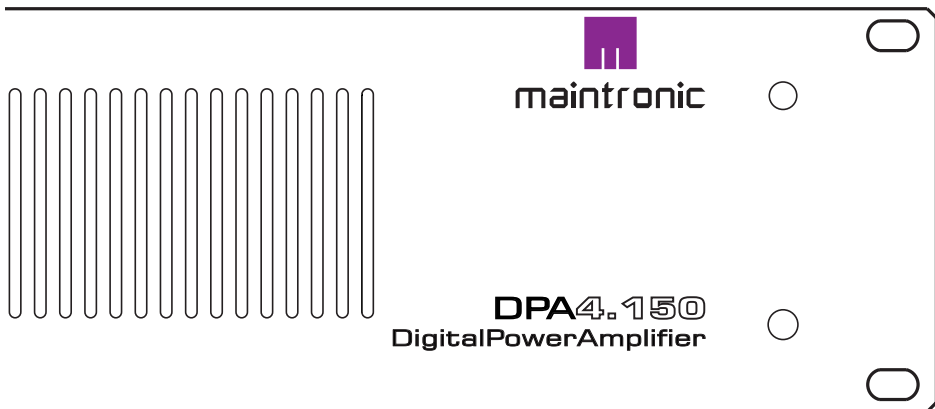




maintronic

service manual

# DPA4.150 Digital Power Amplifier



Version: 16.11.2016

## Safety instructions



### Attention!

For your own safety, read all instructions and information in this manual carefully before initial operation. Keep this manual for future reference.

All information and instructions in this manual must be observed completely and in detail. The manufacturer is not responsible for any direct or consequential damage that results from disregarding any information in this manual.

Remove mains power cord if the unit is not used for a prolonged time. Be sure to install the device only on places with a good ventilation and without humidity or high temperatures



### Danger!

The interior and the connectors of the amplifier holds hazardous voltages.

The unit must only be installed and serviced by a proven electrician specialist, in accordance of all relevant regulations, safety and accident prevention directives of the country. To prevent electric shock, use only mains sockets with hidden, touch-proof contacts.

Make sure to use the correct supply voltage, before operating the unit. During operation is a dangerous high voltage present at the speaker connections. Disconnect the mains power supply prior to connection or disassembly. If the loudspeaker output is not in use make sure to cover the connectors with the included plastic housing.

An apparatus with CLASS I construction shall be connected to a MAINS socket outlet with L,N and an protective earthing connection.

Install the device only on places with a good ventilation and without humidity or high temperatures. Do not open the amplifier. Otherwise you will risk a damage and void the warranty.

The unit should be serviced by qualified personnel when the unit:

- objects have fallen or liquid has been spilled into the unit
- has been exposed to rain
- does not appear to operate normally
- has been dropped or has a broken housing

Do not operate the system in a humid environment. Do Not expose the unit to rain or snow.

Do not operate the unit near heat sources, e.g. radiators.

Always run the mains power cord in a way that it cannot be pinched by objects and that nobody can stumble over it. Avoid sharp bends or excessive tension on the mains cord, particularly at the cable exits. Never pull at the cable or the plug to disconnect the Unit from mains.

For cleaning only use a dry, soft cloth, by no means liquids.

 **Touch proof installation**

The unit must only be installed in a closed 19-inch rack and has to be mounted with four rack screws. To ensure not to touch with bare hands at the connectors the installation in a closed housing is necessary.



**Waste disposal**

In accordance with European Directive 2002/96/EC (it's) not longer usable electronic devices and defective or used batteries (European Directive 2006/66EG)

must collected separately and disposed by an environmentally sound recycling.

This symbol indicates that electrical and electronic equipment must be disposed of separately from normal waste at the end of its operational lifetime.

Should these product are no longer be useable, the user is required by law to dispose of old appliances separately from their household waste e. g. at a local authority collection point or recycling center.

