CT120-PS series

120W DC Power Supply, TS35mm DIN-Rail

Features:

- Up to 91% efficiency
- Natural convection
- Hold-up time >30ms
- N+1 parallel operation
- Precision current voltage curve
- Precise dynamic response on load change
- Designed for long life under full stress
- Strong input filters
- High reliability, shock & vibration proof
- Over Voltage and continuous short circuit protection

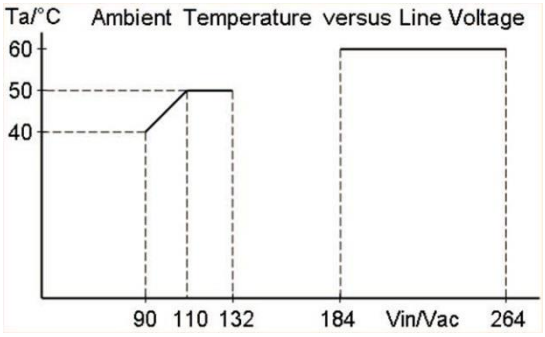
Specifications

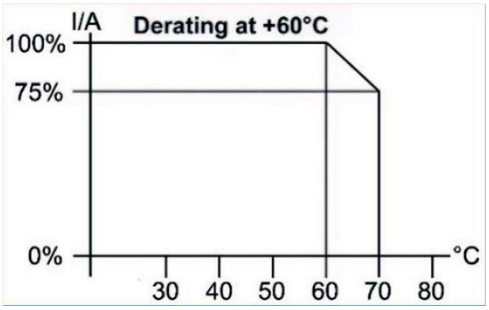
	CT120-PS12	CT120-PS15	CT120-PS24	CT120-PS36	CT120-PS48	CT120-PS60	CT120-PS72	CT120-PS110
DC Voltage Rated	12V	15V	24V	36V	48V	60V	72V	110V
DC Voltage Setting Range	11.4 – 13.2V	14.2 – 16.5V	23.5 – 28.5V	34.2 – 39.6V	45.6 – 52.8V	57 – 66V	68 – 86V	105 – 120V
DC Current Rated +60°C	8A	8A	5A	3.3A	2.5A	2A	1.7A	1.1A
DC Current Rated +70°C	6A	6A	3.75A	2.5A	1.9A	1.5A	1.25A	0.82A
Power Boost 60s +60°C	9.6A	9.2A	5.8A	3.8A	2.9A	2.3A	2A	1.3A
Ripple Noise 230Vac 20MHz	50mV$_{pp}$	50mV$_{pp}$	65mV$_{pp}$	65mV$_{pp}$	100mV$_{pp}$	120mV$_{pp}$	120mV$_{pp}$	200mV$_{pp}$
Over Voltage Protection	18V	22V	35V	52V	70V	87V	105V	160V
Over Current Protection	9.6A	9.6A	6A	4A	3A	2.4A	2.1A	1.4A
Load Regulation 0-100%	< ±0.5%	< ±0.5%	< ±0.2%	< ±0.2%	< ±0.2%	< ±0.1%	< ±0.1%	< ±0.1%
AC Input Rated	115Vac<2.3A 230Vac<1.3A							
AC Input Range	90-132Vac, 184-264Vac (115/230Vac input selector, factory setting is 230Vac)							
AC Input Frequency	47-63Hz							
DC Input Rated	250Vdc<0.6A 375Vdc<0.4A (input selector set to 230Vac rated)							
DC Input Range	250Vdc-375Vdc (input selector set to 230Vac)							
Response Load Change	<1ms 10-100%, 100-10%							
Start-up Delay	Typ. 280ms @ 115Vac, 230Vac							
Softstart	Typ. 50ms							
Base Load	None							
Efficiency 230Vac	91% typical							
Short Circuit Protection	Continuous							
Idling-proof	Yes							
Hold Up Time	>30ms @ 230Vac							
Inrush Current	<16Apeak 230Vac cold start 25°C							
Cooling	Natural convection							
MTBF (IEC61709)	600000h (Meantime Between Failures: statistic time between failures after repairs)							
MTTF (IEC61709)	149600h (Meantime To Failure: statistic time to ever fails)							
Dimensions (HxWxD)	123,6x50x96,5mm							
Weight	0,55kg / 1,2lbs							
Input & Output Terminals	Spring-type terminal solid max. 0,25...2,5mm² 24…14AWG according with IEC/EN60664-1, IEC/EN61984, Use copper conductors only. Wire stripping length 7mm. Tightening torque per terminal block is 0.4 - 0.5 Nm / 2.9 – 3.6 lbf-in							

