

*Manual
for
PFC-Power Supply
PS450*



Stand: 2014/29 changes without notice

Features

450W power supply with PFC correction

Output Voltages: 62Vdc ... 120Vdc

**Universal input line 90...230 Vac, 50/60Hz
wall mounting, DIN-Rail (optional)**

efficiency >85%

galvanic isolation from input line (mains)

output contact for voltage ok

all connectors removable

current limiting on power on

fast load control

break resistor for active over voltage protection for motor applications (decelerations)

brown out up to 15ms

high live time because of optimal heat management (long life components, automatic fan control, ...

fan control according to temperature and load

protected against off load, short cut, over load, over temperature

LED-condition display

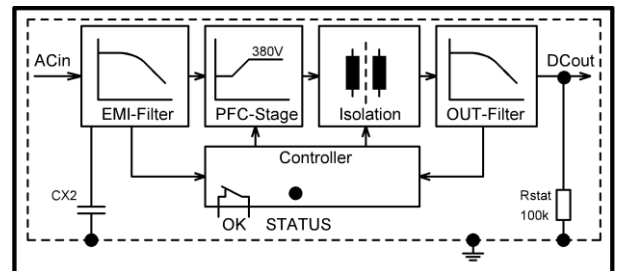
integrated line filter reducing noise emission

monitor output for voltage ok

compact in size H:W:D 171:51:105(mm)

Power Supply for StepperMotors

The power supply was build to supply power to motor power drives. The output voltage is adjustable from 62Vdc up to 120Vdc. A active break chopper prevents overvoltages in braking conditions. Short over loads as they occur at acceleration state are handled well. The integrated fan is speed controlled according temperature and load. So mounting conditions becomes less critical. A diagnostic LED shows operating conditions and flashes n times when error state is active.



