

CP-T range
Product group picture

3



CP-T range

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CP-T range

Benefits and advantages

Characteristics

- 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 -40...+70 °C ¹⁾
- 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" (solid state) for output voltage OK
- Approvals / marks (depending on device, partly pending):



¹⁾ 480 W variants: -30...+70°C

Benefits

Signalling output ①

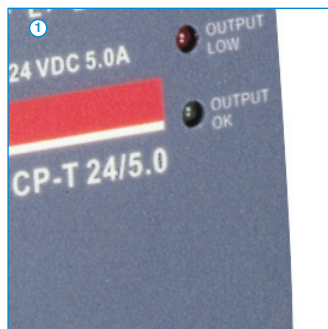
The devices of the CP-T series offer a solid state output for function monitoring and remote diagnostics.

Wide input range

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

Adjustable output voltage ②

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.



CP-T range

Ordering details



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

Description

The CP-T range of three-phase power supply units is the youngest member of ABB's power supply family. In terms of design and functionality, the new 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 92 %. 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 a AC supply voltage range between 340 to 575 V AC and an DC supply voltage range between 480 to 820VDC.

Ordering details

Input voltage range	Rated output voltage / current	Type	Order code	Price 1 pce	Weight (1 pce) 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)

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

suitable for decoupling of two CP-24 V DC power supply units	Description	Type	Order code	Price	Weight (1 pce) kg (lb)
≤ 40 V and ≥ 5 A	2 inputs each up to 20 A and 1 output up to 40 A	CP-A RU	1SVR427071R0000		0.89 (1.96)

CP-T range

Technical data

Data at $T_a = 25\text{ }^{\circ}\text{C}$, $U_{in} = 3 \times 400\text{ V AC}$ 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			
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 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	
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_L	5 A	10 A	20 A	40 A
Derating of the output current	Ta ≤ 60 °C		2.5 %/°C	
Signalling contact	solid state (max. 60 V DC, 0.3 A)			
for output voltage OK	Threshold 17.6-19.4 V			
	Insulation voltage 500 V DC			
Minimum fuse rating to achieve short-circuit protection	13-14 ≥ 60 V DC, ≤ 0.3 A fast-acting			
Maximum deviation with	load change statical	± 1 % (single mode)		
	change of output voltage within the input voltage range	± 5 % (parallel mode)		
Control time	at nominal load	< 2 ms		
Starting time after applying the supply voltage	at I_r	max. 1 s		
Rise time	with 3500 µF	max. 1.5 s		
	at nominal load	max. 150 ms		
Fall time	with 3500 µF	max. 500 ms		
Residual ripple and switching peaks	BW = 20 MHz	max. 150 ms		
Parallel connection	not supported	configurable, to increase power, up to 2 devices, min. 0.1 I_L - max 0.9 I_L)		to increase power, up to 2 devices
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			
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	0.78 kg (1.72 lb)	1.045 kg (2.30 lb)	1.657 kg (3.653 lb)	3.275 kg (7.220 lb)
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			

CP-T range

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
Electrical connection - input circuit / output circuit / signalling circuit					
Wire size					Input circuit L1, L2, L3: 0.2-4 mm² (24-11 AWG) Output circuit L+, L+, L-, L-: 0.5-10 mm² (20-8 AWG) Signalling circuit: 0.2-4 mm² (24-11 AWG)
	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)			Input circuit L1, L2, L3: 0.2-6 mm² (24-10 AWG) Output circuit L+, L+, L-, L-: 0.5-16 mm² (20-6 AWG) Signalling circuit: 0.2-6 mm² (24-10 AWG)
	rigid	0.2-6 mm² (24-10 AWG)			Input circuit L1, L2, L3: 0.2-6 mm² (24-10 AWG) Output circuit L+, L+, L-, L-: 0.5-16 mm² (20-6 AWG) Signalling circuit: 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		
Damp heat (cyclic) (IEC/EN 60068-2-30)		95 % without condensation			
Vibration (sinusoidal) (IEC/EN 60068-2-6)		2 g, 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		
Pollution degree		2			
Standards					
Product standard		EN 61204-3			
Low Voltage Directive		2006/95/EC			
EMC directive		2004/108/EC			
RoHS directive		2002/95/EC			
Electrical safety		EN 60950-1, UL 60950-1, UL 508, EN 61558-1, EN 61558-2-17; EN 60204-1			
Protective low voltage		SELV			
Electromagnetic compatibility					
Interference immunity to electrostatic discharge		IEC/EN 61000-4-2	IEC/EN 61000-6-2 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		IEC/CISPR 22, EN 55022	Class B		
high-frequency conducted		IEC/CISPR 22, EN 55022	Class B		
limits for harmonic current emissions		IEC/EN 61000-3-2	Class A		