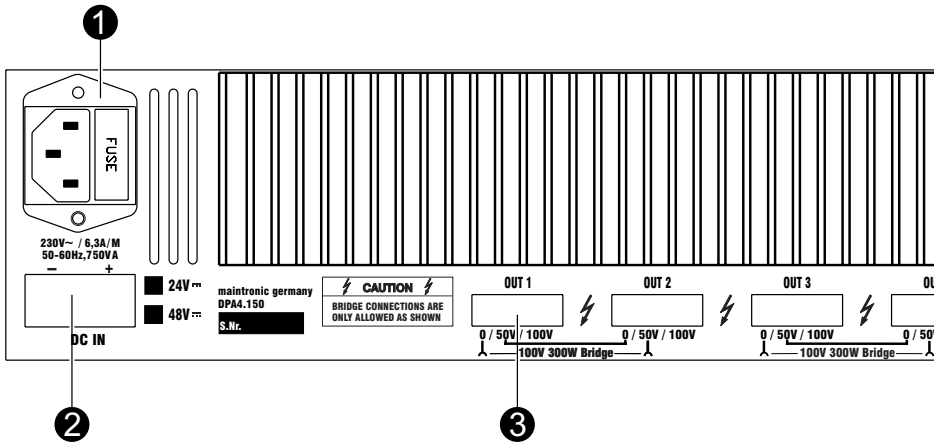


	<b>CAUTION</b> RISK OF ELECTRIC SHOCK DO NOT OPEN	
---	---	---



<b>WARNING: TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK DO NOT EXPOSE THIS APPLIANCE TO MOISTURE. TO MAKE ALL CONNECTIONS PROPER, PLEASE SEE USERS MANUAL.</b>
---

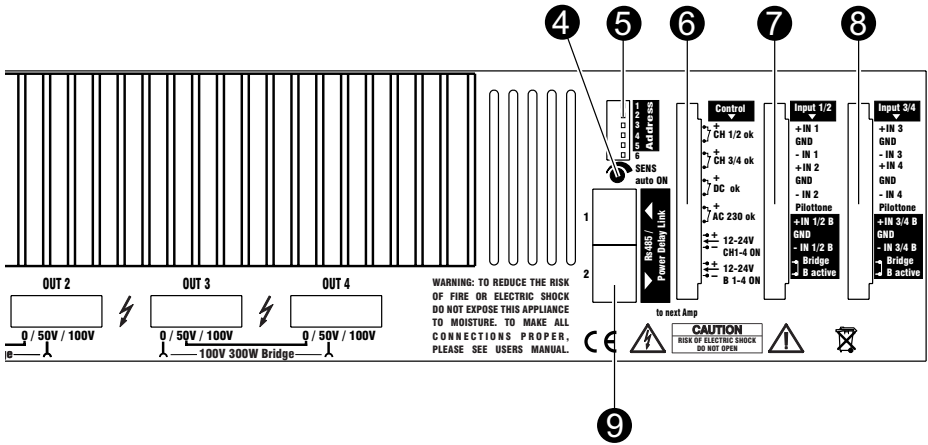
## system parts rear view



- (1) IEC plug - power supply 230V AC
- (2) DC-In plug-in screw terminal block 2 pin
- (3) Loudspeaker outputs 50 / 100V  
Out 1 - Out 4  
plug-in screw terminal block 2 pin

### Legend / Explanation:

ok	Monitoring contact open after error
Pilottone	Input for a pilottone
+IN / -IN	Symmetrical input
+IN / GND	Unsymmetrical input
CH1-4 ON / B1-4 ON	Audio-Channel-Remote with an external DC Voltage
Bridge/ B-activate	Activate the IN1/2B (IN3/4B) bridge input



- (4) Auto Sens gain sensitivity
- (5) communication address (optional)
- (6) Monitoring contacts - plug-in screw terminal block 12pin
- (7) Input 1 and 2 - plug-in screw terminal block 12pin
- (8) Input 3 and 4 - plug-in screw terminal block 12pin
- (9) RJ45 socket for RS485 Bus communication and Power-Delay-Link

