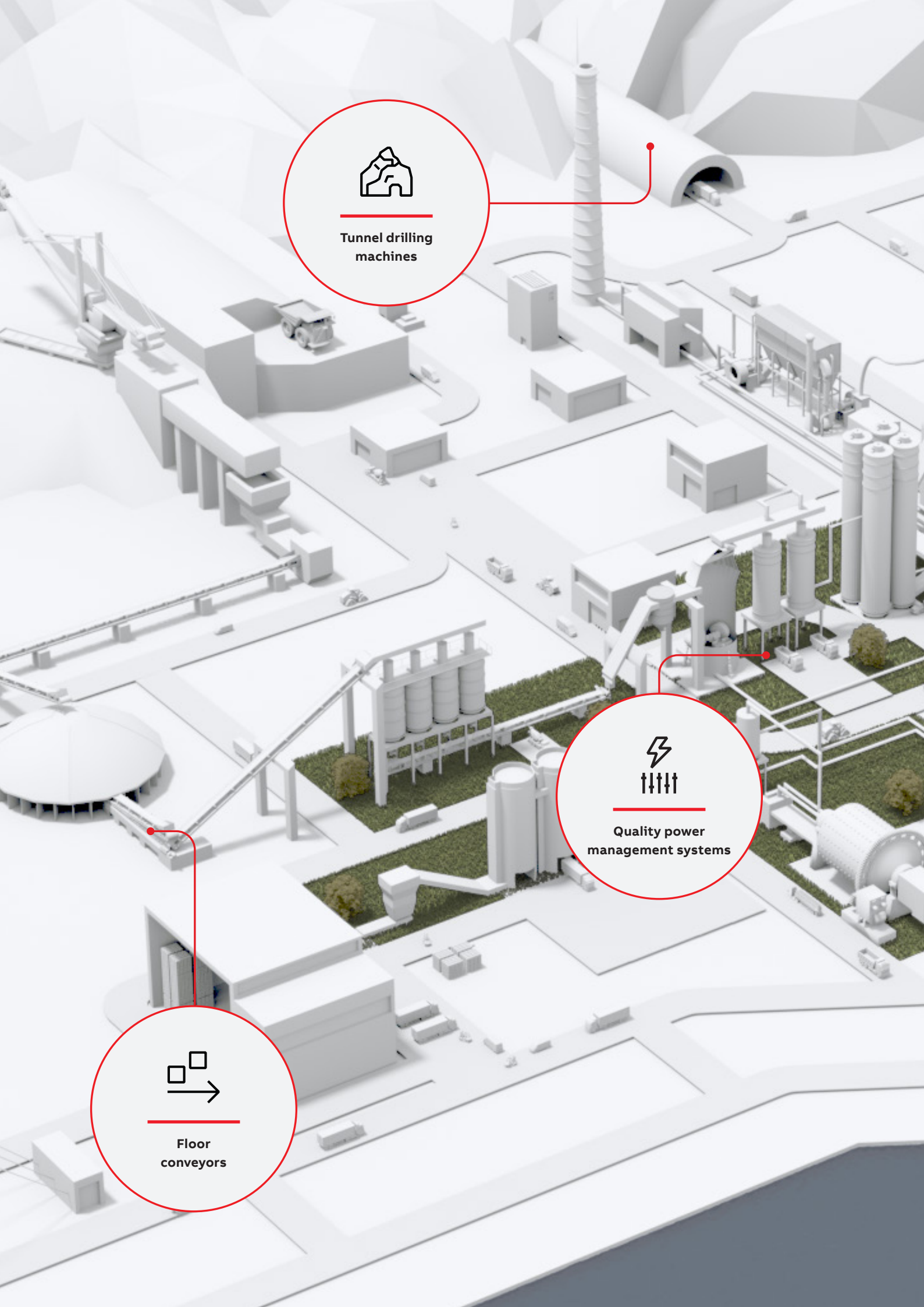
INPUT L1, L2, L3, PE: Terminals - input
340-575 V AC / 480-820 V DC

OUTPUT Adjust: Potentiometer - adjustment of output voltage 22.5...28.5V DC

Single/parallel: Sliding switch - adjustment of single or parallel operation

OUTPUT L+, L+, L-, L-: Terminals - output
24 V DC, 48 V DC

13-14: Terminals - signalling contact
A solid-state output indicates the error-free operation of the output voltage


Tunnel drilling machines
Quality power management systems
Floor conveyors

CP-T range
Ordering details


2CDC 271 043 S0009

CP-T 24/5.0


2CDC 271 045 S0009

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


2CDC 271 047 S0009

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

Description

In terms of design and functionality, the CP-T range perfectly supplements the existing products and extends the range appropriately. The devices can be supplied with a three-phase voltage as well as with two-phase mains. Here, ABB offers power supply units with 24 V DC and 48 V DC outputs with 5 A, 10 A, 20 A and 40 A and efficiency of up to 93 %.

