Primary switch mode power supplies
CP-E range - Economy
Technical data

Data at T_a = 25 °C, U_{IN} = 230 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		AC	90-265 V AC	85-264 V AC	90-265 V AC	85-264 V AC
		DC	120-370 V DC	90-375 V DC	120-370 V DC	90-375 V DC
Frequency range		AC	47-63 Hz			
		DC	0 Hz			
typical current / power consumption		at 110 V AC	308 mA / 19.5 VA	577 mA / 37.3 VA	344 mA / 22.2 VA	565 mA / 36.5 VA
		at 240 V AC	188 mA / 19.7 VA	335 mA / 36.6 VA	214 mA/ 22.9 VA	336 mA / 37.2 VA
Inrush current			18 A	40 A	18 A	40 A
Power failure buffering			> 75 ms	> 30 ms	> 75 ms	> 30 ms
Internal input fuse			2 A slow-acting / 250 V AC			
Indication of operational states						
Output voltage		OUTPUT OK: green LED	⎍: output voltage applied			
		OUTPUT LOW: red LED	⎍: output voltage too low	-	⎍: 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			4.5-5.75 V DC	12-14 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 < 60 °C	3,0 A	2,5 A	0,75 A	1,25 A
Derating of the output current		60 °C < T_a < 70 °C	3 %/K	2.5 %/K	3 %/K	2.5 %/K
Signal output for output voltage OK		DC OK	-			yes
Deviation with load change 10-90%		statical	max. ±2 %	max. 0.5 %	max. ±2 %	max. 0.5 %
		dynamical				
	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 to increase voltage			yes, for decoupling			
Resistance to reverse feed			yes, limited to approx. 9 V DC	yes, limited to approx. 18 V DC	yes, limited to approx. 35 V DC	
Power factor correction (PFC)			no			
Output circuit - No-load, overload and short-circuit behaviour						
Output curve			Hiccup-mode	U/I curve	Hiccup-mode	U/I curve
Short-circuit protection			continuous short circuit statility			
Short-circuit behaviour			Hiccup-mode	continuation with current limitation	Hiccup-mode	continuation with current limitation
Overload protection			thermal protection with switch-off and restart	current limitation	thermal protection with switch-off and restart	current limitation
No-load protection			continuous no-load stability			
Starting of capacitive loads			not possible	unlimited	not possible	unlimited
Gerneral data						
typical efficiency			75 %	84 %	77 %	86 %
Duty time			100 %			
Dimensions (WxHxD)			23.9 mm x 88.5 mm x 115 mm [0.94 inch x 3.48 inch x 4.53 inch]	43.5 mm x 88.5 mm x 115 mm [1.71 inch x 3.48 inch x 4.53 inch]	23.9 mm x 88.5 mm x 115 mm [0.94 inch x 3.48 inch x 4.53 inch]	43.5 mm x 88.5 mm x 115 mm [1.71 inch x 3.48 inch x 4.53 inch]
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			

Primary switch mode power supplies
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Type		CP-E 5/3.0	CP-E 12/2.5	CP-E 24/0.75	CP-E 24/1.25
Degree of protection	enclosure / terminals	IP 20 / IP 20			
Protection class		1			
Electrical connection - input circuit					
Wire size min. / max.	fine-strand with wire end ferrule	0.2-2.0 mm² (24-14 AWG)			
	fine-strand without wire end ferrule	0.2-2.0 mm² (24-14 AWG)			
	rigid	0.2-2.0 mm² (24-14 AWG)			
Stripping length		6 mm			
Torque		0.5-0.6 Nm			
Electrical connection - output circuit					
Wire size min. / max.	fine-strand with wire end ferrule	0.2-2.0 mm² (24-14 AWG)			
	fine-strand without wire end ferrule	0.2-2.0 mm² (24-14 AWG)			
	rigid	0.2-2.0 mm² (24-14 AWG)			
Stripping length		6 mm			
Torque		0.5-0.6 Nm			
Environmental data					
Ambient temperature range	operation	-10…+70 °C (from + 60…70 °C derating 2,5 %/°C)			
	full load	-10…+60 °C			
	storage	-25…+85 °C			
Humidity (cyclic) (IEC/EN 60068-2-30)		4x24 cycle, 40 °C, 95 % RH			
Vibration (sinusoidal) (IEC/EN 60068-2-6)		10 m/s², 10...500 Hz			
Shock (half-sine) (IEC/EN 60068-2-27)		40 m/s², 22 ms, all directions			
Isolation data					
Rated insulation voltage U_i	input circuit / output circuit	3 kV AC			
Pollution category		2			
Standards					
Product standard		IEC/EN 61204			
Low Voltage Directive		73/23/EEC			
EMC direcitve		89/336/EEC			
Electrical safety		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 (2kV / 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			