(6)	(7)	(8)
<b>plug-in screw terminal block</b>		
+ CH 1/2 ok	+ IN 1	+ IN 3
CH 1/2 ok	GND	GND
+ CH 3/4 ok	- IN 1	- IN 3
CH 3/4 ok	+ IN 2	+ IN 4
+ DC 24V ok	GND	GND
DC 24V ok	- IN 2	- IN 4
+ AC 230V ok	Pilottone	Pilottone
AC 230V ok	+IN 1/2 B	+IN 3/4 B
+ 12-24V CH1-4 ON	GND	GND
- 12-24V CH1-4 ON	- IN 1/2 B	- IN 3/4 B
+ 12-24V B 1-4 ON	Bridge	Bridge
- 12-24V B 1-4 ON	B-active	B-active



The control outputs are opto-couplers with a max load of 24V 10mA. Keep attention for the correct polarity. All controls are normal closed by meaning ok.

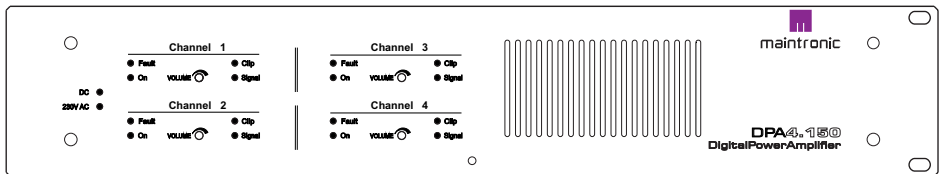
## installation

Install the unit proper in a 19-inch rack with four rack screws.  
Make sure to have enough space for air circulation.

Connect the NF-inputs and outputs with the according plug connectors.  
The input can be used symmetrical or unsymmetrical.  
Important is, to check the right connection of the ground (shield) and signal.

Apply all the connectors as well as loudspeakers and monitoring contact.  
At least connect the IEC plug - power supply 230V AC  
Check all wiring and fasten them to the rack housing.

After turn-on of the amplifier, the Power LED glows.



Front view

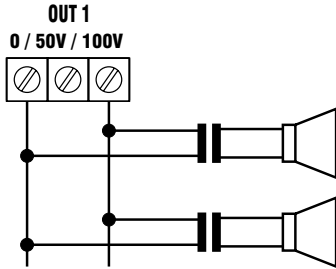
### LED-Indicators front:

- Fault : amplifier block error, see trouble shooting next page
- On : amplifier block ready
- Clip: input signal to high
- Signal: input signal is present
- 24V DC: shows present accu voltage (working range 18-28V)
- 230V AC: main power is present

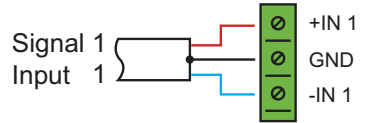
### Level Control:

- Level: input gain level Input 1-4 (not for Input B or Pilottone)

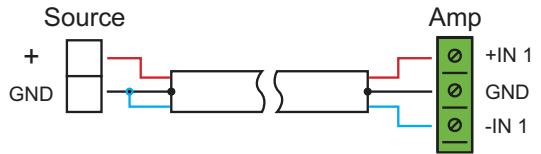
**Connection mono mode - for IN1, IN2, IN3 and IN4**



100 V /  $\Sigma$  150 W / 66  $\Omega$   
 (50 V / 16  $\Omega$ )



*Symmetrical connection*



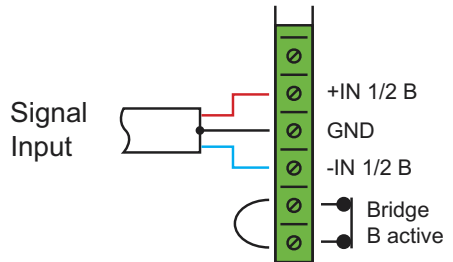
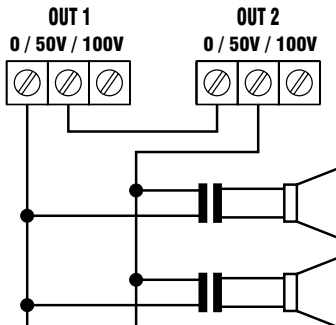
*Unsymmetrical connection*