As in the case of all products, they are designed for an ambient temperature of up to 70 °C. All products can be supplied within an AC supply voltage range between 340 to 575 V AC and a DC supply voltage range between 480 to 820 V DC.

Ordering details

Input voltage range	Rated output voltage / current	Type	Order code	Weight (1 pc.) kg (lb)
340-575 V AC / 480-820 V DC	24 V DC / 5 A	CP-T 24/5.0	1SVR427054R0000	0.80 (1.77)
340-575 V AC / 480-820 V DC	24 V DC / 10 A	CP-T 24/10.0	1SVR427055R0000	1.05 (2.31)
340-575 V AC / 480-820 V DC	24 V DC / 20 A	CP-T 24/20.0	1SVR427056R0000	1.75 (3.86)
340-575 V AC / 480-820 V DC	24 V DC / 40 A	CP-T 24/40.0	1SVR427057R0000	3.20 (7.05)
340-575 V AC / 480-820 V DC	48 V DC / 5 A	CP-T 48/5.0	1SVR427054R2000	1.05 (2.31)
340-575 V AC / 480-820 V DC	48 V DC / 10 A	CP-T 48/10.0	1SVR427055R2000	1.75 (3.86)
340-575 V AC / 480-820 V DC	48 V DC / 20 A	CP-T 48/20.0	1SVR427056R2000	3.40 (7.50)

CP-T range
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 input current		0.36 A	0.65 A	1.1 A	1.72 A
Typical power consumption		135 W	270 W	538 W	1058 W
Inrush current	typ.	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		T 3.15 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 when the output voltage > 75 % of the rated output voltage			
	OUTPUT LOW: red LED	output voltage too low when the output voltage < 70 % of the rated output voltage			
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	$T_a \leq 60$ °C	5 A	10 A	20 A	40 A
Derating of the output current	60 °C < $T_a \leq$ 70 °C	2.5 %/°C			3.5 %/°C
Signalling contact for output voltage OK	13-14	solid-state (max. 60 V DC, 0.3 A)			
	Threshold	17.6-19.4 V			
	Insulation voltage	500 V DC			
Mininum fuse rating to achieve short-circuit protection	13-14	≥ 60 V DC, ≤ 0.3 A fast-acting			
Maximum deviation with	load change statical	±1 %	±1 % (single mode)		
		-	±5 % (parallel mode)		
	change of output voltage within the input voltage range	± 0.5 %			
Recovery time T_A	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, min. 0.1 I_r - max 0.9 I_r		to increase power, up to 2 devices, min. 0.1 I_r - max. 0.9 I_r,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 behavior					
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 behavior		current limiting			
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

CP-T range
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
General data					
Efficiency		typ. 89 %	typ. 90 %		typ. 92 %
Duty cycle		100 %			
Dimensions		see “Dimensional drawings”			
Material of housing		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	housing / terminals	IP20 / IP20			
Protection class		I			
Electrical connection - input circuit / output circuit / signalling circuit					
Connecting capacity	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	0.2-6 mm² (24-10 AWG)			
Stripping length		8 mm (0.31 in)			
Tightening torque	input / output	1 Nm (9 lb.in) / 0.6 Nm (5.5 lb.in)			1 Nm (9 lb.in) / 1.8 Nm (15.6 lb.in)
Environmental data					
Ambient temperature range	operation	-40...+70 °C		-30...+70 °C	-40...+70 °C
	rated load	-40...+60 °C		-30...+60 °C	-40...+60 °C
	storage	-40...+85 °C			
Altitude during operation	IEC/EN 60068-2-13	max. 5000 m			
Damp heat (cyclic) (IEC/EN 60068-2-30)		95 % without condensation			
Vibration (sinusoidal) (IEC/EN 60068-2-6)		10-500 Hz, 2G, each along X, Y, Z axes 60 min / cycle			
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			
	output / PE	0.5 kV AC; 0.71 kV DC			
	signalling output / PE	0.5 kV DC			
Pollution degree		2			
Standards / Directives					
Standards		IEC/EN 60950-1			
Low Voltage Directive		2014/35/EU			
EMC Directive		2014/30/EU			
RoHS Directive		2011/65/EU			
Protective low voltage		SELV (IEC/EN 60950-1)			
Electromagnetic compatibility					
Interference immunity to		IEC/EN 61000-6-2			
electrostatic discharge	IEC/EN 61000-4-2	level 4 (air discharge 15 kV / contact discharge 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 / 2.5 kHz)	level 4 (4 kV / 5 kHz)		
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)			
power frequency magnetic fields	IEC/EN 61000-4-8	level 4 (30 A/m)			
voltage dips, short interruptions and voltage variations	IEC/EN 61000-4-11	dips: >95 % 0.5 ms / >30 % 0.5 ms, interruptions: >95 % 250 ms			
Interference emission		IEC/EN 61000-6-3			
high-frequency radiated		class B			
high-frequency conducted		class B			
limits for harmonic current emissions	IEC/EN 61000-3-2	class A			

