

# FICHA DEL PRODUCTO

ITEM:

CÓDIGO:

IMAGEN:



DESCRIPCIÓN  
APLICACIÓN:

Gama CP-E

La gama CP-E ofrece una funcionalidad mejorada. A su vez, ha habido una reducción considerable en el número de tipos. Ahora todas las unidades de alimentación se pueden operar a una temperatura ambiente de hasta +70 °C.

Principales ventajas

Los dispositivos de 24 V > 18 W de la gama CP-E cuentan con una salida/contacto para monitorizar la tensión de salida y realizar el diagnóstico remoto.

Optimizadas para aplicaciones en todo el mundo: las fuentes de alimentación CP-E se pueden suministrar con una amplia gama de tensiones CA o CC.

La tensión de salida se puede ajustar continuamente. Por lo tanto, se pueden adaptar de manera óptima a la aplicación deseada, p. ej.: para compensar la caída de tensión provocada por una longitud de línea larga.

Para desacoplar unidades de alimentación en paralelo de 40 V como máximo, hay disponibles módulos de redundancia que permiten alcanzar una redundancia verdadera.

Características principales

Tensiones de salida ajustables: 5 V, 12 V, 24 V, 48 V CC.

Corrientes de salida: 0,625 A / 0,75 A / 1,25 A / 2,5 A / 3 A / 5 A / 10 A / 20 A.

Gama de potencia: 15 W, 18 W, 30 W, 60 W, 120 W, 240 W, 480 W.

Alta eficiencia: hasta el 90 %.

Disipación de potencia baja y poco calentamiento.

Intervalo de temperatura ambiente durante el funcionamiento: -40...+70 °C.

# CP-E range

## Benefits and advantages

3

### Characteristics

- 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 operation -40...+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  
Solid-state on 24 V devices  $\geq$  120 W
- Approvals / Marks  
(depending on device, partly pending):



### Benefits

#### Signalling output/contact ①

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

#### Wide range input ②

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

#### Adjustable output voltage ③

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.

#### Redundancy units ④

For decoupling of parallelized power supply units  $\leq$  40 V. Thus, true redundancy can be achieved.  
Further information about redundancy unit on page 51.






- 1** INPUT L, N, PE: terminals - input
- 2** Circuit diagram
- 3** single/parallel: sliding switch - adjustment of single or parallel operation
- 4** Indication of operational states  
DC ON: green LED - green LED - output voltage OK  
DC LOW: red LED - output voltage too low
- 5** OUTPUT L+, L+, L-, L-: terminals - output
- 6** OUTPUT Adjust: potentiometer - adjustment of output voltage

# CP-E range

## Technical data

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

Type		CP-E 24/0.75	CP-E 24/1.25	CP-E 24/2.5
<b>Input circuit</b>		<b>L, N</b>		
Rated input voltage $U_n$		100-240 V AC		
Input voltage range		90-264 V AC / 120-375 V DC	85-264 V AC / 90-375 V DC	
Frequency range AC		47-63 Hz		
Typical input current	at 115 V AC	335 mA	560 mA	1060 mA
	at 230 V AC	210 mA	330 mA	590 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)	20 A (max. 3 ms)
	at 230 V AC	18 A (max. 3 ms)	40 A (max. 3 ms)	40 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		
<b>Indication of operational states</b>				
Output voltage	green LED	OK:  : output voltage OK	OUTPUT OK:  : output voltage OK	
	red LED	LOW:  : output voltage too low	-	-
<b>Output circuit</b>		<b>L+, L-</b>		<b>L+, L+, L-, L-</b>
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 $I_o$	$T_a \leq 60\text{ °C}$	0.75 A	1.25 A	2.5 A
	$60\text{ °C} < T_a \leq 70\text{ °C}$	2.5 %/°C		
Derating of the output current				
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 $I_o$	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		
<b>Output circuit - No-load, overload and short-circuit behaviour</b>				
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