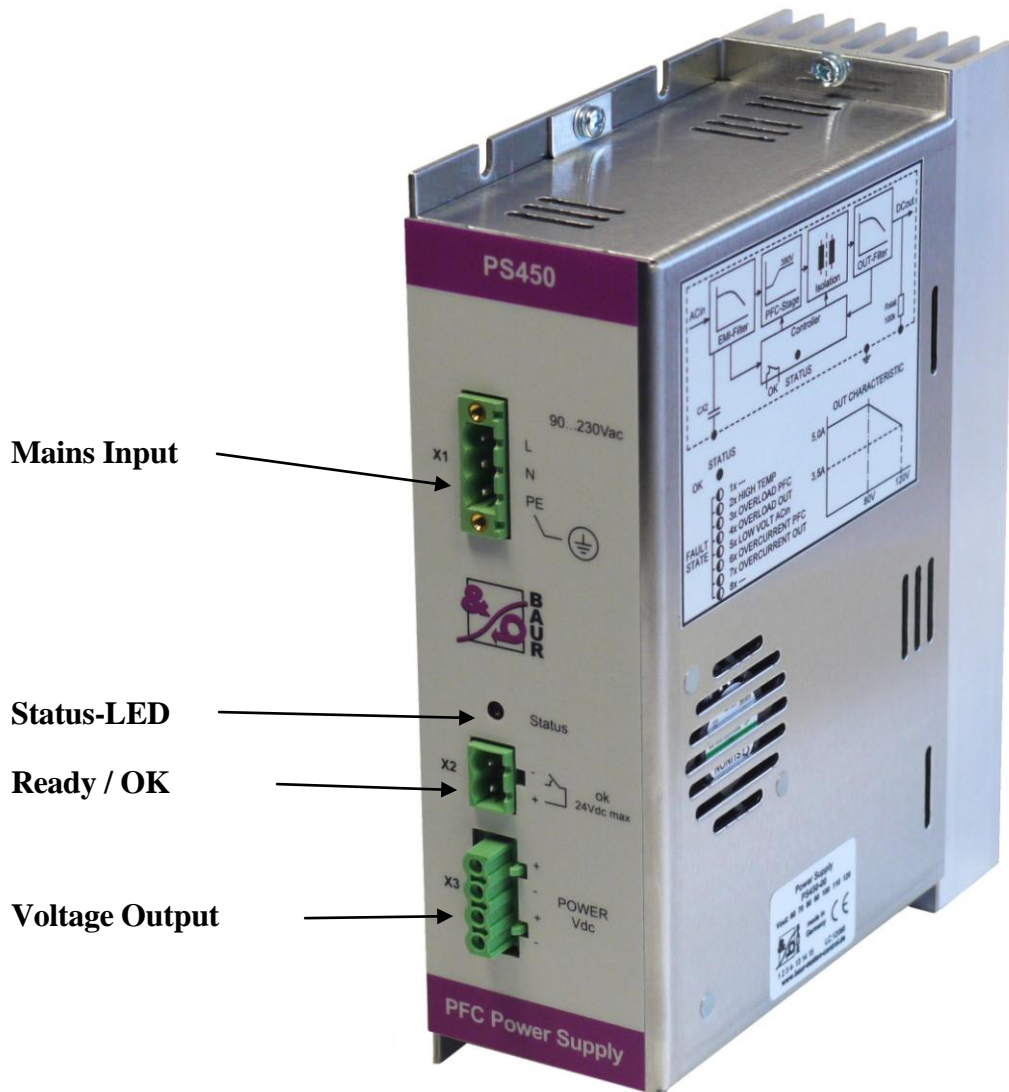
Order key / accessories

PS450-xx xx output voltage 62V-120V
(72, 80, 90, 110, 120 preferred)

Accessories:

- CS.PS450	connector set
- DRC.PS450	DIN-rail clip
- HS.PS450	heat sink
- FS.450	filterset

Placement of components



Signal description

Line input, mains:

The power from the mains is supplied by a three pole connector for one phase mains. A current limiting circuit is integrated. A small line filter inside helps to reduce electro magnetic emissions. For CE norm operating conditions an additional external line filter must be added.

The housing must connected to PE with an extra cable using the screw at the front panel.

It is suggested to connect the PE in star configuration. That means, each module or drive has to connected via a separate cable to a desired earth point. In praxis this is normally the housing of the machine.

Never disconnect the connector under voltage, because of damaging the contacts.

Output voltage:

The output connector is double, so it is possible to connect two devices at the same connector. In case the loads have the same pin assignment more than one loads can be connected though this power line. For your safety, the connector is a inverse type to protect against high voltages.

Never disconnect the connector under voltage, because of damaging the contacts.

Monitor output (READY):

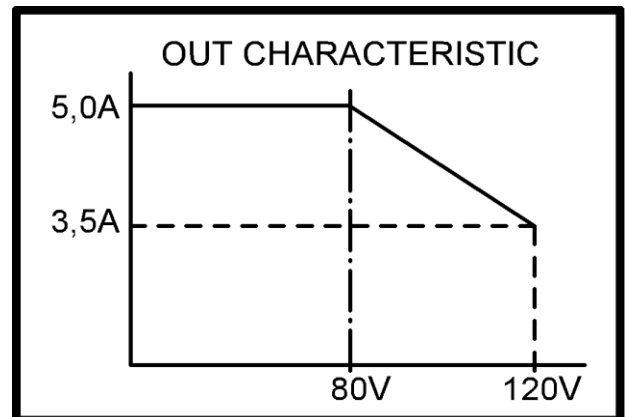
There is a monitor output on the PS400. Under normal operation, this contact is closed. At failure (under voltage on output) this contact opens immediately. This condition is shown on the LED "UNDER-VOLT (not at short cut failure).

Operating modes

Normal Operation Condition:

STATUS-LED continuously on
Output READY OK is closed.

During operation several functions are observed continuously. The fan is speed controlled according to temperature and load condition. Overvoltages perhaps occurring during deceleration of the motor are prevented by the break chopper.



Picture above shows output characteristic of power supply. Maximum available output current is limited to a fix value. Over 80V the output current must degree. Short load peaks under 500ms are still allowed. Continuously over power results in error condition.

Error State Condition:

HighTemp:Warning

STATUS-LED flashes 2x
Output OK is closed

Drops temperature down again nothing else happens.

High Temp: Shut off

STATUS-LED flashes 2x
Output OK is open

The power supply is switched off because of preventing any disturbance.

Condition is holded, restart necessary.

OverLoad PFC:

STATUS-LED flasches 3x
Output OK is open

Too much power at the output and perhaps too less voltage at the mains line.

Condition is holded, restart necessary.

OverLoad OUT:

STATUS-LED flasches 4x
Output OK is open

Too much power at the output.

Condition is holded, restart necessary.

LowVolt ACin:

STATUS-LED flasches 5x
Output OK is open

Too less voltage at the line

Condition is holded, restart necessary.

OverCurrent PFC:

STATUS-LED flasches 6x
Output OK is open

Problemes in the PFC-Power Stage

Condition is holded, restart necessary.

