

# PNC HIGH VOLTAGE POWER SUPPLY

## Output Voltage up to 300,000 Volts



## Universal High Voltage Power Supplies up to 300,000 Volts

Precision DC high voltages for numerous applications

The switched-mode power supplies of the PNC series are characterised by the precisely regulated DC voltage in combination with the lowest residual ripple and best long-term stability. The units meet the highest requirements and are available in various voltage ranges up to 300,000 Volts.

Industrial customers and research institutes all over the world appreciate the reliability and functional safety of the PNC high-voltage series. Our power supplies are used when reliability and long-term stability are required.

Due to the selection of different options, complex high-voltage applications can be realised quickly and easily. Thanks to their universal housing, they can be used flexibly as bench-top units as well as 19" rack-mount.

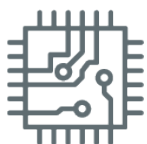
Modifications can be made at any time to meet individual customer requirements.

The PNC series is available as standard with power ratings up to 2 kW and accuracies up to <math><0.01\%</math>. Alternatively, higher performances up to 6,000 Watts (see PNC3p) and higher accuracy up to <math><0.001\%</math> (see PNChp) are available.

## PNC-Series Highlights

- Low residual ripple and excellent long term stability
- Continuous short circuit proof
- Reverse voltage proof
- HV on/off via push button or interface
- Output power up to 2,000 W
- Setting of the output values through 10-turn potentiometers, separately for voltage and current
- Remotely controllable and extendable by means of the integrated analog interface 0...10 V

## Typical Applications



Semiconductor tests / manufacturing



HV tests



Quality tests



Mass spectrometer detectors



Accelerators (kickers, detectors)

# PNC HIGH VOLTAGE POWER SUPPLY

## Technical Data

### General

Function	switch mode power supply
Input voltage	230 V $\pm 10\%$ other on request
Input frequency	47 ... 63 Hz
Input current	type-dependent (max. 10 A)
Ambient temp.	0 °C ... 40 °C

### Displays

Output voltage	3.5-digit digital display
Output current	3.5-digit digital display
Voltage control (CV-mode)	LED
Current control (CC-mode)	LED
HV-ON	signal lamp

### Output

Discharge time (without load)	<60 s (type-dependent)
Output voltage	positive or negative (reversal polarity as option) connected to earth
Output socket	Heinzinger HV-socket, passed through to the output voltage

### Analog Interface for remote control

Voltage adjustment	0...10 V
Current adjustment	0...10 V
Voltage monitor	0...10 V
Current monitor	0...10 V
Output on/off	contact NO = on
Connector	15-pin Sub-D-socket

### Enclosure

Universal enclosure for use as 19"-rack-mount or as benchtop version (12U units as 19"-rack)  
 Width 19" (443 mm), height & depth type dependent.

### Voltage stabilization

Setting range	approx. 0.5 % to 100 % $U_{nom}$
Setting accuracy (manual operation)	$\leq 0.02\%$ $U_{nom}$
Line regulation (at $\pm 10\%$ mains voltage change)	$< \pm 0.01\%$ $U_{nom}$
Load regulation (on load step from 0 to 100%)	$\leq 0.05\%$ $U_{nom}$
Response time (on load current change from deviation 0 to 100%)	$< 5$ ms to $0.1\%$ $U_{nom}$
Stability (under constant conditions)	$\leq 0.01\%$ $U_{nom}$ over 8 h
Temperature coefficient	$\leq 0.01\%$ $U_{nom} / K$
Ripple	$\leq 0.01\%$ pp $U_{nom}$ $\pm 50$ mV

### Current stabilization

Setting range	approx. 0.5 % to 100 % $I_{nom}$
Setting accuracy (manual operation)	$\leq 0.02\%$ $I_{nom}$
Line regulation (at $\pm 10\%$ mains voltage change)	$< \pm 0.01\%$ $I_{nom}$
Load regulation (on output voltage change of around $\pm 10\%$ due to load change)	$< 0.1\%$ $I_{nom}$
Response time (on output voltage change of around $\pm 10\%$ due to load change)	$< 5$ ms
Stability (under constant conditions)	$\leq 0.05\%$ $I_{nom}$ over 8 h
Temperature coefficient	$\leq 0.01\%$ $I_{nom} / K$
Ripple	$\leq 0.02\%$ pp $I_{nom} \pm 500$ $\mu A$

