



Switched mode power supplies CP-E Range



“DC OK” output

The CP-E range 24 V devices > 18 W offer a semiconductor output for function monitoring and remote diagnosis.



Wide range input

Optimized for world-wide applications: The CP-E power supplies can be supplied with 85-265 V AC or 90-375 V DC.



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.

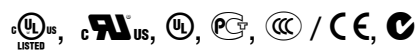


Redundancy unit CP-RUD 1SVR 423 418 R9000

For decoupling of paralleled power supply units. Thus, true redundancy can be achieved.



- 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
- Power range 15 W, 18 W, 30 W, 60 W
- Wide range input 100-240 V AC
(90-265 V AC / 120-370 V DC, 85-265 V AC / 90-375 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 -10...+70 °C
- Open-circuit, overload and short-circuit stable
- Integrated input fuse
- U/I characteristic curve for devices > 18 W
(fold-forward behavior at overload – no switch-off)
- Redundancy unit CP-RUD offering true redundancy
- LED(s) for status indication
- Signalling output (transistor) for output voltage OK on 24 V devices > 18 W
- Approvals / Marks
(depending on device, partly pending):



Switched mode power supplies CP-E



CP-E 5/3.0



CP-E 12/2.5



CP-E 24/2.5



CP-E 48/0.62



CP-RUD

Type	Rated input voltage	Rated output voltage / current	Order code	Pack. unit pieces	Weight 1 piece kg / lb
CP-E 5/3.0	100-240 V AC	5 V DC / 3.0 A	1SVR 427 033 R3000	1	0.15 / 0.33
CP-E 12/2.5	100-240 V AC	12 V DC / 2.5 A	1SVR 427 032 R1000	1	0.29 / 0.64
CP-E 24/0.75	100-240 V AC	24 V DC / 0.75 A	1SVR 427 030 R0000	1	0.15 / 0.33
CP-E 24/1.25	100-240 V AC	24 V DC / 1.25 A	1SVR 427 031 R0000	1	0.29 / 0.64
CP-E 24/2.5	100-240 V AC	24 V DC / 2.5 A	1SVR 427 032 R0000	1	0.36 / 0.79
CP-E 48/0.62	100-240 V AC	48 V DC / 0.625 A	1SVR 427 030 R2000	1	0.29 / 0.64
CP-E 48/1.25	100-240 V AC	48 V DC / 1.25 A	1SVR 427 031 R2000	1	0.36 / 0.79

Redundancy module

The CP-RUD monitors two CP-E range power supplies with an output current of up to 5 A each. If one power supply fails, CP-RUD automatically switches to the alternate supply without interruption of the load current. Max. voltage 40 V.

Type	Description	Order code	Pack. unit pieces	Weight 1 piece kg / lb
CP-RUD	Redundancy module	1SVR 423 418 R9000	1	0.15 / 0.33

Technical data

CP-E Range

Data at $T_a = 25\text{ °C}$, $U_{IN} = 230\text{ V AC}$ and rated values, if nothing else indicated