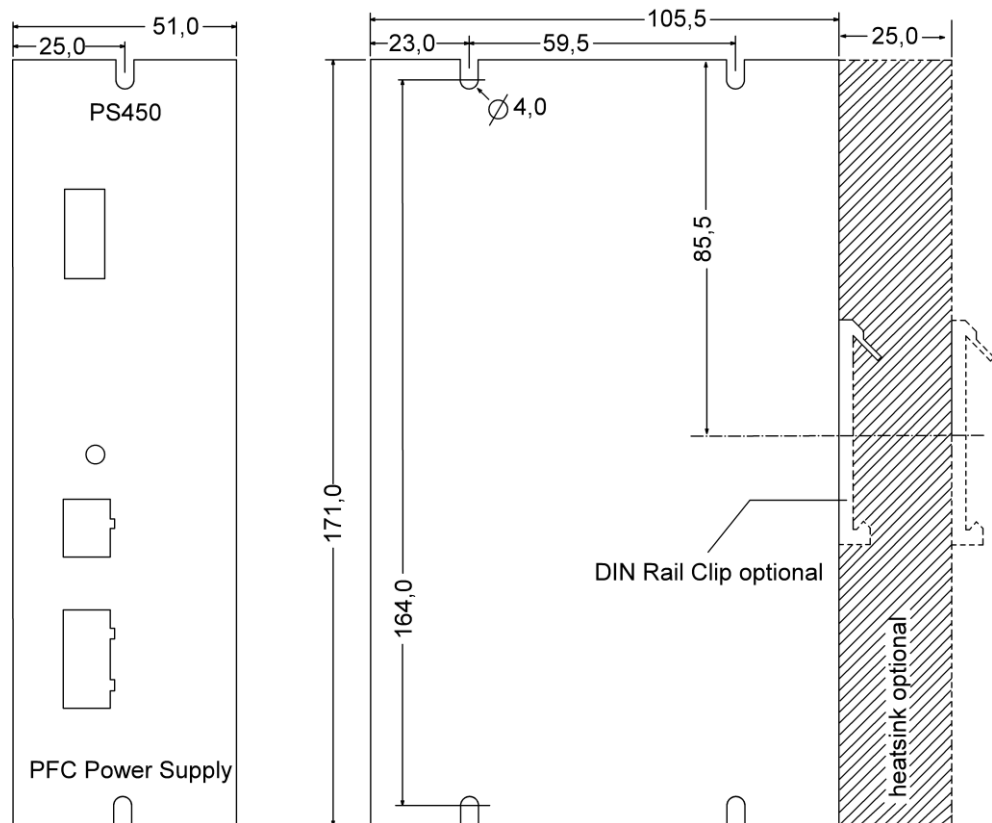
OverCurrent OUT:

STATUS-LED flasches 7x
Output OK is open

Probleme in the Output-Power Stage

Condition is holded, restart necessary.

Mechanical Measurments:



Technical Data (at 230Vac input)

Environment:

Operating temperature:	0...40°C
Storage temperature:	-10...60°C
Device protection:	IP30
Contamination:	2
Humidity:	non condensing
Weight: without/with Heatsink	1,05kg / 1,3kg

Isolation: Protection Class 1

Voltage, /-Resistor:	
Input-Output:	500V / >1MΩ
Input-Housing:	500V / >1MΩ
Output-Housing:	100kohm

Input:

Input voltage range:	90...230 Vac
Input frequency:	47...63 Hz
Power Factor:	>0,95@300W
Nominal current:	(230V) 3A
Power on current	(230V) <20A

Output: (230Vac in)	62V 120 V
preferred Voltage:	70/80/90/110/120V
Current:	5[7]A max
Power:	400W, 500 W short
Ripple: [mVp-p]	<500mVp-p @ >1A
Over voltage:	active @ >500ms
Under voltage:	active @ >500msV
Efficiency:	85% @ >100W
Short cut current:	limited to 7A
Over load:	110...125%
Mains brown out :	>15ms (230V)

Monitor (READY) output:

Type:	Opto coupler
Switching voltage:	<30V
Inner resistor:	<50 Ohm
Switching current:	< 20 mA
load:	ohmic

Temperature observer:

Fan control active:	->ca. 60°
Protection switch off:	> ca. 70 °

Electromagnetic compatibility:

Radio interference
Norm: EN55011 A

(with external Line filter, accessory)