### Scope of supply

- Heinzinger PNC unit according to type description
- Heinzinger HV-cable with HV-connector, length 3 m
- Power cable 1.5 m, with connector (CEE7)
- Plug for analog interface

## Accessories / Options:

- Option 01, all outputs on the rear side (system)
- >35 kV always have outputs on the rear side)
- Option 02, interlock connection
- Option 04, 4 1/2-digit digital displays
- Option 10, DC isolation of the analog interface
- Option 22, coarse/fine setup control
- Option 41, power control
- Option 46, ramp control
- Option 52, rapid discharge circuit
- Option 56, ARC detection with power cut
- Option 57, setting of voltage and current limits
- Option 60, polarity reversion of the output voltage
- Option 61, electrical polarity reversion
- Option 72, digital 12-bit interface
- Option 95, Calibration Certificate

Type	Voltage (V DC)	Current (mA)	Power (W)	Height (U)	Rack Depth (mm)	Weight (kg)	Part number**
PNC 600 - 100	0 ... 600	0 ... 100	60	3	500	7	00.220.400.x
PNC 600 - 300		0 ... 300	180	3	500	7	00.220.401.x
PNC 600 - 1000		0 ... 1,000	600	3	540	10	00.220.402.x
PNC 600 - 2000		0 ... 2,000	1,200	4	585	15	00.220.403.x
PNC 600 - 3000		0 ... 3,000	1,800	4	585	20	00.220.404.x
PNC 1500 - 40	0 ... 1,500	0 ... 40	60	3	500	8	00.220.406.x
PNC 1500 - 100		0 ... 100	150	3	500	8	00.220.407.x
PNC 1500 - 400		0 ... 400	600	3	540	10	00.220.408.x
PNC 1500 - 800		0 ... 800	1,200	4	585	15	00.220.409.x
PNC 1500 - 1200		0 ... 1,200	1,800	4	585	20	00.220.410.x
PNC 3500 - 20	0 ... 3,500	0 ... 20	70	3	500	6	00.220.412.x
PNC 3500 - 50		0 ... 50	175	3	500	7	00.220.413.x
PNC 3500 - 200		0 ... 200	700	3	585	12	00.220.414.x
PNC 3500 - 300		0 ... 300	1,050	4	585	15	00.220.415.x
PNC 3500 - 500		0 ... 500	1,750	4	585	20	00.220.416.x
PNC 6000 - 10	0 ... 6,000	0 ... 10	60	3	500	7	00.220.418.x
PNC 6000 - 30		0 ... 30	180	3	500	8	00.220.419.x
PNC 6000 - 100		0 ... 100	600	3	540	10	00.220.420.x
PNC 6000 - 200		0 ... 200	1,200	4	585	15	00.220.421.x
PNC 6000 - 300		0 ... 300	1,800	4	585	20	00.220.422.x
PNC 10000 - 6	0 ... 10,000	0 ... 6	60	3	500	7	00.220.424.x
PNC 10000 - 20		0 ... 20	200	3	500	8	00.220.425.x
PNC 10000 - 60		0 ... 60	600	3	540	12	00.220.426.x
PNC 10000 - 120		0 ... 120	1,200	4	585	18	00.220.427.x
PNC 10000 - 200		0 ... 200	2,000	4	585	22	00.220.428.x
PNC 20000 - 3	0 ... 20,000	0 ... 3	60	3	500	10	00.220.430.x
PNC 20000 - 10		0 ... 10	200	3	500	16	00.220.431.x
PNC 20000 - 30		0 ... 30	600	3	540	18	00.220.432.x
PNC 20000 - 60		0 ... 60	1,200	4	585	25	00.220.433.x
PNC 20000 - 100		0 ... 100	2,000	4	585	32	00.220.434.x
PNC 30000 - 2	0 ... 30,000	0 ... 2	60	3	500	12	00.220.436.x
PNC 30000 - 5		0 ... 5	150	3	500	18	00.220.437.x
PNC 30000 - 20		0 ... 20	600	3	540	18	00.220.438.x
PNC 30000 - 40		0 ... 40	1,200	4	585	25	00.220.439.x
PNC 30000 - 60		0 ... 60	1,800	4	585	32	00.220.440.x
PNC 40000 - 1	0 ... 40,000	0 ... 1	40	3	500	15	00.220.442.x
PNC 40000 - 5		0 ... 5	200	3	500	15	00.220.443.x
PNC 40000 - 15		0 ... 15	600	4	540	30	00.220.444.x
PNC 40000 - 30		0 ... 30	1,200	6	585	45	00.220.445.x
PNC 40000 - 50		0 ... 50	2,000	6	585	53	00.220.446.x
PNC 60000 - 1	0 ... 60,000	0 ... 1	60	3	500	22	00.220.448.x
PNC 60000 - 3		0 ... 3	180	3	500	22	00.220.449.x
PNC 60000 - 10		0 ... 10	600	6	620	49	00.220.450.x
PNC 60000 - 20		0 ... 20	1,200	6	620	50	00.220.451.x
PNC 60000 - 30		0 ... 30	1,800	6	620	58	00.220.452.x
PNC 100000 - 1	0 ... 100,000	0 ... 1	100	6	580	50	00.220.454.x
PNC 100000 - 3		0 ... 3	300	9	620	50	00.220.455.x
PNC 100000 - 6		0 ... 6	600	9	620	70	00.220.456.x
PNC 100000 - 10		0 ... 10	1,000	12*	700	95	00.220.457.x
PNC 100000 - 20		0 ... 20	2,000	12*	700	105	00.220.460.x
PNC 150000 - 1	0 ... 150,000	0 ... 1	150	12*	700	110	00.220.458.x
PNC 150000 - 1,5		0 ... 1.5	225	12*	700	125	00.220.459.x
PNC 200000 - 1	0 ... 200,000	0 ... 1	200	23*	800	230	00.220.461.x
PNC 200000 - 1,5		0 ... 1.5	300	23*	800	230	00.220.462.x
PNC 250000 - 1	0 ... 250,000	0 ... 1	250	37*	800	300	00.220.463.x
PNC 300000 - 1	0 ... 300,000	0 ... 1	300	37*	800	400	00.220.464.x