**Connection bridged mode - for IN 1/2 B and IN 3/4 B**

**Attention when using bridged mode:**



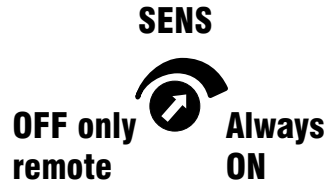
Bridge connections are only allowed as shown.  
 Please make sure not to connect otherwise as in the below picture shown.  
 A dangerous high voltage may remain at the output connectors.  
 Other type of wirings are not allowed.



100 V /  $\Sigma$  300 W  
 33  $\Omega$

**Auto-ON:****Option 1:**

Amplifier channels 1-4 can turned-ON when a audio NF signal is present at the inputs. Each channel use the own Input. Input signal sensitivity can be adjusted with the SENS-control (4). Sensitivity 7-300mV

**Option 2:**

If the SENS-control-encoder is turned to the right position, the amplifier is always ON.

**Option 3:**

If the SENS-control-encoder is turned to the left position, the Auto-ON function is OFF and the amplifier can only be activated with remote.

**Audio-Channel-Remote (CH 1-4 ON)**

The Channels 1-4 can remotely turned-ON and OFF with a external DC-Power.

Turn the SENS-control-encoder to the left position. Connect a 12-24 V DC-Power to the CH1-4 ON contact at plug (6) to remote-ON the Inputs 1-4.

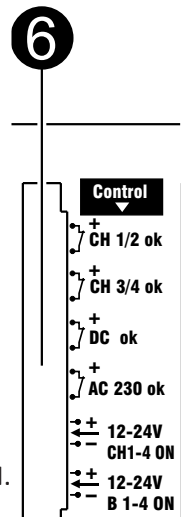
As long as the DC-Power is present, the Inputs 1-4 are ON.

**Bridged-mode-Remote (B 1-4 ON)**

Use the B1-4 ON contact on plug (6) for remote-ON the Bridge mode channels IN 1/2 B and IN 3/4 B.

Connect a 12-24 DC-Power to the B1-4 ON contact at plug (6) to remote-ON all bridge channels B 1/2 and B 3/4.

Once the Input B is active all Inputs IN1, IN2, IN3 and IN4 are deactivated. The SENS-control has no influence to B 1-4 ON. As long as the DC-Power is present, the Inputs B are ON.



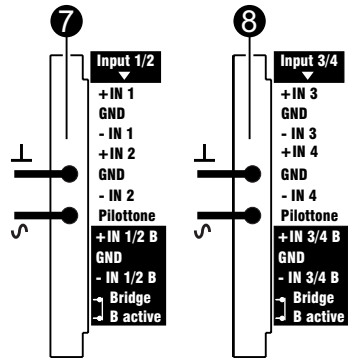


**Pilottone:**

Uncontrolled Pilottone without any Filter or Frequency

contact for Input 1/2 and Input 3/4  
Use the contact „Pilottone“ on the plug (7) for IN 1/2 or „Pilottone“ on plug (8) for IN 3/4.

Sensitivity 1V = 3V at the outputs



Auto-ON function diagram, shows the Inputs and the activity of each channel.