CP-T range
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 range		340-575 V AC		
		480-820 V DC		
Frequency range AC		47-63 Hz		
Typical input current		0.65 A	1.1 A	1.72 A
Typical power consumption		264 W	535 W	1050 W
Inrush current	typ.	20 A		30 A
Power failure buffering time		min. 20 ms		min. 15 ms
Internal input fuse	per phase	2 A / 600 V AC	T 3.15 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 when the output voltage > 75 % of the rated output voltage		
	OUTPUT LOW: red LED	output voltage too low when the output voltage < 70 % of the rated output voltage		
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 %		
Recovery time T_A	at rated load	< 2 ms		
Starting time after applying the supply voltage	at I_r	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, min. 0.1 I_r - max 0.9 I_r		to increase power, up to 2 devices, min. 0.1 I_r - max. 0.9 I_r, 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 behavior				
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 behavior		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		

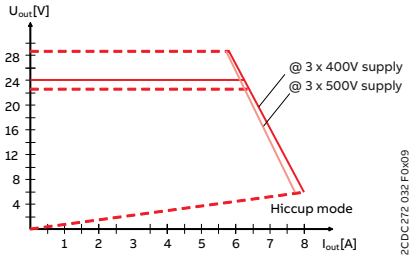
CP-T range
Technical data

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

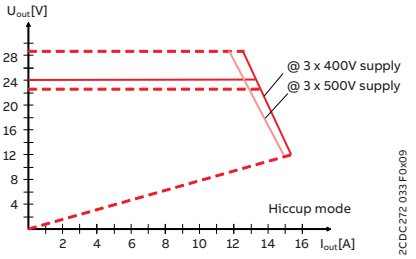
Type		CP-T 48/5.0	CP-T 48/10.0	CP-T 48/20.0
General data				
Efficiency		typ. 91 %		typ. 93 %
Duty cycle		100%		
Dimensions		see “Dimensional drawings”		
Material of housing		Metal		
Mounting		DIN rail (IEC/EN 60715), snap-on mounting without any tool		
Mounting position		horizontal		
Minimum distance to other units	horizontal / vertical	25 mm / 25 mm (0.98 in / 0.98 in)		
Degree of protection	housing / terminals	IP20 / IP20		
Protection class		I		
Electrical connection - input circuit / output circuit				
Connecting capacity	fine-strand with wire end ferrule	0.2-4 mm² (24-11 AWG)		0.2-4 mm² (24-11 AWG) / 0.5-10 mm² (20-8 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 (9 lb.in) / 0.6 Nm (5.5 lb.in)		1 Nm (9 lb.in) / 1.8 Nm (15.6 lb.in)
Environmental data				
Ambient temperature range	operation	-40…+70 °C	-30…+70 °C	-40…+70 °C
	rated load	-40…+60 °C	-30…+60 °C	-40…+60 °C
	storage	-40…+85 °C	-40…+85 °C	-40…+85 °C
Altitude during operation	IEC/EN 60068-2-13	max. 5000 m		
Damp heat (cyclic) (IEC/EN 60068-2-30)		95 % without condensation		
Vibration (sinusoidal) (IEC/EN 60068-2-6)		10-500 Hz, 2G, each along X, Y, Z axes 6 min / cycle		
Shock (half-sine) (IEC/EN 60068-2-27)		15G, 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		
	output / PE	0.5 kV AC; 0.71 kV DC		
Pollution degree		2		
Standards / Directives				
Standards		IEC/EN 60950-1		
Low Voltage Directive		2014/35/EU		
EMC Directive		2014/30/EU		
RoHS Directive		2011/65/EU		
Protective low voltage		SELV (IEC/EN 60950-1)		
Electromagnetic compatibility				
Interference immunity to		IEC/EN 61000-6-2		
electrostatic discharge	IEC/EN 61000-4-2	level 4 (air discharge 15 kV / contact discharge 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 / 5 kHz)		
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)		
power frequency magnetic fields	IEC/EN 61000-4-8	level 4 (30 A/m)		
voltage dips, short interruptions and voltage variations	IEC/EN 61000-4-11	dips: >95 % 0.5 ms / >30 % 0.5 ms interruptions: >95 % 250 ms		
Interference emission		IEC/EN 61000-6-3		
high-frequency radiated		class B		
high-frequency conducted		class B		
limits for harmonic current emissions	IEC/EN 61000-3-2	class A		

