TA series

# TA604
# TA604L
# TA604D
# TA604DL

FOUR-CHANNEL INSTALLATION
POWER AMPLIFIERS

**Owner's Manual**


**AVIS**
**RISQUE DE CHOC ELECTRIQUE**
**NE PAS OUVRIR**

***CAUTION!*** *The amplifier runs on 230 VAC voltage. Removing the cover will expose you to a potentially dangerous voltage! Do not use the unit if the electrical power cord is frayed or broken.*

*Power is supplied from 230 VAC single-phase grounded 50/60 Hz source!*

***CAUTION!*** *The amplifier can yield* ***dangerous*** *output voltage! Do not touch the non-insulated cable parts, connected to the unit in operation!*

***CAUTION!*** *The high sound pressure level of speaker systems generated by high output power, delivered by the amplifier, may be hazardous to your hearing. Please, take adequate safety precautions.*

***WARNING!*** *The amplifier yields high output power. The manufacturer shall not be held responsible for any damage to the speakers caused by excessive power from the unit.*

***WARNING SIGNS:***

***Important information!***
Intended to warn the user about any important applicable information contained in this Owner's Manual.

***Hazardous voltage inside!***
Intended to warn the user about electric shock hazard due to high voltage inside the product.

## UNPACKING

The manufacturer's quality control system provides for careful examination of each product before it leaves the factory to ensure its flawless appearance. After unpacking, please, check the unit for any physical damage. In case of damage, please, contact your local dealer. Keep the shipping carton and all packing material, as you may require them for reshipment of the unit.

## SUPPLY KIT

| | |
|---|---|
| Power Amplifier | 1 pc. |
| Power Cable | 1 pc. |
| USB A – USB B Cable | 1 pc. (only for **TA604D** and **TA604DL**) |
| Connectors: | |
| – 3 pin Euroblock plug (2EDGK-5.08-3) | 4 pcs. |
| – 3 pin Euroblock plug (15EDGK-3.81-3) | 4 pcs. |
| – 4 pin Euroblock plug (15EDGK-3.81-4) | 2 pcs. (only for **TA604D** and **TA604DL**) |
| Owner's Manual | 1 pc. |
| Warranty | 1 pc. |

## GENERAL

**TA** series are four-channel power amplifiers designed for fixed installations. The series includes the following amplifier models:

– **TA604** – 4 x 150 W at 4 Ohm load;

– **TA604L** – 4 x 150 W for 70 V or 100 V line operation;

– **TA604D** – 4 x 150 W at 4 Ohm load, with **DSP**;

– **TA604DL** – 4 x 150 W for 70 V or 100 V line operation, with **DSP**.

***ATTENTION!*** *Unless specified otherwise, the word «amplifier» hereinafter applies to any of the above models.*

***WARNING!***

*Make sure to take all precautions where required.*

*Please, follow all instructions and guidelines.*

*To avoid any risk of electrical shock and/or fire hazard, please, do not expose this unit to rain or moisture. Do not use this unit near open water.*

*Use dry cloth to clean the unit.*

*Do not block fan vents.*

*Do not place the unit near heating radiators, furnaces or other heat-emitting devices.*

*Do not connect this unit to an ungrounded power supply line.*

*Protect the power cord against damage.*

*Disconnect the unit from power supply in case of thunder or during downtime.*

*In case of malfunctioning, caused by water or any other foreign matter inside or when the unit has been dropped, or the power cord has been damaged, or the unit has been found faulty, please, consult qualified personnel.*

## DESIGN FEATURES

**Physical Design**

The amplifier is enclosed in a metal (steel) case of 44 mm (1U) height. The amplifier is designed to be standard rack-mounted (19" rack).

**Power Supply Unit**

All four channels of the amplifier share the same switching power supply unit.

**Cooling System**

Natural. Individual for each pair of channels and power supply.

**Power Amplifier**

Class D power amplifier.

**Balanced Inputs**

The use of balanced inputs provides for an essential reduction of the environment-induced hum and noise interference with long input connecting cables.

**Line Outputs** (only for **TA604D**, **TA604DL**)

The line outputs have a post-**DSP** signal. The signal parameters are determined by the selected preset setting. You can change the signal parameters and presets using the **USB** interface.