Typ Schurter FSS2-55-2/0.5

ESD:	4kV	IEC 801-2
Burst:	4kV	IEC 801-4

Malfunctions

no LED after powered on

- internal fuse defect, problems in cabling

no power after powered on

- the temperature is still over 70 degree
- short cut at output is still active

no power after a while

- the temperature exceeds 70°C
- the internal fan is blocking
- no heat sink mounted

sudden noise in the power supply

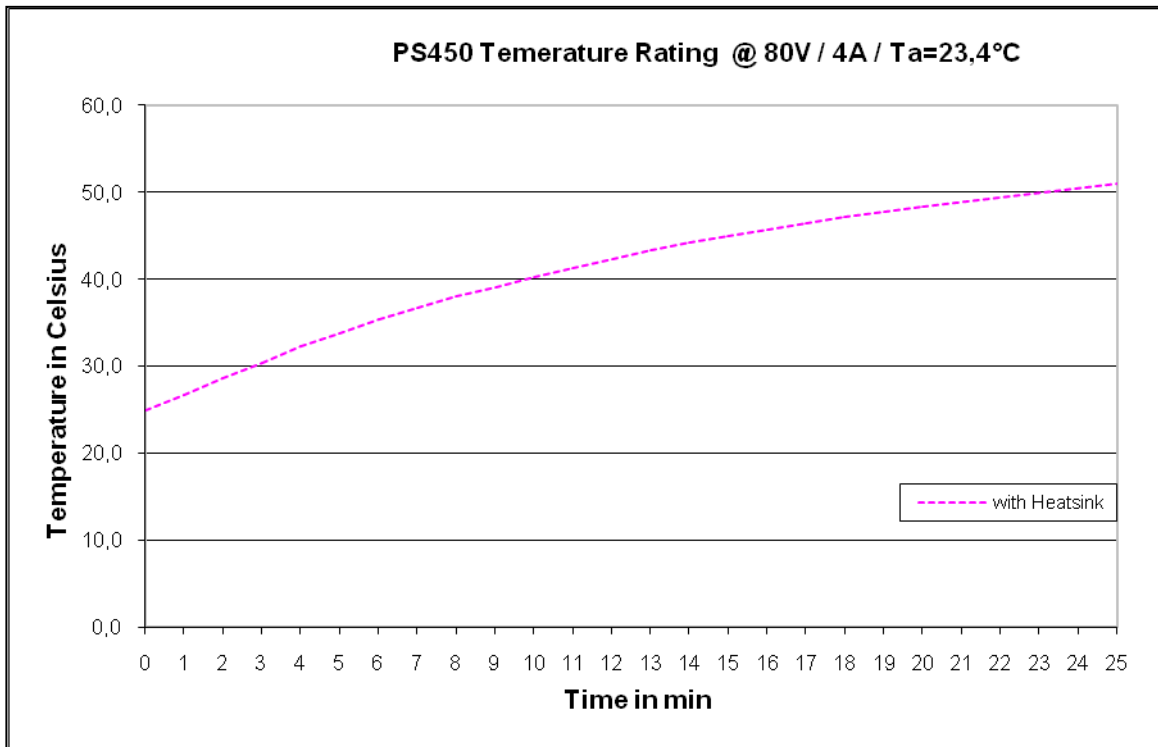
- the power supply is in over load

the READY-Contact doesn't function

- look at polarity plus(+) and minus(-)
- the contact is over loaded (Ri= 47 Ohm)
- the contact is defect.

Appendix A: Temperature rising= f(time)