\*12/23/37 U-systems are supplied in cabinets, height 600/1300/2000 mm (1U = 44.45 mm)

Different voltage- or current combinations are available on request.

Dimensions and weights are approximations and may vary depending on the version configurations

\*\*All devices are available with positive x = 1 or negative x = 9 polarity

## Other High Voltage Power Supplies

### EVO – The new generation of high voltage power supplies



The EVO series supplies your application with constant and reliable high voltage. Both state-of-the-art technology and software have been developed for these units for intuitive operation and protection for the high-voltage power supply, test equipment and personal.

#### Features

- DC voltage classes: 1.5 kV / 5 kV / 10 kV
- Precision: 0.01 %
- Reversible polarity, positive or negative
- Output power: 2 kW or 3 kW
- Output current up to 2,000 mA
- Wide range AC input, singlephase
- Ethernet and RS232 interfaces on board
- Comprehensive protective functions, e.g. OVP & OCP
- Interlock contacts as standard
- For worldwide use, compliant with CSA, UL & CE
- Innovative operating concept & HMI



### PNChp - High Precision



The high-precision power supplies of the PNChp series achieve a ripple and stability of <math><0.001\%</math> in voltage stabilization thanks to special design features and optimized circuits.

#### Features

- Voltages up to 300,000 V
- Low residual ripple and excellent long term stability up to 0.001 %
- Output power up to 2,000 Watt
- Continuous short circuit proof
- Reverse voltage proof



### PNC3p - Powers up to 6 kW



The PNC3p is designed for high performance and sophisticated applications and is available with an output power up to 6 kW.

#### Features

- Low residual ripple and excellent long term stability
- Output power up to 6,000 Watt
- Continuous short circuit proof
- Reverse voltage proof



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