**DSP** (only for **TA604D**, **TA604DL**)

Built-in **DSP engine**, installed into amplifier, ensures digital filtering, separation into frequency bands, optimal EQ, time alignment, as well limiting and speakers overload protection. The parameters set up is performed by personal computer, connected via **USB**-interface, by means of **Park Editor** (software does not require installation).

The software and Owner's Manual can be downloaded on **parkaudio.ua** («Downloads» in **TA604D**, **TA604DL** section). Moreover, in the «Video» section you can find tutorials on amplifiers settings by means of **Park Editor.**

**Gain Controls**

These allow setting the required level for each amplifier channel. The controls are located on the rear panel.

**Detachable Power Cord**

This feature is provided for convenience of transportation and rack mounting.

**Remote Level Controls** (only for **TA604D**, **TA604DL**)

The amplifier has function of wired remote level control, which ensures convenient control, when placing the amplifier in the 19"rack or at the place, where access to the rear panel is difficult.

## FUNCTIONAL FEATURES

**Overload and Short-Circuit Protection**

Individual per each channel. This protective system becomes active in case of short-circuited output or overload caused by reduced load impedance. It disables the output signal of the respective channel and then the amplifier gradually resumes its level. As overload protection activates, so lits the PROT LED the corresponding channels pair.

**Thermal Protection**

Independent for each pair of channels. In this case upon reaching 85°C, the independent protection system disables the respective pair of amplifier channels. The CLIP LED goes on and the SIGNAL LED of the affected pair of channels goes off.

As soon as the amplifier cools down, the affected channels gradually regain their level up to the set value.

**Soft Signal Start**

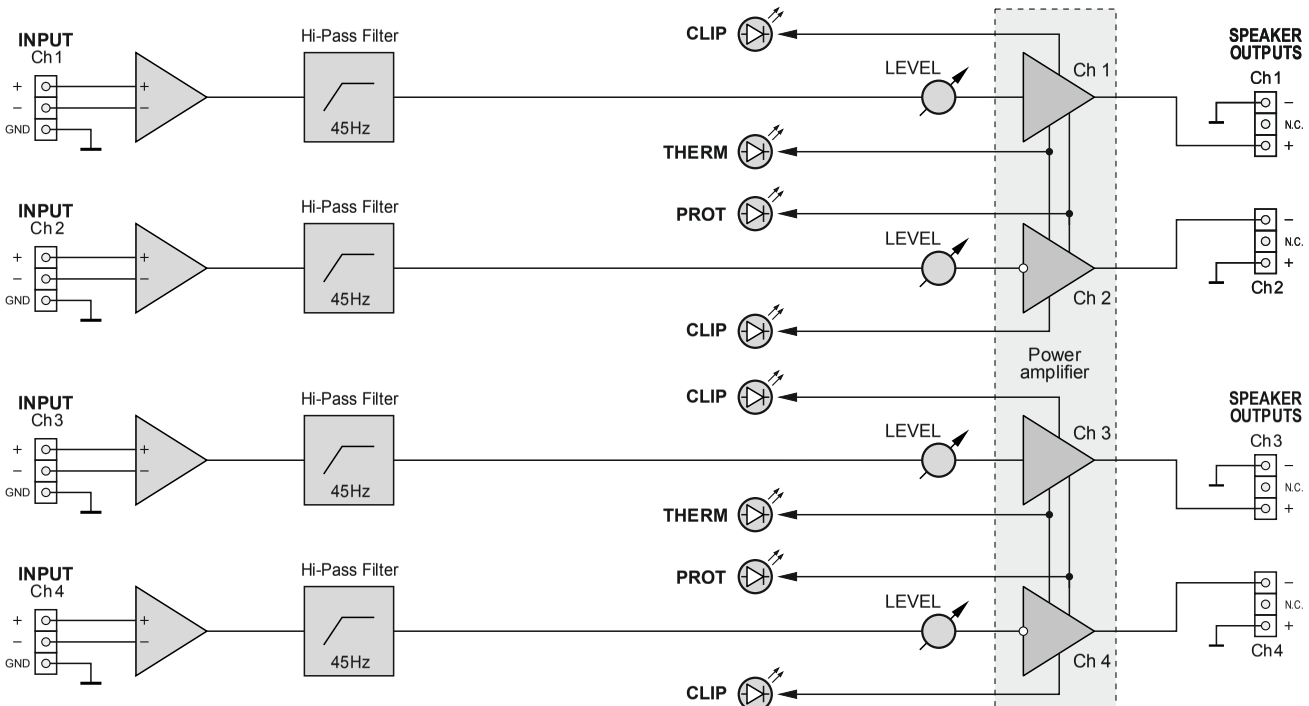
During the power-on process, this feature ensures smooth gain from zero to the set level to provide for a smooth rise of the sound level in the loudspeakers.