Inputs SENS active	IN 1	IN 2	Pilot 1/2	B1/2	IN 3	IN 4	Pilot 3/4	B3/4
Auto ON 7-300mV Option 1	CH 1 ON	CH 2 ON	CH 1/2 ON	OFF	CH 3 ON	CH 4 ON	CH3/4 ON	OFF
Auto ON IN 1	CH 1 ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
Auto ON IN 2	OFF	CH 2 ON	OFF	OFF	OFF	OFF	OFF	OFF
Auto ON IN 3	OFF	OFF	OFF	OFF	CH 3 ON	OFF	OFF	OFF
Auto ON IN 4	OFF	OFF	OFF	OFF	OFF	CH 4 ON	OFF	OFF
Pilot 1/2	OFF	OFF	CH 1/2 ON	OFF	OFF	OFF	OFF	OFF
Pilot 3/4	OFF	OFF	OFF	OFF	OFF	OFF	CH 3/4 ON	OFF
SENS deactivated	IN 1	IN 2	Pilot 1/2	B1/2	IN 3	IN 4	Pilot 3/4	B3/4
Always ON Option 2	CH 1 ON	CH 2 ON	CH 1/2 ON	OFF	CH 3 ON	CH 4 ON	CH 3/4 ON	OFF
Audio-Channel-Remote CH 1-4 ON - Option 3	CH 1 ON	CH 2 ON	CH 1/2 ON	OFF	CH 3 ON	CH 4 ON	CH 3/4 ON	OFF
Bridged-mode-Remote B 1-4 ON	OFF	OFF	CH 1/2 ON	CH 1/2 ON	OFF	OFF	CH 3/4 ON	CH 3/4 ON
B-active 1/2	OFF	OFF	OFF	CH 1/2 ON	CH 3 ON	CH 4 ON	CH 3/4 ON	OFF
B-active 3/4	CH 1 ON	CH 2 ON	CH 1/2 ON	OFF	OFF	OFF	OFF	CH 3/4 ON

## installation

### Power-Delay-Link:

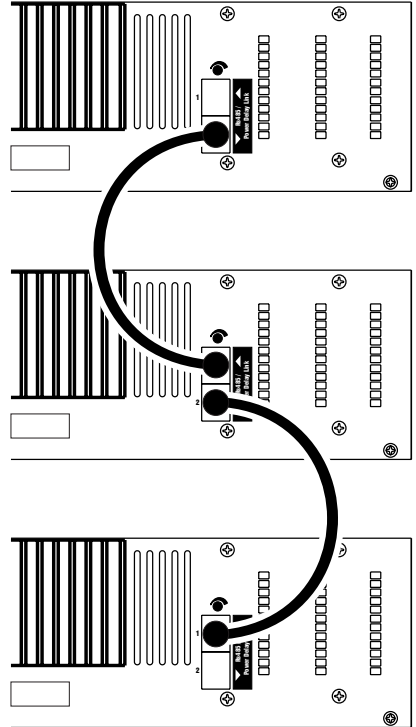
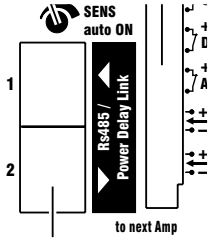
Use the RJ45 sockets for a Sequential-Power-ON of the amplifiers with a delay to protect the mains.

Link the amplifiers with RJ45 Patch cable.