Specifications part 2	
Ambient Operating Temp.	- 25°C…+70°C, derating 2,5%/°C >60°C
Ambient Storage Temp.	- 40°C…+85°C
Environment	Humidity 95% non-condensing @ 25°C, climate class. 3k3, pollution degree 2
Creepage Distance	>8mm
Input to Output Isolation	3000Vac
Input to Case Isolation	2500Vac
Output to Case Isolation	500Vdc, 2000Vdc for models with output voltage ≥ 48Vdc
ROHS	2011/65/EU, (EU)2015/863
REACH	EG No. 1907/2006
EMI	EN55032 class B, EN61000-6-3, EN61000-3-2 class A
EMS	EN61000-6-2
Safety	EN61010-1, EN61010-2-201, EN62368-1, EN60950-1, EN60204-1
Protection Class I	PE connection required

Temperature Derating

The maximum ambient temperature during operation is + 70°C.



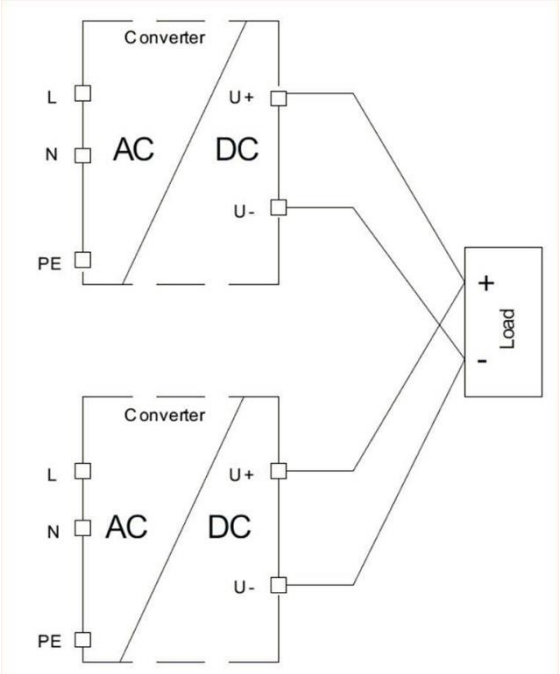


Baseplate Cooling & Temperature Management

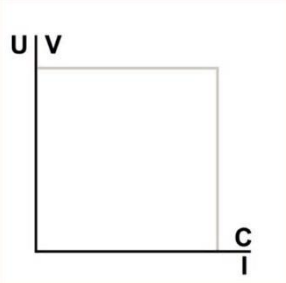
The temperature management of the CT120-PS series provides a direct dissipation of the main energy losses. The internal coolers of the output diodes and the power FETs connect to the back-plate cooler. It is possible to dissipate about 40 – 50% of the energy losses out of a system to a plane and heat conductive surface.

Parallel Operation & N+1 Decoupling

To increase the overall power of the power supply, two or more devices of the same model with the same output voltage may be operated in parallel.
We recommend using a busbar for the DC power connector. Make sure that the cable lengths and cable cross-sections of all power supplies to the busbar or to the star point are identical. Allow proper connection for low contact resistance.
The CT120-PS models have no internal O-ring diode, to operate the devices N+1 redundant.



C/V Current Voltage Behaviour

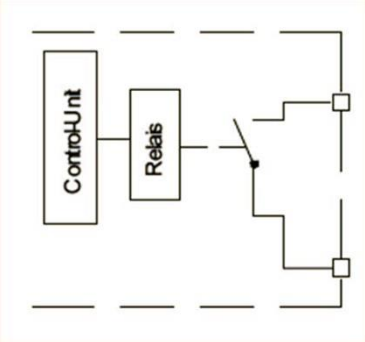


The CT120-PS series provides a perfect current voltage chart. It has no fold back or other abnormalities. The output voltage can drop down to zero volts when the power supply is overloaded. The unit delivers a stable and constant current to the outputs.
When the output voltage is set to the maximum demanded value and the current limit circuit acts, the output voltage drops linear down to zero and the unit delivers constant current.