**AUTO STANDBY Mode**

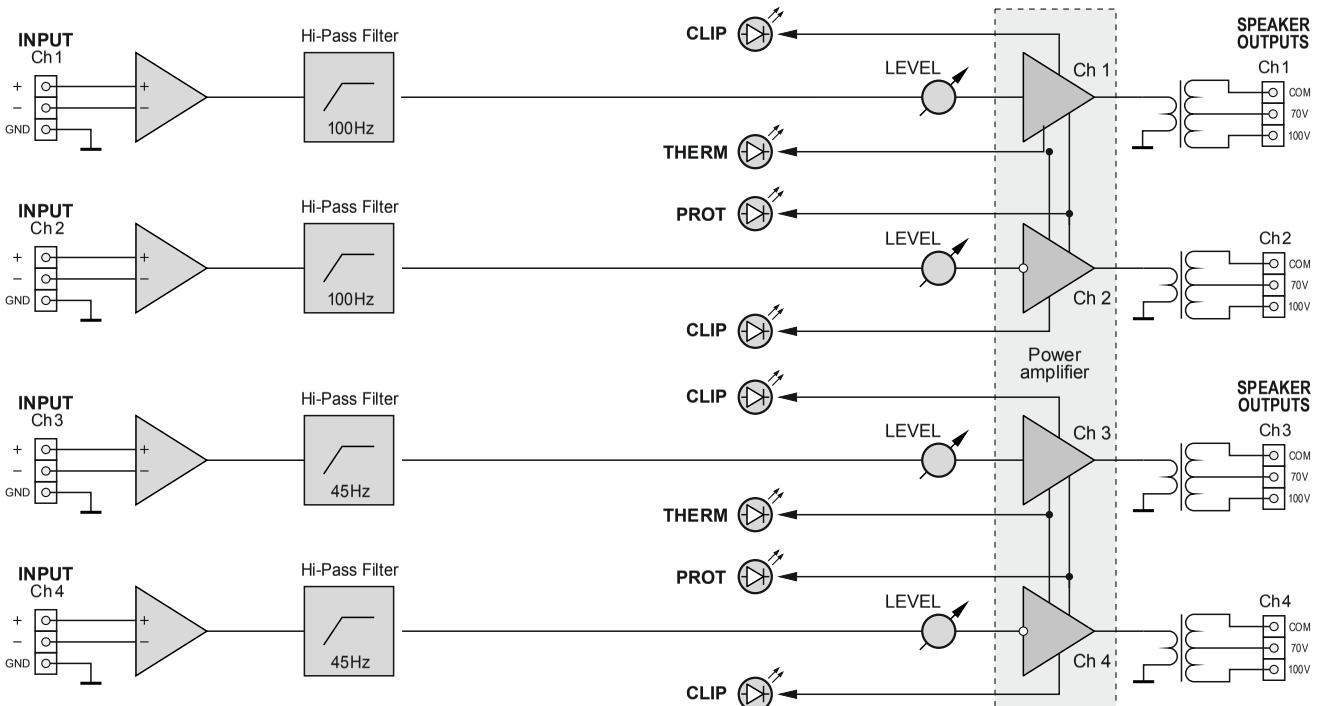
As the signal is not applied to all inputs for more than 5 minutes, STANDBY mode activates. All amplifier units are OFF. As 0.1 sec duration signal with more that -60 dBu level appears at any input, all amp units are ON.

This mode can disabled by AUTO STANDBY switch on the rear panel.