Primary switch mode power supplies
CP-E range - Economy
Technical data

Data at T_a = 25 °C, U_{IN} = 230 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		AC	85-264 V AC		
		DC	90-375 V DC		
Frequency range		AC	47-63 Hz		
		DC	0 Hz		
typical current / power consumption		at 110 V AC	1.1 A / 70.5 VA	563 mA / 35.8 VA	1.1 A / 69.7 VA
		at 240 V AC	620 mA / 71 VA	334 mA / 35.6 VA	620 mA / 69.9 VA
Inrush current			60 A	40 A	60 A
Power failure buffering			> 30 ms		
Internal input fuse			2 A slow-acting / 250 V AC		
Indication of operational states					
Output voltage		OUTPUT OK: green LED	⎍: output voltage applied		
		OUTPUT 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 < 60 °C	2.5 A	0.625 A	1.25 A
Derating of the output current		60 °C < T_a < 70 °C	2.5 %/K		
Signal output for output voltage OK		DC OK	yes	-	
Deviation with	load change 10-90%	statical	max. 0.5 %		
		dynamical			
	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 to increase voltage			yes, for decoupling		
Resistance to reverse feed			yes, limited to 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		
Gerneral data					
typical efficiency			89 %	86 %	89 %
Duty time			100 %		
Dimensions (WxHxD)			43.5 mm x 88.5 mm x 115 mm (1.71 inch x 3.48 inch x 4.53 inch)		
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		
Degree of protection		enclosure / terminals	IP 20 / IP 20		
Protection class			1		

Primary switch mode power supplies
CP-E range - Economy
Technical data

Data at T_a = 25 °C, U_{IN} = 230 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
Electrical connection - input circuit				
Wire size min. / max.	fine-strand with wire end ferrule	0.2-2.0 mm² (24-14 AWG)		
	fine-strand without wire end ferrule	0.2-2.0 mm² (24-14 AWG)		
	rigid	0.2-2.0 mm² (24-14 AWG)		
Stripping length		6 mm		
Torque		0.5-0.6 Nm		
Electrical connection - output circuit				
Wire size min. / max.	fine-strand with wire end ferrule	0.2-2.0 mm² (24-14 AWG)		
	fine-strand without wire end ferrule	0.2-2.0 mm² (24-14 AWG)		
	rigid	0.2-2.0 mm² (24-14 AWG)		
Stripping length		6 mm		
Torque		0.5-0.6 Nm		
Environmental data				
Ambient temperature range	operation	-10…+70 °C (from + 60…70 °C derating 2,5 %/°C)		
	full load	-10…+60 °C		
	storage	-25…+85 °C		
Humidity (cyclic) (IEC/EN 60068-2-30)		4 x 24 cycle, 40 °C, 95 % RH		
Vibration (sinusoidal) (IEC/EN 60068-2-6)		10 m/s², 10...500 Hz		
Shock (half-sine) (IEC/EN 60068-2-27)		40 m/s², 22 ms, all directions		
Isolation data				
Rated insulation voltage U_i	input circuit / output circuit	3 kV AC		
Pollution category		2		
Standards				
Product standard		IEC/EN 61204		
Low Voltage Directive		73/23/EEC		
EMC direcitve		89/336/EEC		
Electrical safety		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		