Type	CP-E 5/3.0	CP-E 12/2.5	CP-E 24/0.75	CP-E 24/1.25	
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	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 / power consumption	at 110 V AC	310 mA / 19.65 W	580 mA / 35.18 W	336 mA / 22.6 W	568 mA / 36.38 W
	at 230 V AC	183.2 mA / 19.85 W	328 mA / 36.6 W	197.4 mA / 23.0 W	326.6 mA / 37.05 W
Inrush current	18 A (max. 3 ms)	40 A (max. 3 ms)	18 A (max. 3 ms)	40 A (max. 3 ms)	
Power failure buffering	min. 75 ms	min. 30 ms	min. 75 ms	min. 30 ms	
Internal input fuse	2 A slow-acting / 250 V AC				
Indication of operational states					
Output voltage	OK: green LED	V: output voltage OK			
	LOW: red LED	V: output voltage too low	-	V: output voltage too low	-
Output circuit	L+,L-				
Rated output voltage	5 V DC	12 V DC	24 V DC		
Tolerance of the output voltage	±1 %				
Adjustment range of the output voltage	4.7-6 V DC	12-15 V DC	21.6-28.8 V DC	24-28 V DC	
Rated output power	15 W	30 W	18 W	30 W	
Rated output current I_r	T_a m 60 °C 3.0 A	2.5 A	0.75 A	1.25 A	
Derating of the output current	60 °C < T_a m 70 °C 3 %/K	2.5 %/K	3 %/K	2.5 %/K	
Signalling output for output voltage OK	DC OK	-		yes	
Deviation with load change	statical	max. ±2 %	max. 0.5 %	max. ±2 %	max. 0.5 %
	dynamic 10-90 % change of input voltage within the input voltage range	max. ±1 %	max. 0.5 %	max. ±1 %	max. 0.5 %
Control time	< 2 ms				
Starting time after applying the supply voltage	at I_r	max. 1 s			
Response time	at rated load	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	approx. 9 V DC	approx. 18 V DC	approx. 35 V DC		
Power factor correction (PFC)	no				
Output circuit - No-load, overload and short-circuit behavior					
Output curve	Hiccup-mode	U/I curve	Hiccup-mode	U/I curve	
Short-circuit protection	continuous short circuit stability				
Short-circuit behavior	Hiccup-mode	continuation with current limitation	Hiccup-mode	continuation with current limitation	
Overload protection	thermal protec- tion with switch-off and restart	current limitation	thermal protec- tion with switch-off and restart	current limitation	
No-load protection	continuous no-load stability				
Starting of capacitive loads	not possible	unlimited	not possible	unlimited	

Technical data CP-E Range

Data at $T_a = 25\text{ °C}$, $U_{IN} = 230\text{ V AC}$ and rated values, if nothing else indicated

Type	CP-E 5/3.0	CP-E 12/2.5	CP-E 24/0.75	CP-E 24/1.25
General data				
Efficiency	typ. 75 %	typ. 84 %	typ. 77 %	typ. 86 %
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]	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	0.15 kg (0.33 lb)	0.29 kg (0.64 lb)	0.15 kg (0.33 lb)	0.29 kg (0.64 lb)
Material of enclosure	plastic			
Mounting	DIN rail (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 fine-strand without wire end ferrule rigid	0.2-2 mm ² (24-14 AWG)		
Stripping length	6 mm (0.24 in)			
Tightening torque	0.5-0.6 Nm			
Environmental data				
Ambient temperature range	operation	-10...+70 °C		
	full load	-10...+60 °C		
	storage	-25...+85 °C		
Damp heat (cyclic) (IEC/EN 60068-2-30)	4 x 24 cycle, 40 °C, 95 % RH			
Vibration (sinusoidal) (IEC/EN 60068-2-6)	10 m/s ² , 10...500 Hz			
Shock (half-sine) (IEC/EN 60068-2-27)	40 m/s ² , 22 ms, all directions			
Isolation data				
Rated insulation voltage U_i	input circuit / output circuit	3 kV AC		
Pollution category	2			
Standards				
Product standard	EN 61204			
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			
Protective low voltage	SELV (EN 60950)			
Electromagnetic compatibility				
Interference immunity	IEC/EN 61000-6-2			
electrostatic discharge (ESD)	IEC/EN 61000-4-2	Level 4 (8 kV / 15 kV)		
electromagnetic field (HF radiation resistance)	IEC/EN 61000-4-3	Level 3 (10 V/m)		
fast transients (Burst)	IEC/EN 61000-4-4	Level 4 (4 kV)		
powerful impulses (Surge)	IEC/EN 61000-4-5	Level 4 (2 kV / 4 kV)		
HF line emission	IEC/EN 61000-4-6	Level 3 (10 V)		
Interference emission	IEC/EN 61000-6-3			
electromagnetic field (HF radiation resistance)	IEC/CISPR 22, EN 55022	Class B		
HF line emission	IEC/CISPR 22, EN 55022	Class B		