# CP-E range

## Technical data

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



Type		CP-E 24/0.75	CP-E 24/1.25	CP-E 24/2.5
<b>General data</b>				
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)		22.5 x 90 x 114 mm (0.89 x 3.54 x 4.49 in)	40.5 x 90 x 114 mm (1.59 x 3.54 x 4.49 in)	
Weight		0.143 kg (0.315 lb)	0.270 kg (0.60 lb)	0.331 kg (0.73 lb)
Material of housing		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	housing / terminals	IP20 / IP20		
Protection class		I		
<b>Electrical connection - input circuit / output circuit</b>				
Wire size	fine-strand with wire end ferrule fine-strand without wire end ferrule rigid	0.2-2.5 mm <sup>2</sup> (24-14 AWG)		
Stripping length		6 mm (0.24 in)		
Tightening torque	input / output	0.6 Nm (5 lb.in)		
<b>Environmental data</b>				
Ambient temperature range	operation rated load storage	-20...+70 °C -20...+60 °C -20...+85 °C	-40...+70 °C -40...+60 °C -40...+85 °C	
Damp heat (cyclic) (IEC/EN 60068-2-30)		95 % RH, 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		
<b>Isolation data</b>				
Rated insulation voltage $U_i$	input circuit / output circuit input / PE output / PE	3 kV AC 1.5 kV AC 0.5 kV AC; 0.71 kV DC		
Pollution degree		2		
Overtension category (UL/IEC/EN 60950-1)		II		
<b>Standards</b>				
Product standard		EN 61204-3		
Low Voltage Directive		2006/95/EC		
EMC directive		2004/108/EC		
RoHS directive		2002/95/EC		
Electrical safety		EN 50178, EN 60950-1, UL 60950-1, UL 508	EN 60950-1, UL 60950-1, UL 508, EN 61558-1, EN 61558-2-17; EN 60204-1	
Protective low voltage		SELV (EN 60950)		
<b>Electromagnetic compatibility</b>				
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	dip: >95 % 10 ms / >30 % 500 ms, interruptions: >95 % 5000 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 D	Class A	

„Approvals and marks“ on page 3/4.

# CP-E range

## Technical data

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

Type		CP-E 24/5.0	CP-E 24/10.0	CP-E 24/20.0
<b>Input circuit</b>		<b>L, N</b>		
Rated input voltage $U_{in}$		115 / 230 V AC auto select		115-230 V AC
Input voltage range		90-132 V AC, 180-264 V AC / 210-375 V DC	90-132 V AC, 180-264 V AC / 210-375 V DC	90-264 V AC, 120-375 V DC
Frequency range AC		47-63 Hz		
Typical input current	at 115 V AC	2.2 A	4.0 A	4.9 A
	at 230 V AC	0.83 A	1.55 A	2.5 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		
	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
<b>Indication of operational states</b>				
Output voltage	green LED	OUTPUT OK:  : output voltage OK		
	red LED	OUTPUT LOW:  : output voltage too low		
<b>Output circuit</b>		<b>L+, L+, L-, L-</b>		
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 $I_L$	$T_a \leq 60\text{ °C}$	5 A	10 A	-
	$T_a \leq 55\text{ °C}$	-	-	20 A
Derating of the output current	$60\text{ °C} < T_a \leq 70\text{ °C}$	2.5 %/°C		-
	$55\text{ °C} < T_a \leq 70\text{ °C}$	-	-	2.5 %/°C
Signalling contact for output voltage OK	13-14	solid-state (max. 60 V DC, 0.3 A)		
Minimum fuse rating to achieve short-circuit protection	13-14	$\geq 60\text{ V DC}$ , $\leq 0.3\text{ A}$ fast-acting		
Maximum deviation with	load change statical	$\pm 1\%$ (single mode), $\pm 5\%$ (parallel mode)		
	change of output voltage within the input voltage range	$\pm 0.5\%$		
Control time		< 2 ms		
Starting time after applying the supply voltage	at $I_L$	max. 1 s		
	with 3500 $\mu\text{F}$	max. 1.5 s	-	-
	with 7000 $\mu\text{F}$	-	max. 1.5 s	
Rise time	at rated load	max. 150 ms		
	with 3500 $\mu\text{F}$	max. 500 ms	-	-
	with 7000 $\mu\text{F}$	-	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 $I_L$ - max. 0.9 $I_L$		
Series connection		yes, to increase voltage, max. 2 devices		
Resistance to reverse feed		max. 35 V DC		
<b>Output circuit - No-load, overload and short-circuit behaviour</b>				
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 $\mu\text{F}$	7000 $\mu\text{F}$	