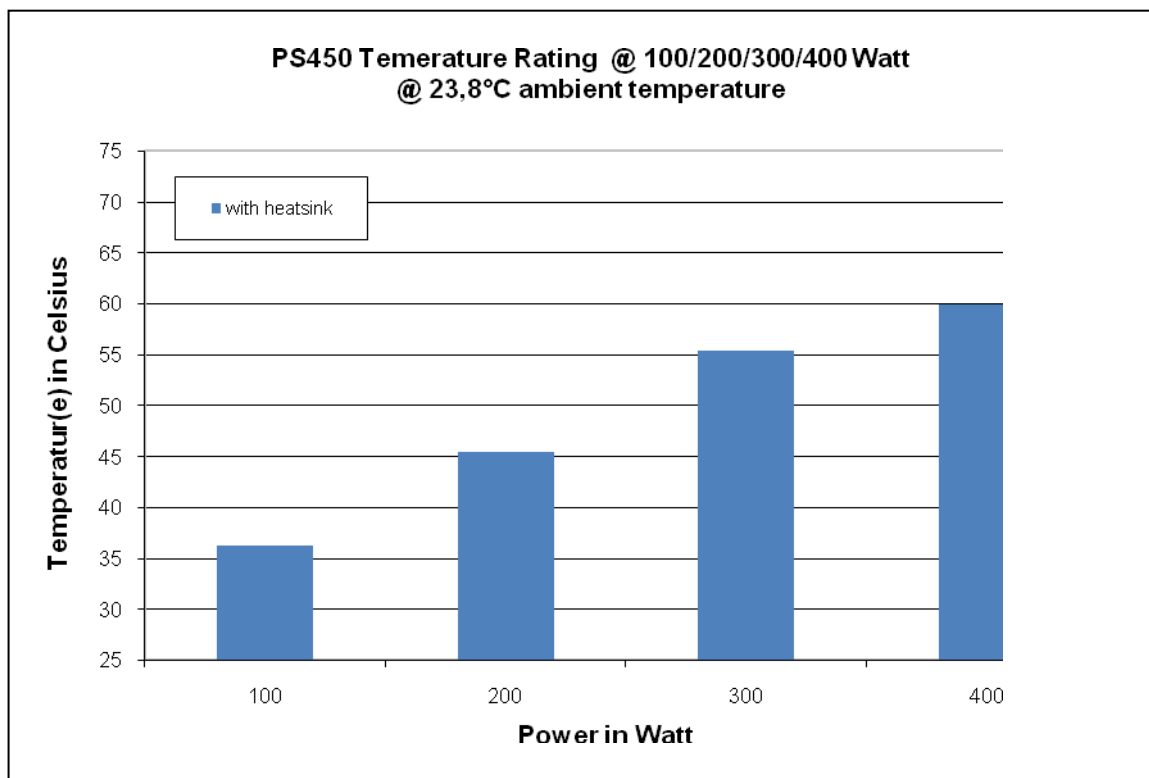
normalized to 23,4°C environment, free convection



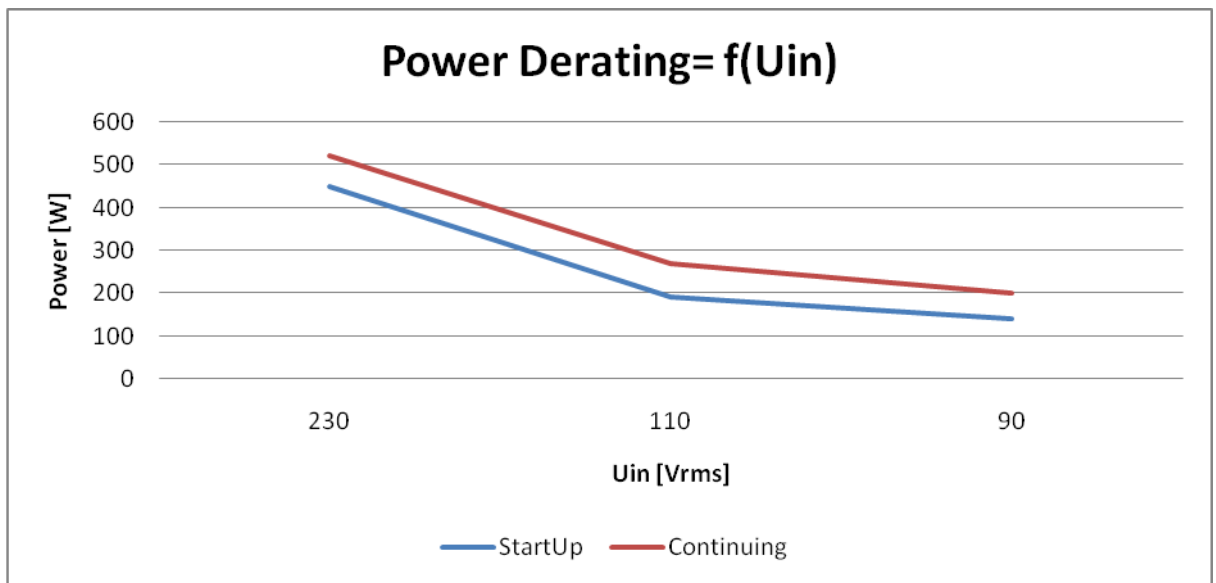
Appendix B: Temperature final value = f(power)

normalized to 23,4°C environment, free convection

switch off ad 70°C



Appendix C: Power reduction = f(Input Voltage Lines)



Appendix D: Accessories