Technical data CP-E Range

Data at $T_a = 25\text{ °C}$, $U_{IN} = 230\text{ V AC}$ and rated values, if nothing else indicated

Type	CP-E 24/2.5	CP-E 48/0.62	CP-E 48/1.25	
Input circuit	L, N			
Rated input voltage U_{IN}	100-240 V AC			
Input voltage range	85-264 V AC / 90-375 V DC			
Frequency range AC	47-63 Hz			
Typical input current / power consumption	at 110 V AC	1080 mA / 69.4 W	566 mA / 35.34 W	1080 mA / 69.2 W
	at 230 V AC	570 mA / 69.0 W	320 mA / 36 W	573 mA / 68.8 W
Inrush current	60 A (max. 3 ms)	40 A (max. 3 ms)	60 A (max. 3 ms)	
Power failure buffering	min. 30 ms			
Internal input fuse	2 A slow-acting / 250 V AC			
Indication of operational states				
Output voltage	OK: green LED	V: output voltage OK		
	LOW: LED rot	-		
Output circuit	L+,L-			
Rated output voltage	24 V DC	48 V DC	48 V DC	
Tolerance of the output voltage	±1 %			
Adjustment range of the output voltage	24-28 V DC	48-55 V DC		
Rated output power	60 W	30 W	60 W	
Rated output current I_r	T_a m 60 °C 2.5 A	0.625 A	1.25 A	
Derating of the output current	60 °C < T_a m 70 °C	2.5 %/K		
Signalling output for output voltage OK	DC OK	yes	-	
Deviation with load change	statical	max. 0.5 %		
	dynamic 10-90 % change of input voltage within the input voltage range	max. ±1 %	max. 0.5 %	max. ±1 %
Control time	< 2 ms			
Starting time after applying the supply voltage	at I_r	max. 1 s		
Response time	at rated load	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	approx. 35 V DC			
Power factor correction (PFC)	no			
Output circuit - No-load, overload and short-circuit behaviour				
Output curve	U/I curve			
Short-circuit protection	continuous short circuit proof			
Short-circuit behaviour	continuation with current limitation			
Overload protection	current limitation			
No-load protection	continuous no-load stability			
Starting of capacitive loads	unlimited			

Technical data CP-E Range

Data at $T_a = 25\text{ °C}$, $U_{IN} = 230\text{ V AC}$ and rated values, if nothing else indicated

Type	CP-E 24/2.5	CP-E 48/0.62	CP-E 48/1.25
General data			
Efficiency	typ. 89 %	typ. 86 %	typ. 89 %
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)		
Weight	0.36 kg (0.79 lb)	0.29 kg (0.64 lb)	0.36 kg (0.79 lb)
Material of enclosure	plastic		
Mounting	DIN rail (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 fine-strand without wire end ferrule rigid	0.2-2 mm ² (24-14 AWG)	
Stripping length	6 mm (0.24 in)		
Tightening torque	0.5-0.6 Nm		
Environmental data			
Ambient temperature range	operation	-10...+70 °C	
	full load	-10...+60 °C	
	storage	-25...+85 °C	
Damp heat (cyclic) (IEC/EN 60068-2-30)	4 x 24 cycle, 40 °C, 95 % RH		
Vibration (sinusoidal) (IEC/EN 60068-2-6)	10 m/s ² , 10...500 Hz		
Shock (half-sine) (IEC/EN 60068-2-27)	40 m/s ² , 22 ms, all directions		
Isolation data			
Rated insulation voltage U_i	input circuit / output circuit	3 kV AC	
Pollution category	2		
Standards			
Product standard	EN 61204		
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		
Protective low voltage	SELV (EN 60950)		
Electromagnetic compatibility			
Interference immunity	IEC/EN 61000-6-2		
electrostatic discharge (ESD)	IEC/EN 61000-4-2	Level 4 (8 kV / 15 kV)	
electromagnetic field (HF radiation resistance)	IEC/EN 61000-4-3	Level 3 (10 V/m)	
fast transients (Burst)	IEC/EN 61000-4-4	Level 4 (4 kV)	
powerful impulses (Surge)	IEC/EN 61000-4-5	Level 4 (2 kV / 4 kV)	
HF line emission	IEC/EN 61000-4-6	Level 3 (10 V)	
Interference emission	IEC/EN 61000-6-3		
electromagnetic field (HF radiation resistance)	IEC/CISPR 22, EN 55022	Class B	
HF line emission	IEC/CISPR 22, EN 55022	Class B	