„Approvals and marks“ on page 3/4.

CP-T range

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 _i		3 x 400-500 V AC		
Input voltage ranget		340-575 V AC		
Frequency range AC		480-820 V DC		
Typical input current		0.65 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
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 _L		5 A	10 A	20 A
Derating of the output current		T _a ≤ 60 °C		60 °C < T _a ≤ 70 °C
Maximum deviation with		load change statical		±1 % (single mode)
		change of output voltage within the input voltage range		± 5 % (parallel mode)
Control time		at rated load		< 2 ms
Starting time after applying the supply voltage		at I _r		max. 1 s
Rise time		with 7000 µF		max. 1.5 s
Fall time		at rated load		max. 150 ms
Residual ripple and switching peaks		with 7000 µF		max. 500 ms
Parallel connection		max. 150 ms		max. 150 ms
Series connection		BW = 20 MHz		100 mV
Resistance to reverse feed		configurable, to increase power, up to 2 devices, min. 0.1 I _r - max 0.9 I _r)		80 mV
		yes, to increase voltage, max. 2 devices		to increase power, up to 2 devices
Output circuit - No-load, overload and short-circuit behaviour		approx. 35 V		approx. 63 V
Characteristic curve of output		approx. 63 V		approx. 63 V
Short-circuit protection		combined U/I and hiccup mode		U/I or hiccup mode, configurable
Short-circuit behaviour		continuous short-circuit proof		hiccup mode / fold back behavior
Overload protection		current limiting		
No-load protection		hiccup mode		
Over temperature protection		continuous no-load stability		
Starting of capacitive loads		yes, automatic recovery after temperature went down		
General data		7000 µF		
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		1.045 kg (2.30 lb)	1.657 kg (3.653 lb)	3.275 kg (7.22 lb)
Material of housing		Metal		
Mounting		DIN rail (IEC EN 60715), snap-on mounting without any tool		
Mounting position		horizontal		
Minimum distance to other units		25 mm / 25 mm (0.98 in / 0.98 in)		
Degree of protection		IP20 / IP20		
Protection class		I		

CP-T range

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
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 (20-8 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
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		
Pollution degree		2		
Standards				
Product standard		EN 61204-3		
Low Voltage Directive		2006/95/EC		
EMC directive		2004/108/EC		
RoHS directive		2002/95/EC		
Electrical safety		EN 60950-1, UL 60950-1, UL 508, EN 61558-1, EN 61558-2-17; EN 60204-1		
Protective low voltage		SELV		
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	IEC/CISPR 22, EN 55022	Class B		
high-frequency conducted	IEC/CISPR 22, EN 55022	Class B		
limits for harmonic current emissions	IEC/EN 61000-3-2	Class A		

„Approvals and marks“ on page 3/4.