Power OK Connection & Voltage Setting

Feature	Technology	Details and Connections	Section	Isolation
Potentiometer Voltage adj.	1 turn	High precision	U adj.	3000Vac to input & 500Vdc to output
Power Good Relay	“b” contact	AWG24 – AWG14 / 0,25 – 2,5mm²	DC-ok	3000Vac to input & 500Vdc to output

DC-OK Relay



The DC ok relay indicates if the output voltage is low and if the AC voltage is low. The contact is galvanic insulated to the AC input and the DC output connections. The isolation to the AC input is 3000Vac with a forced isolation and covers the overall adjustment range of the CT120-PS models. If the DC voltage is ok the relay is closed, if the power supply unit is in false operation the relay is open. Considering the lower and the upper margin of the AC voltage detection it is to say that the CT120-PS series starts at 85Vac/170Vac depending on the AC input selector. The unit starts with 240Vdc when a DC voltage applies to the input. Make sure to set the AC input selector to 230Vac (factory setting) for DC input supply.

DC-Fail hysteresis: dropout 20% Vnominal / pull-in 60% Vnominal.
Contact Rating: 30Vdc/1A, 60Vdc/0.3A, 30Vac/0.5A

DC OK Indication			
Power Supply Status	Normal	AC Low [V]	DC Low [V]
Relay Operation status	Closed	Open	Open

Installation

1) The device is designed for devices and systems that meet the standard requirements for hazardous voltages, power, and fire prevention.
2) Installation and service only by trained specialists. The AC power must be switched off. The work is to be labelled; accidental reconnection of the system must be prevented.
3) Opening the device, its modification, loosening bolts, or operation outside the specified herein specification or in an unsuitable environment, has the immediate loss of warranty to follow. We disclaim any responsibility for any resulting damage to persons or things.
4) Note: The device must not be operated without an upstream circuit breaker (CB). We recommend the use of B-type 8A for 230Vac and for 115Vac. It is prohibited to use the unit without PE. It may be necessary upstream device has a power switch.

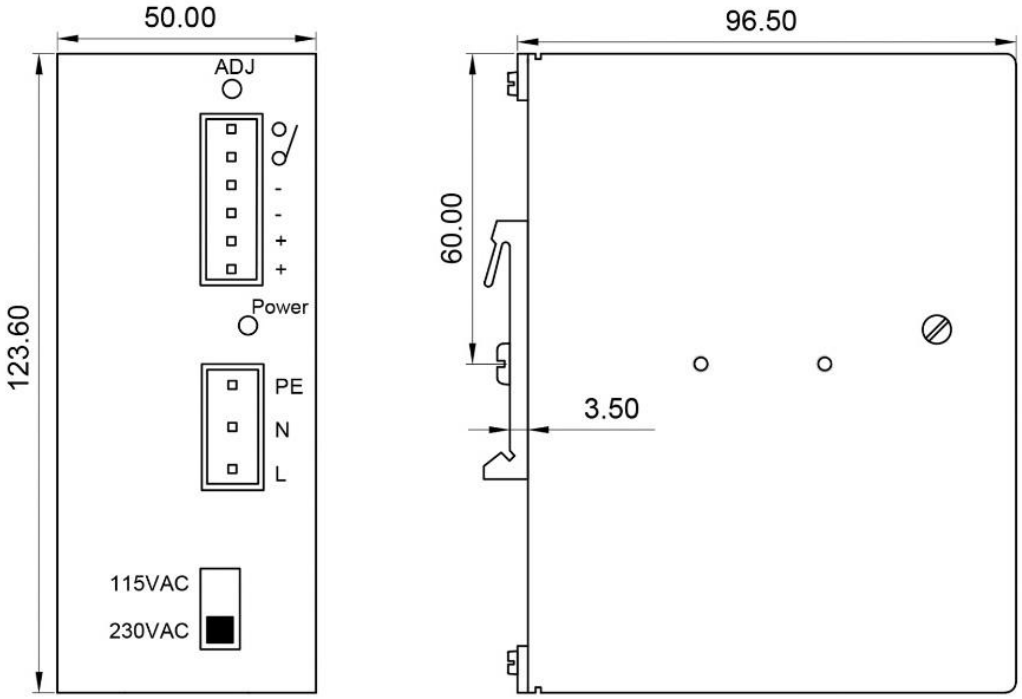
Warning:
Non-compliance these warnings can result in fire and serious injury or death.

