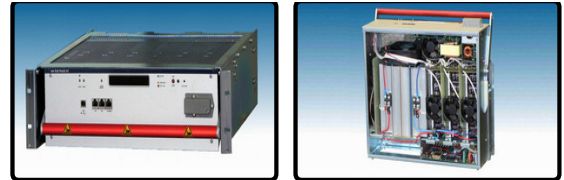


# PG501

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PG501



The WIENER PG501 is a 1.8 kW / 20A class programmable bipolar current source for magnets. The power supply is based on the 3U high 19" PL506/512 chassis design with power bin and a plug-in power supply box which allows replacement of power supplies in shortest time without use of any tools.

The primary DC power supply is using high efficiency WIENER power modules in low-noise switching technology. The bipolar current outputs are generated from a true Four-Quadrant converter and are capable of both sourcing and sinking power. This design also guarantees smooth and continuous transition through zero current.

Using a high precision / high stability current shunt measurement circuit and control loop an excellent accuracy in current setting, reproducibility as well as stability is given.

The PG501 bipolar current source features local and remote monitoring and control including current set points, ramp rates and limits. For remote monitoring and control the power supply provides USB and Ethernet ports and compatibility to the standard WIENER protocols (SNMP, web-ready).

## Main Features

- 19" rack-mountable 1.8kW current controlled bi-polar power supply, +/-30A / +/-75V
- Fully microprocessor controlled, programmable current skew warning and trip levels
- High resolution / accuracy current measurement and settings
- Extremely low noise and ripple

- Modular design with rack-mountable power bin and plug-in power supply

## PG501 Features

- 19" rack-mountable 1.8kW current controlled bi-polar power supply
- Based on PL 506 technology with low-noise switching primary stage (3 MEH 85V/650W modules),
- Power Efficient Design: MEH output voltage adjustment for low load voltage levels to reduce power dissipation
- FET 4-Quadrant converter / Regulator with high precision shunt / ADC's and DAC's for monitoring and control
- Output Voltage: 0V ... +-75V,
- Output Current: - 30A ... +30A max.
- High precision current measurement and control, 100ppm regulation and stability
- Integrated safety features as programmable maximum voltage and current limits, oOver-current, over-voltage and over-temperature protection
- Programmable current skew rates (ramp) up to 50A/s
- Microprocessor controlled with optional high-visibility alphanumeric display (EX version)
- Ethernet and USB interfaces for remote monitoring and control, TCP/IP communication with SNMP protocol, Web interface
- External interlock option
- Internally air cooled with DC fans, air flow from bottom to top (optional front to rear air flow in 4U power bin and air baffle)
- CE conform EN 50 081/82 part 1 (EN 50 022 B), safety in accordance with EN 60 950
- AC input voltage: auto range 110 to 260V, 50 to 60Hz, single phase 16A
- Sinusoidal mains current EN 61000-3-2 (power factor corrected)
- Dimensions: 19" (482mm) x 3U or 4U x 480mm [whd], weight: ca. 25 Kg

## PG506 consists of:

- > **Power Bin:** 19" bin for rack mounting hosting a power box

Type	Dimensions	Features
PGN501 – 3U	3U x 19" x 445mm	Folded metal case
PGN501 – 4U	4U x 19" x 445mm	Aluminum side panels

- > **Power Box** containing a PFC mains input module, bipolar power channel and a control card. The power box includes the Ethernet/USB combo card and can be outfitted with an optional display (EX version) as well as individual channel interlock feature (I option)

Type	Dimensions	Features
PGX501	3U x 19" x 445mm	Ethernet, USB, "Easy Lever" extraction mechanism
PGX501 – EX	3U x 19" x 445mm	Display, Ethernet, USB, "Easy Lever" extraction mechanism

### Regulation (fast circuit for short sensed distance)

Static:		
MEH 550W/650W	<15mV	+/-100% load, +/- full mains range
MDH (20A)	<0.05%	+/-100% load, +/- full mains range

MDL, MDH	<0.1%	+/-100% load, +/- full mains range
<b>Dynamic (0,5 m wire)</b>		
MEH, MDH	<100mV	+/-25% load
MDL, MDH	<0.7%	+/-25% load

<b>Recovery time (0,5 m wire) +/-25% load</b>	<b>within +/-1% deviation</b>	<b>within +/-0.1% dev.</b>
Modules 550W	0.2ms	0.5ms
Modules 650W >30V	0.5ms	1.0ms
MDL, MDH	0.0ms	1.0ms