CP-T range
Technical diagrams

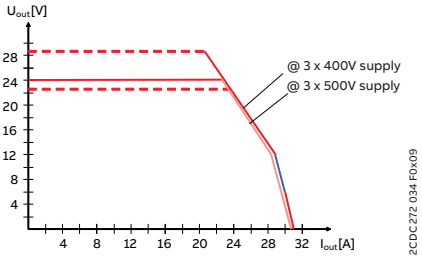
Output curves at T_a = 25 °C



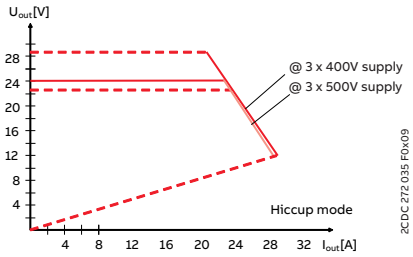
CP-T 24/5.0



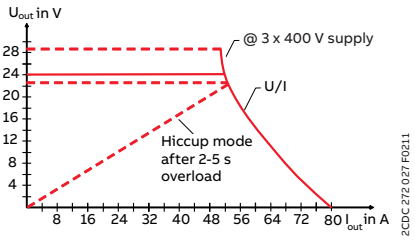
CP-T 24/10.0



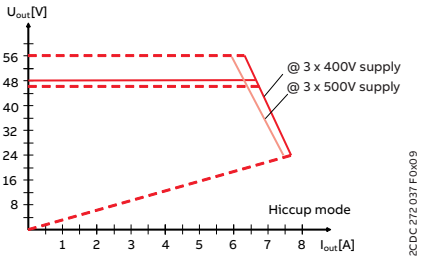
CP-T 24/20.0 U/I curve



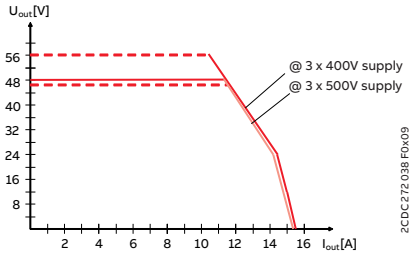
CP-T 24/20.0 Hiccup mode



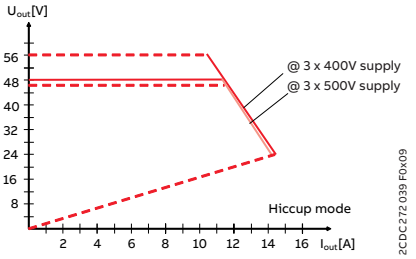
CP-T 24/40.0



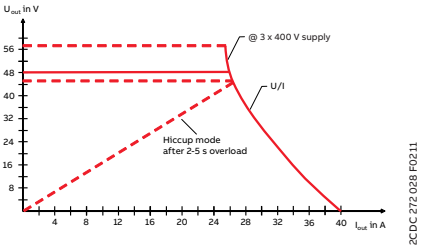
CP-T 48/5.0



CP-T 48/10.0 U/I curve

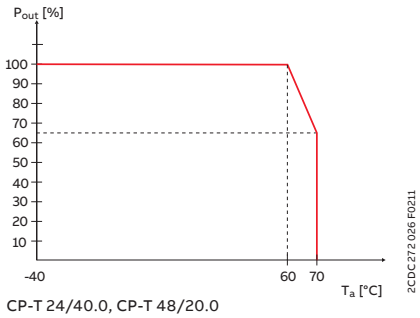


CP-T 48/10.0 Hiccup mode

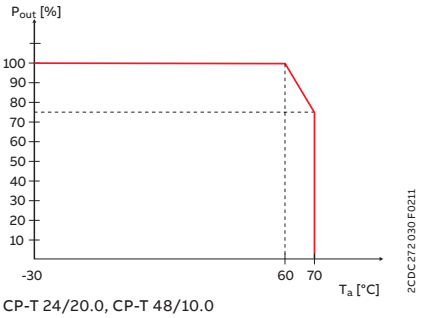


CP-T 48/20.0

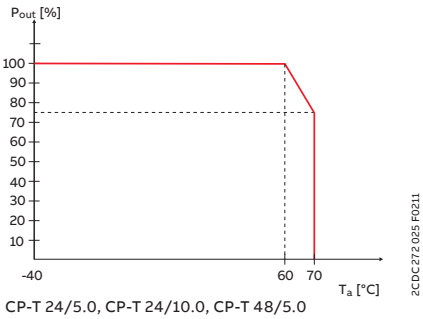