Technical data

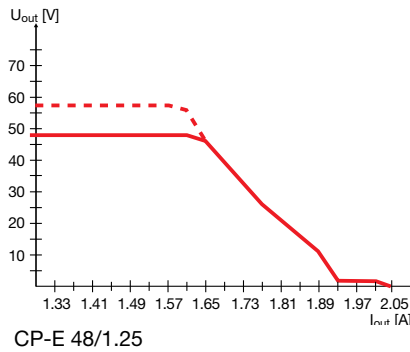
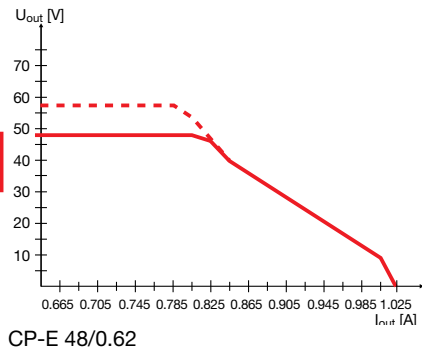
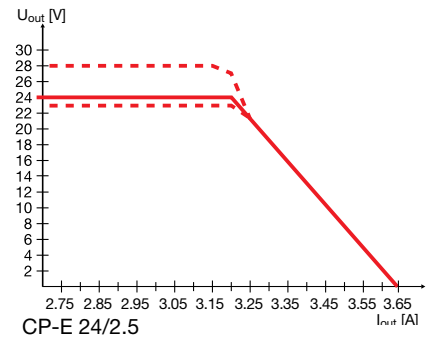
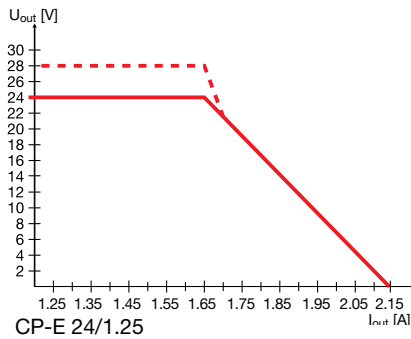
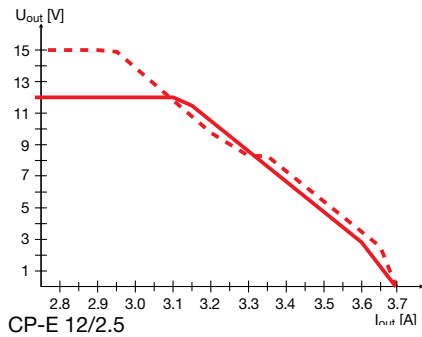
CP-E Range