# CP-E range

## Technical data

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

Type		CP-E 24/5.0	CP-E 24/10.0	CP-E 24/20.0
<b>General data</b>				
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 (1.945 lb)	1.334 kg (2.941 lb)	1.850 kg (4.079 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		
<b>Electrical connection - input circuit / output circuit</b>				
Wire size	fine-strand with wire end ferrule	0.2-4 mm <sup>2</sup> (24-11 AWG)		
	fine-strand without wire end ferrule	0.2-6 mm <sup>2</sup> (24-10 AWG)		
	rigid			
Stripping length		8 mm (0.31 in)		
Tightening torque	input / output	1.0 Nm (9 lb.in) / 0.62 Nm (5.5 lb.in)		
<b>Environmental data</b>				
Ambient temperature range	operation	-35...+70 °C	-40...+70 °C	
	rated load	-35...+60 °C	-40...+60 °C	-40...+55 °C
	storage	-40...+85 °C	-40...+85 °C	
Damp heat (cyclic) (IEC/EN 60068-2-30)		95 %RH, 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		
<b>Isolation data</b>				
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 contact / PE	0.5 kV DC		
Pollution degree		2		
Overvoltage category (UL/IEC/EN 60950-1)		II		
<b>Standards</b>				
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 (EN 60950)		
<b>Electromagnetic compatibility</b>				
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)	Level 4 (4 kV / 2.5 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	dip: >95 % 10 ms / >30 % 500 ms interruptions: >95 % 5000 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		Class D		

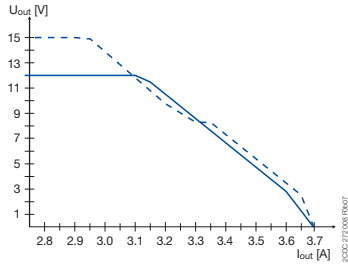
„Approvals and marks“ on page 3/4.

# CP-E range

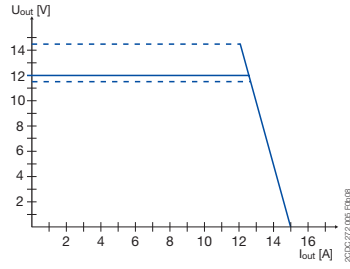
## Technical diagrams, Wiring instructions

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

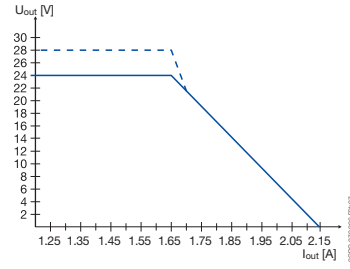
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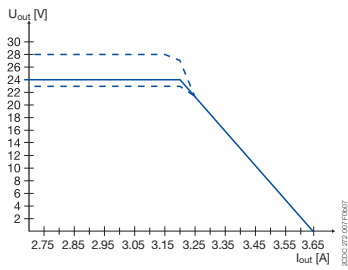
CP-E 12/2.5