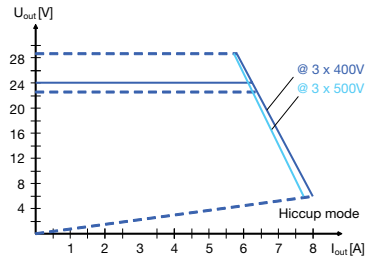
CP-T range

Technical diagrams, Dimensional drawings

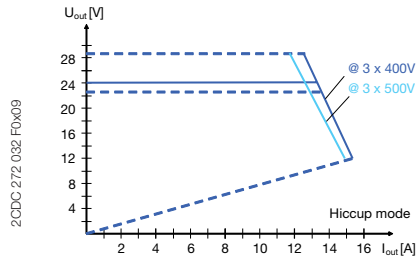
Technical diagrams

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

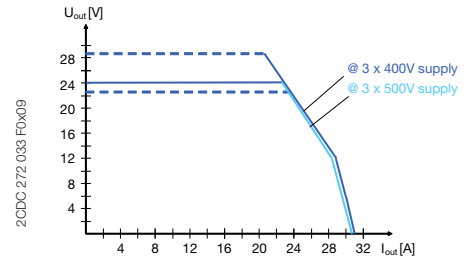
dimensions in mm



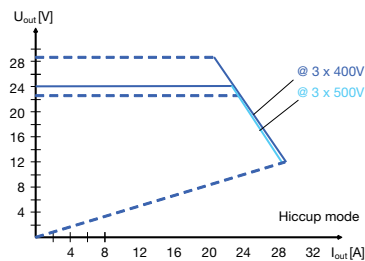
CP-T 24/5.0



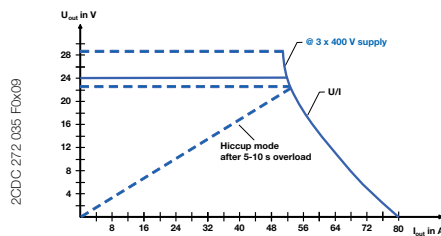
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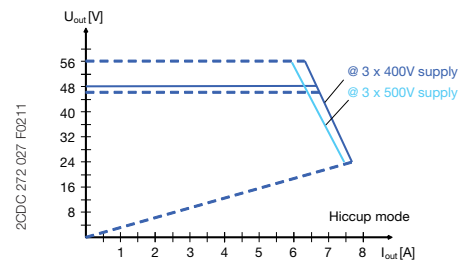
CP-T 24/20.0 U/I curve