**Conditions:** Current slope <1000A/ms, 20mF per 100A parallel to load

#### Regulation (slow circuit for long sensed distance)

##### Static:

MEH 550W/650W	<15mV	+/-100% load, +/- full mains range
MDL, MDH	<0.05%	+/-100% load, +/- full mains range

**Dynamic deviation** depends on current slope resp. filter capacitors at load side only

<b>Recovery time (40 m wire) 5V at load side, V drop &lt; 2V</b>	<b>within +/-10% deviation</b>	<b>within +/-1% deviation</b>
MEH, MDH	<150ms	250ms
MDL	<150ms	320ms

**Regulation timing** adaptable to dynamic conditions (induced by cable length, voltage drops, sinker and filter capacities at load side)

#### DC output characteristics

Sense compensation range	limited to < 10V or nom voltage (except special versions)
Sense mode	closed loop and continuously controlling regulator to load
Floating Range PL508	>nominal output voltage for MEH, min. +/-10V for voltage ranges < 7V MEH and MDL

#### Noise and ripple

0.5 m wire (< 7V)	<10mV peak to peak	0-20 MHz
0.5 m wire (> 7V)	<15mV peak to peak	0-20 MHz
10 m wire	<3mV peak to peak	0-300 MHz

**Conditions at load side:** parallel (X) 330µF and 1µF ceramic, 100nF HF conducting to case (Y) each line

**EMC compatibility**

EN 61 000-6-3:2001	[RF emission]
EN 55 022:1998 + Corr:2001 + A1:2000 Class B	conducted noise
EN 55 022:1998 + Corr:2001 + A1:2000 Class B	radiated noise
EN 61 000-3-2:2001	harmonics
EN 61 000-3-3:1995 +Corr:1997 +A1:2001	flicker
EN 61 000-6-2:2001	[immunity]
EN 61 000-4-6:1996 + A1:2001	injected HF currents
EN 61 000-4-3:1996 + A1:1998 + A2:2001	radiated HF fields, "900MHz"
EN 61 000-4-4:1995 + A1:2001	burst
EN 61 000-4-5:1995 + A1:2001	surge
EN 61 000-4-11:1994 + A1:2000	voltage variations
EN 61 000-4-2:1995 + A1:1998 + A2:2001	ESD

**Parameter**

<b>Emission:</b>	CE EN 50081-1 (EN 55 022-B)
<b>Immunity:</b>	CE EN 50082-1 or 2
<b>Operation temperature:</b>	0...50°C without derating, storage: -30°C till 85°C
<b>Temperature coefficient:</b>	< 0.2% / 10K
<b>Stability (condition const.):</b>	<5mV or 0.1% within 24 h, <25mV or 0.3% within 6 months
<b>Current limiting:</b>	100% of nominal values, programmable to lower values via Interface or display tableau. In case of overcurrent: $I_{lim}$ defines a constant current level, if status $U_{min}$ set to 0V for the concerned channel, $I_{max}$ defines the global trip off setpoint independant of status voltage window
<b>Voltage rise:</b>	Monotone and synchron. 50ms ramping (factory settings), other slope and different timing programmable
<b>Voltage set:</b>	discharge of output capacitors after DC off.
<b>OV protection:</b>	Factory setting to 125% of nominal values
<b>Status control: DC Off (trip off):</b>	within 3ms if >2% (default) deviation from nominal or programmed values , after overload, overheat (temperature limits 90/110°C heat sink, 70°C ambient), overvoltage, undervoltage , all trip off points processor controlled and programmable / disabling
<b>DC Off / On, channel</b>	By setting status $U_{min}$ and output Voltage of selected channel both to 0V

<b>wise</b>	
<b>Interlock input:</b>	High level or open: All outputs DC off (optional feature)
<b>Temperature limits:</b>	90°C mains input, 110°C modules (heat sink), 70°C ambient internal
<b>Efficiency:</b>	Power module: 75% 2V/ -83% >5V/ -85% >12V/-90% >48V for 230VAC input voltage
<b>M T B F:</b>	>65,000 h (blower), electronics > 100,000 h at 40°C ambient

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## Product Data Sheet

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PG501: [Print Product Data Sheet](#)

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## Documentation

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Manual: [PG501](#)

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[RemoteControl](#)

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Introduction: [WIENER Power Supplies intro](#)

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## Downloads

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MUSEcontrol : [Download](#)

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SNMP: [Download](#)

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OPC-Server: [Download](#)

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USB-to-IP: [Download](#)

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