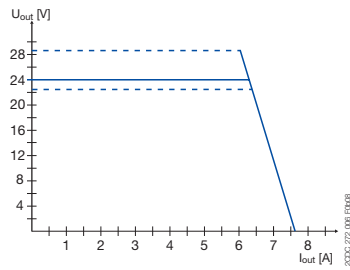
CP-E 12/10.0



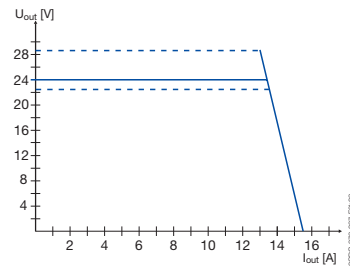
CP-E 24/1.25



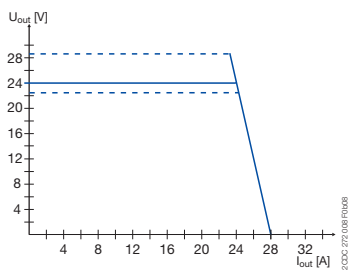
CP-E 24/2.5



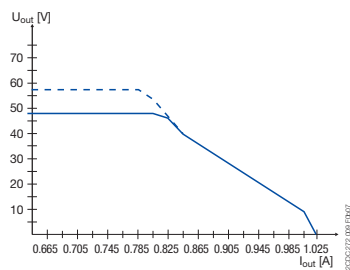
CP-E 24/5.0



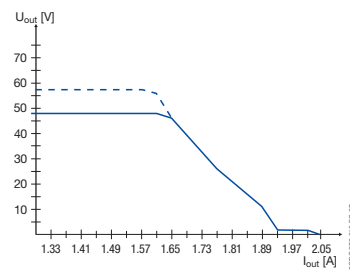
CP-E 24/10.0



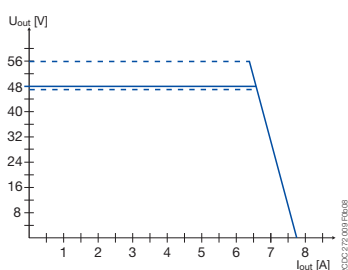
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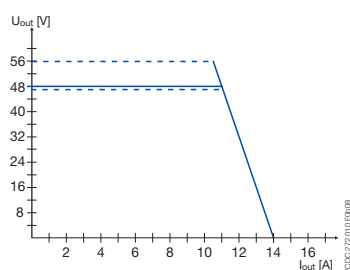
CP-E 48/0.62