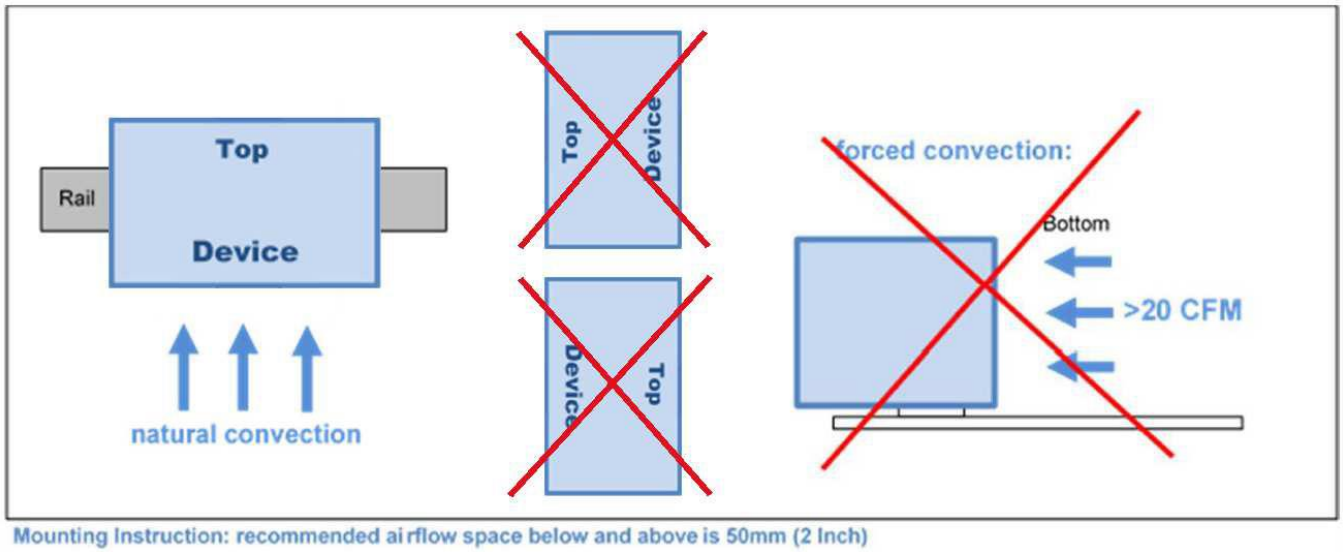
1. Never operate device without PE connection.
2. Before connecting the device to the AC network, make wires free of voltage and ensure that it cannot accidentally switch on.
3. Allow neat and professional cabling.
4. Never open nor try to repair the unit. Inside are dangerous voltages that can cause electrical shock hazard.

5. Avoid metal pieces or other conductive material to fall into the item.
6. Do not operate the device in damp or wet conditions
7. Do not operate the unit under EX-conditions

Mechanics & Installation Instruction of the CT120-PS

Stable metal/aluminium housing IP20. To allow adequate convection, a free air space of 50mm (top/bottom) and 10mm (sidewalls) is required; and for active devices 15mm space from the sidewalls. For proper air convection it is necessary to install the CT120-PS.
One can use the DIN-Rail installation (equipped standard) with our patented 35mm DIN-Rail bracket according to EN60715. It is easy to mount/dismount while snapping it onto the 35mm DIN-Rail - no tools necessary.
It is not allowed to install the CT120-PS in other mounting direction then below drawings.





Mounting Instruction: recommended airflow space below and above is 50mm (2 Inch)