Data at $T_a = 25\text{ °C}$, if nothing else indicated

Type		CP-RUD
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
Rated input current I_{IN} per channel		0.5-2.5 A
Maximum input current per channel		10 A for 300 s
Transient overvoltage protection		no
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
Rated output current I_{OUT}		0.5-5 A
Peak output current		20 A for 150 s
Resistance to reverse feed		< 35 V
General data		
Dimensions (W x H x D)		22.5 mm x 78 mm x 102 mm (0.89 x 3.07 x 4.02 in)
Weight		0.135 kg (0.30 lb)
Minimum distance to other units	horizontal / vertical	10 mm / 10 mm (0.39 in / 0.39 in)
Degree of protection	enclosure / terminals	IP20 / IP20
Material of enclosure	enclosure shell / cover	plastic / plastic
Protection class		-
Mounting		DIN rail
Mounting position		horizontal
Electrical connection - Input circuit / Output circuit		
Wire size	fine-strand with wire end ferrule	2 x 0.75-2.5 mm ² (2 x 18-14 AWG)
	fine-strand without wire end ferrule	
	rigid	
Stripping length		7 mm (0.28 in)
Tightening torque		0.6-0.8 Nm
Environmental data		
Ambient temperature range	operation	-20...+60 °C
	full load	-20...+60 °C
	storage	-40...+85 °C
Damp heat (IEC/EN 60068-2-3)		93 % at 40 °C, no condensation
Climatic category (IEC/EN 60721)		-
Vibration (IEC/EN 60068-2-6)		
Shock (IEC/EN 60068-2-27)		
Isolation data		
Insulation voltage	between input / output / enclosure	-
Pollution degree (EN 50178)		2
Standards		
Product standard		
Low Voltage Directive		2006/95/EC
EMC Directive		2004/108/EC
Electrical safety		EN 50178
Electromagnetic compatibility		
Interference immunity		
electrostatic discharge (ESD)	IEC/EN 61000-4-2	Level 3 (air discharge w8 kV, contact discharge w6 kV)
electromagnetic field (HF radiation resistance)	IEC/EN 61000-4-3	Level 3 (10 V/m)
fast transients (Burst)	IEC/EN 61000-4-4	Level 3 (w2 kV)
powerful impulses (Surge)	IEC/EN 61000-4-5	Level 1 (w0.5 kV)
HF line emission	IEC/EN 61000-4-6	Level 3 (10 V)
Interference emission		
electromagnetic field (HF radiation resistance)	IEC/CISPR 22 / EN 55022	Class B
HF line emission	IEC/CISPR 22 / EN 55022	Class B

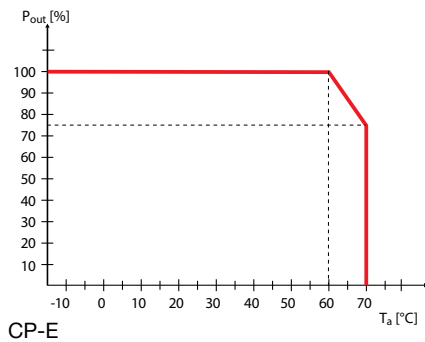
Technical diagrams

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

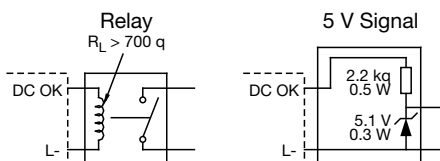


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Temperature curve at rated output voltage



Wiring instructions

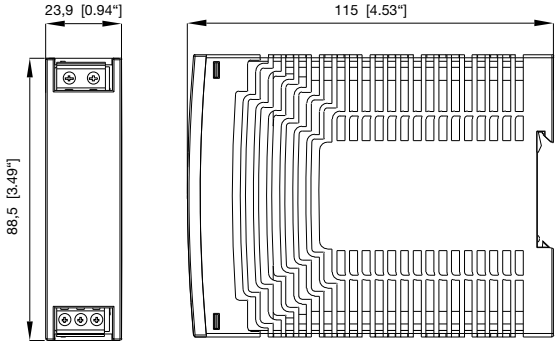


CP-E 24/1.25, CP-E 24/2.5

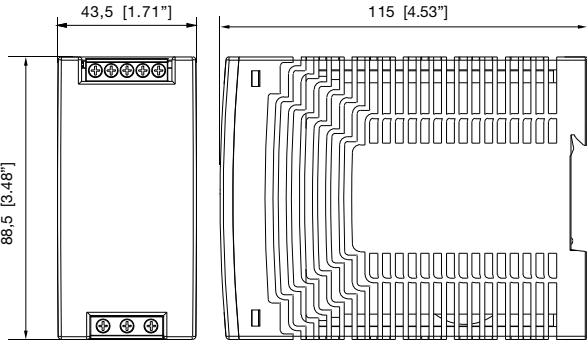
Approximate dimensions CP-E Range



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-RUD