CP-E 48/1.25

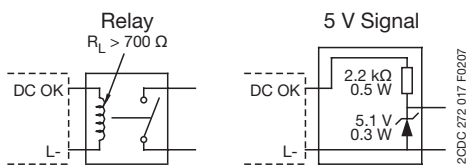


CP-E 48/5.0



CP-E 48/10.0

## Wiring instructions

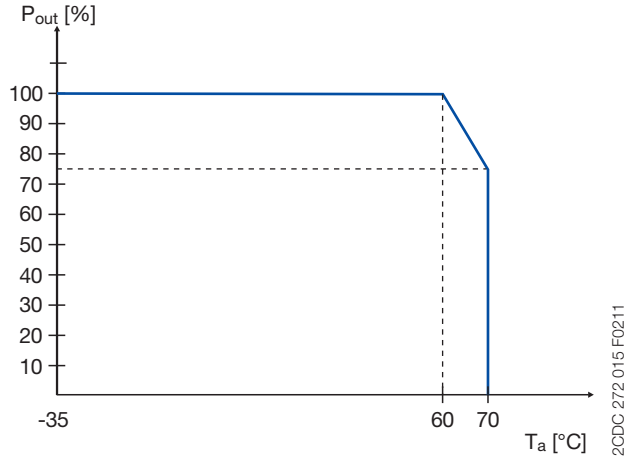


CP-E 24/1.25, CP-E 24/2.5

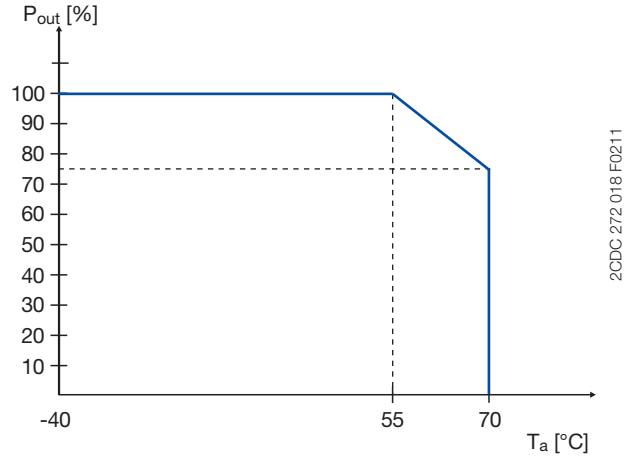
# CP-E range

## Technical diagrams, Dimensional drawings

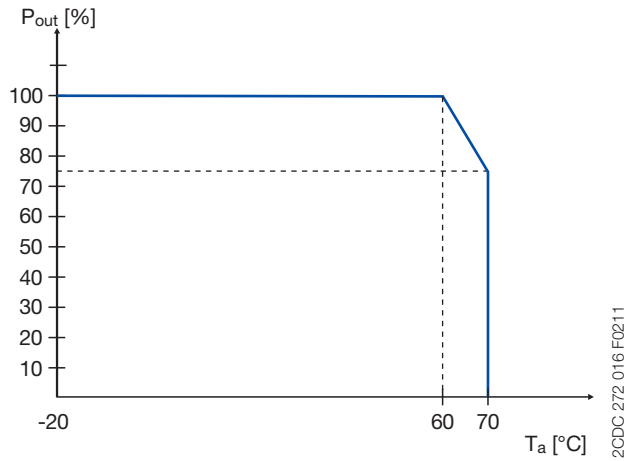
Temperature behaviour at  $T_a = 25\text{ }^\circ\text{C}$



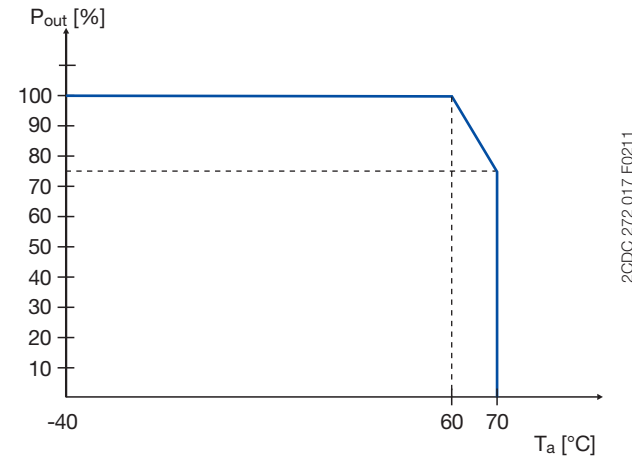
CP-E 12/10.0, CP-E 24/5.0



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

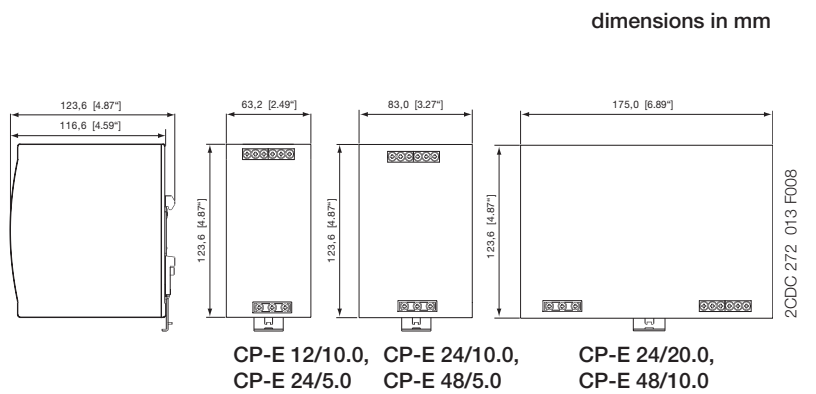
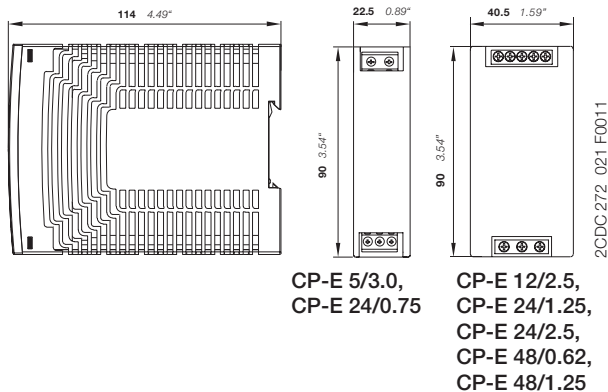


CP-E 5/3.0, CP-E 24/0.75



CP-E 12/2.5, CP-E 24/1.25, CP-E 48/0.62,  
CP-E 24/2.5, CP-E 48/1.25, CP-E 24/10.0, CP-E 48/5.0

### Dimensional drawings



dimensions in mm