Temperature curves at rated load



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



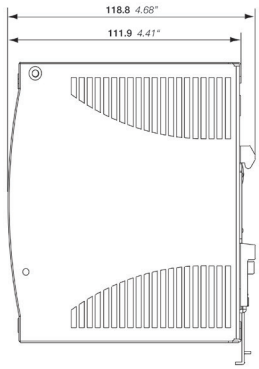
CP-T 24/20.0, CP-T 48/10.0

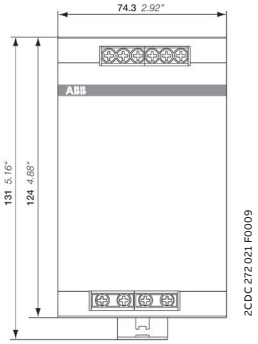


CP-T 24/5.0, CP-T 24/10.0, CP-T 48/5.0

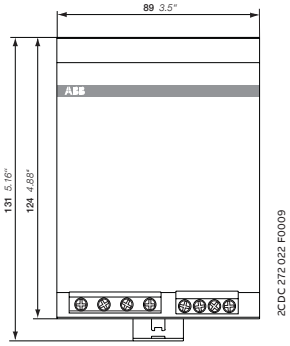
CP-T range
Technical diagrams

Dimensional drawings
Dimensions in **mm** and inches

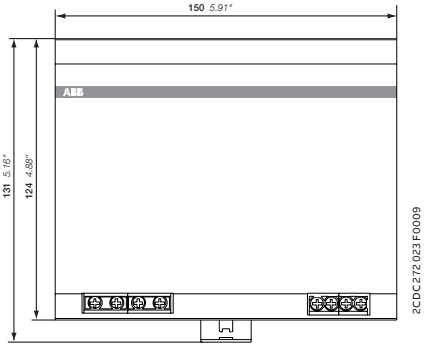




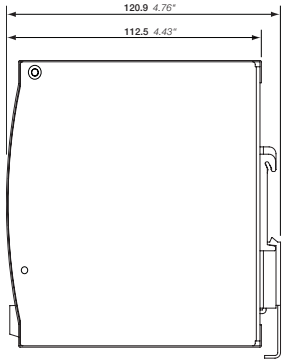
CP-T 24/5.0

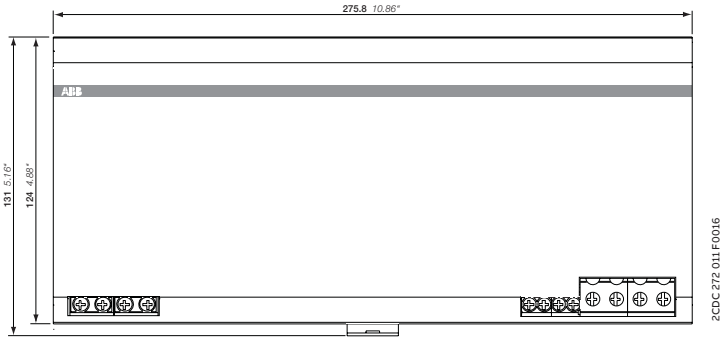


CP-T 24/10.0, CP-T 48/5.0



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





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