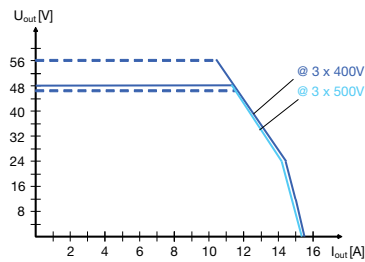
CP-T 24/20.0 Hiccup mode



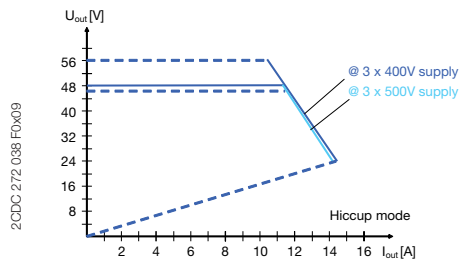
CP-T 24/40.0



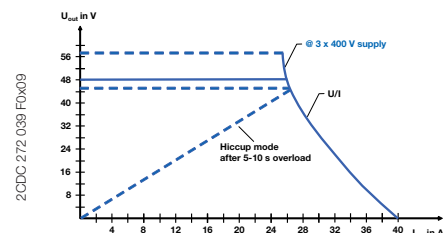
CP-T 48/5.0



CP-T 48/10.0 U/I curve



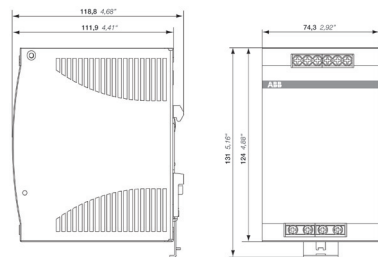
CP-T 48/10.0 Hiccup mode



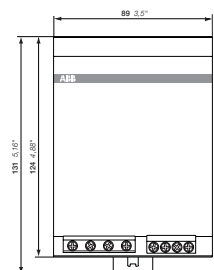
CP-T 48/20.0

Dimensional drawings

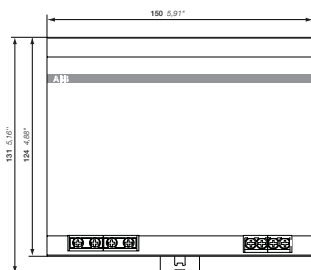
dimensions in mm



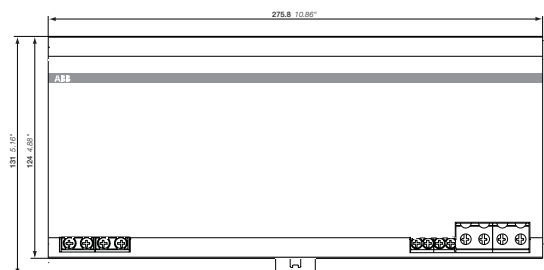
CP-T 24/5.0



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



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

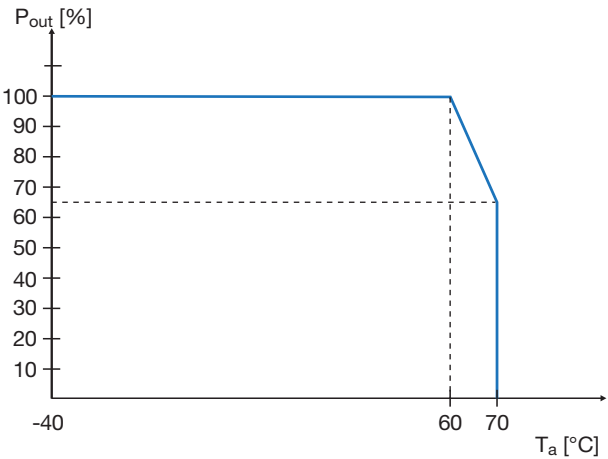


CP-T 24/40.0, CP-T 48/20.0

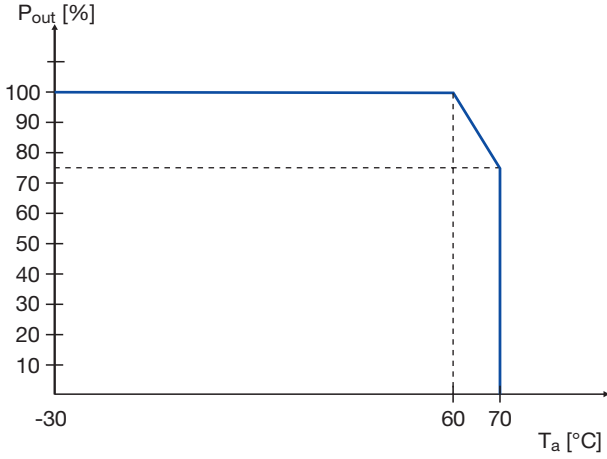
CP-T range

Technical diagrams, Dimensional drawings

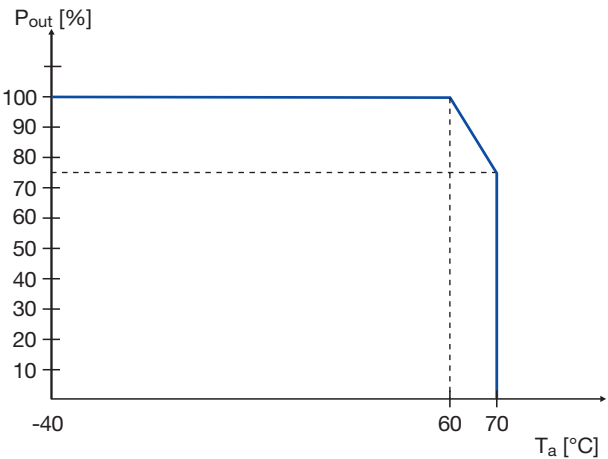
Temperature curve at rated load



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