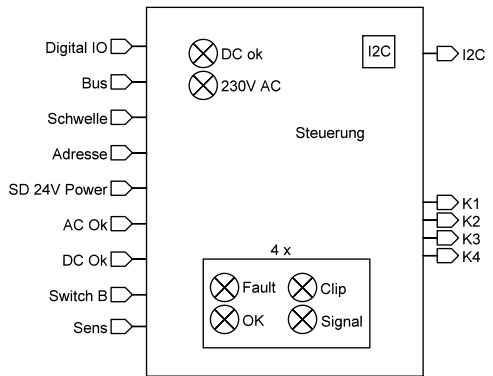
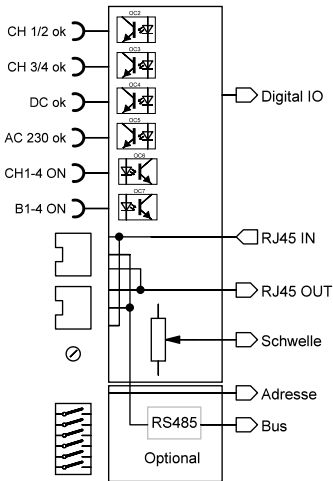
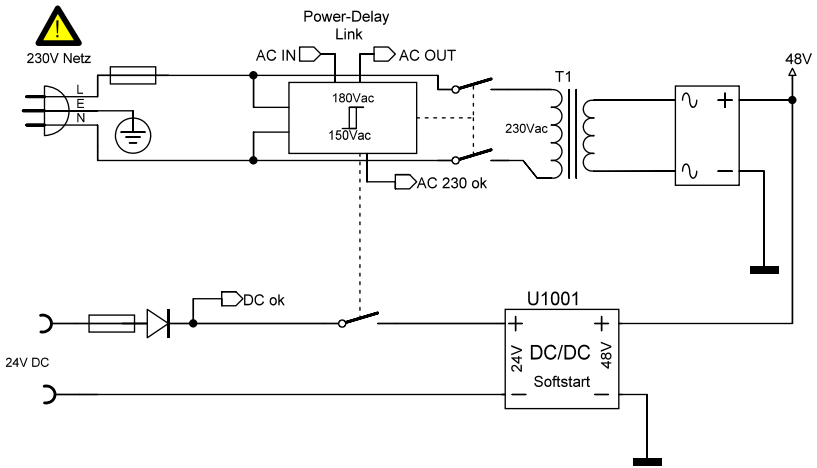
Once a Power-ON request starts, the amplifiers start-up one after the other, approx. 2 seconds per device.

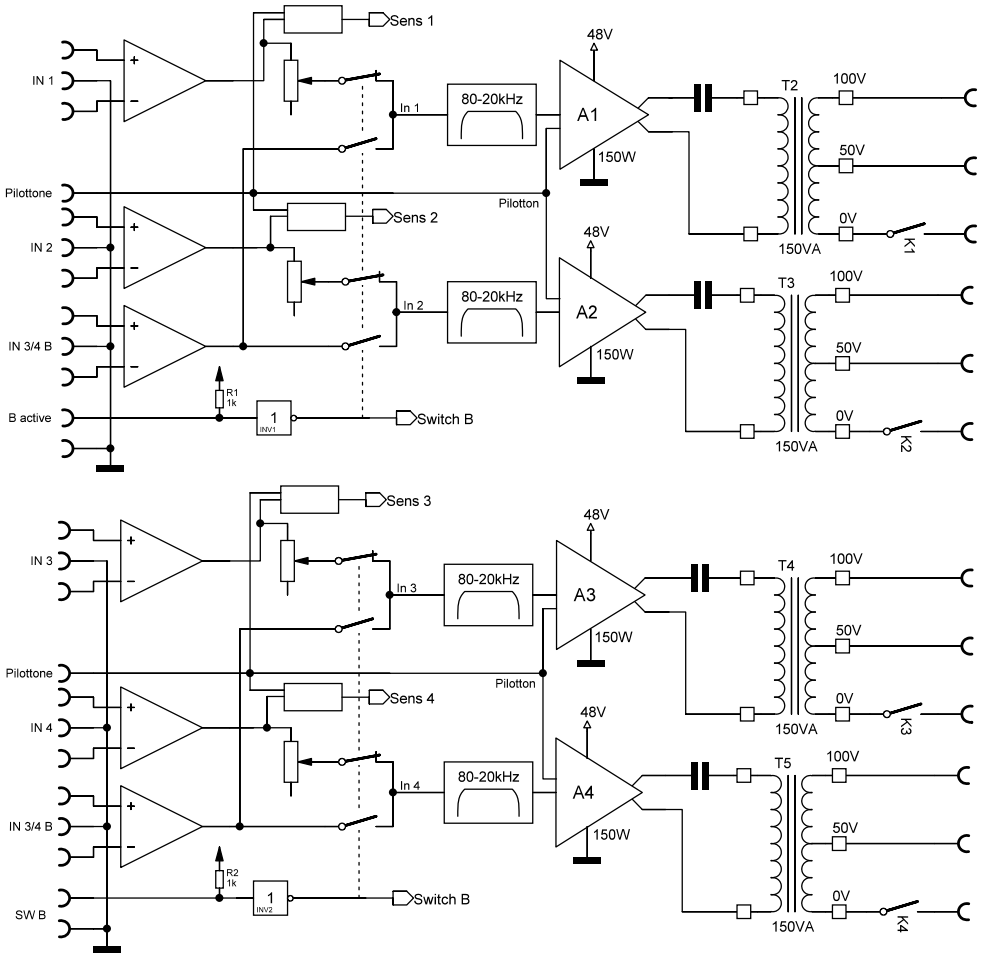
### Important:

For the first amp use the RJ45 - 2 = OUT, to the next amp RJ45 - 1 = IN.



	measuring condition	Data
Supply voltage AC		220-240 V AC, 50/60 Hz
Supply voltage DC		24V (20 - 28V DC) optional 48V (42 - 58V DC)
Power (RMS) (at 230V~ power supply)	66 Ohm/33 Ohm 100V	4x150W 2x300W
THD+N	1kHz 50W	0,2%
Frequency response	-3dB	80Hz – 20kHz
Input sensitivity	1kHz	0,7V eff
Input impedance	1kHz	10Kohm
Signal-to-noise ratio	1kHz; 50W; Vol 0.5	85dB
Autosense On		-45dB
Electronically balanced inputs		1 input each channel
<b>Optional transducer potential-free</b>		
Starting current	230V AC	11A with NTC recovery time 70 sec.
Starting current with R 100Ohm optional	230V AC	6A (500mS) with R recovery time 1 sec
<b>Power consumption</b>		
Standby	24V DC	0,16A 3,8W
Standby	230V AC	0,045A 10W
Full load	24V DC Sinus signal	27A
Full load	230V AC Sinus signal 100V 66 Ohm	3,7A
Sequential-Power-ON	Power Delay approx. 2 seconds per device	
<b>Connectors</b>		
Input connectors	plug-in screw terminal block 12 pin	
Output connectors	plug-in screw terminal block 3 pin	
DC In	plug-in screw terminal block 2 pin	
Power supply 230V	IEC plug - power supply 230V AC	
Potential-free outputs	with optocouplers max. 24V DC, 10mA (serial connection possible)	
Auto Sense	NF-Input >-50dBm (70Hz-20kHz Auto Sense)	
Remote ON	Channel On/Off through remote contact; 12V - 24V DC, ca. 10mA	
RS485 (optional)	RJ45	
Cooling	convection cooling; for temperature > 45°, speed-controlled fan is integrated	
Weight	16,5kg	
Dimension	19" 2RU (482x88x280 mm)	





## trouble shooting

### **Fault LED glows:**

The amplifier is too hot (heatsink is over 80°) or  
a short circuit is present at the loudspeaker outputs

LED should be turned off after disconnecting the loudspeaker

### **Humming noise:**

- 1: Check Input Ground connectors
- 2: through the PE conductor connections of different devices  
a ground loop can occur

### **Signal is distorted:**

1. turn down the level input gain
  2. reduce and check input signal
-





# maintronic

MTC maintronic GmbH  
Carl-Zeiss-Str. 10-14  
97424 Schweinfurt  
Germany

Tel +49 9721-7766-0  
Fax +49 9721-7766-18  
[www.maintronic.de](http://www.maintronic.de)  
[info@maintronic.de](mailto:info@maintronic.de)

## Made in Germany

Mistakes and typing errors reserved. All rights reserved.

Documentno.: maintronic\_DPA4\_150\_manual\_EN\_20161116