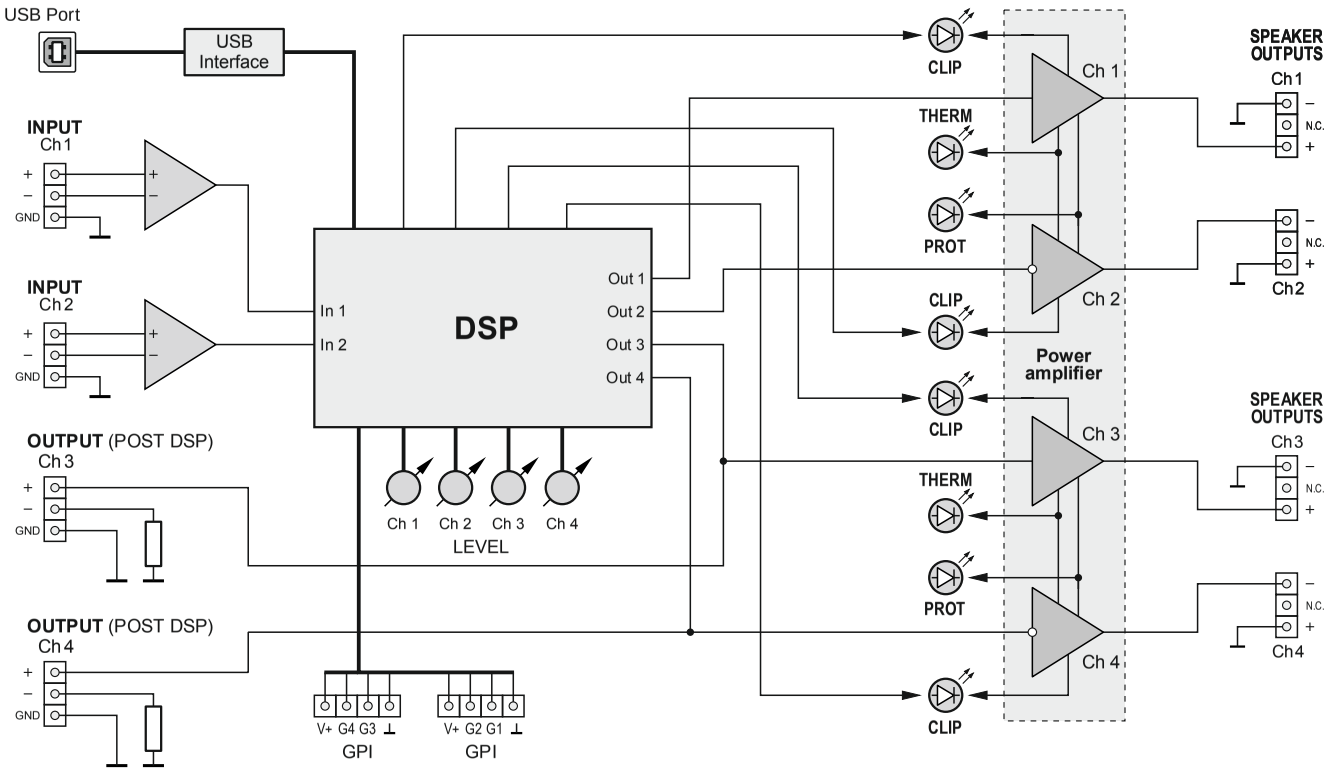
# TA604 BLOCK DIAGRAM



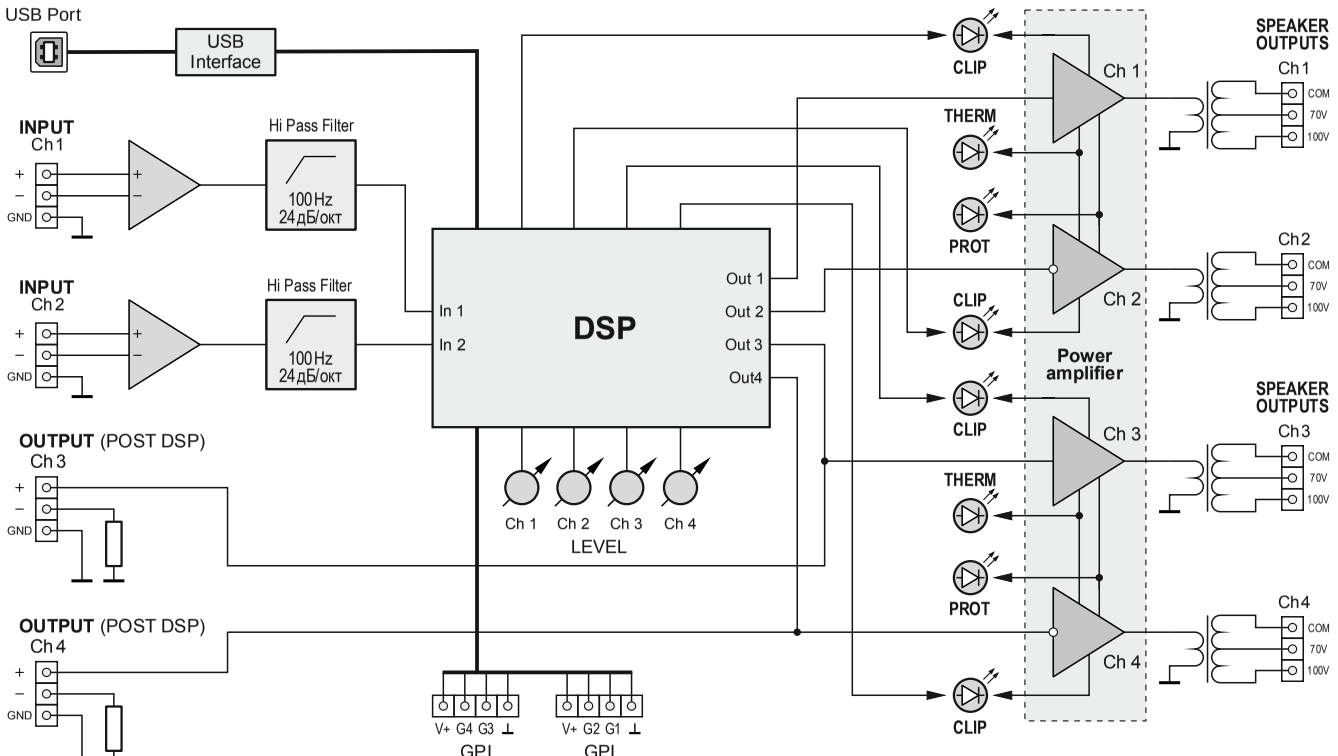
# TA604L BLOCK DIAGRAM



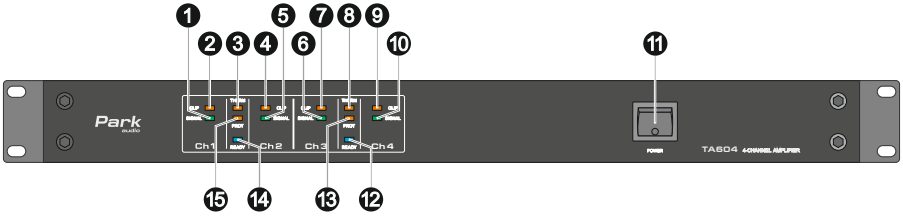
# TA604D BLOCK DIAGRAM



# TA604DL BLOCK DIAGRAM



## FRONT PANEL




❶❺❻❿ **SIGNAL** – LEDs, indicating output signal on Channels 1,2,3 and 4, respectively.

❸❽ **THERM** – overheating alarm LEDs for channels 1-2 and 3-4, with corresponding channels switching off.

❷❹❼❾ **CLIP** – clip LEDs for Channels 1,2,3 and 4, respectively.
They indicate:
– overload condition causing distortion;
– activation of DSP limiter (for **TA604D**, **TA604DL**).

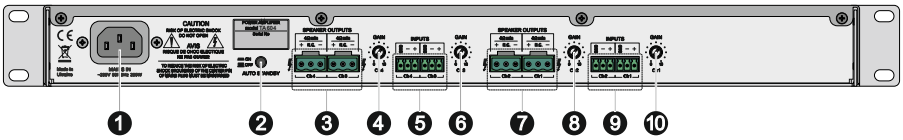
⓫ **POWER** – power supply switch.

⓭⓯ **PROT** – protection activation LEDs for channels 1-2 and 3-4.

⓬⓮ **READY** – LEDs, indicating channels 1-2 and 3-4 readiness for operation. The LEDs lit brightly in the normal mode and dimly lit in STANDBY mode.

## REAR PANEL

### TA604 Power Amplifier




❶ **MAINS IN** – power cord socket for 230 V AC 50/60 Hz grounded mains.

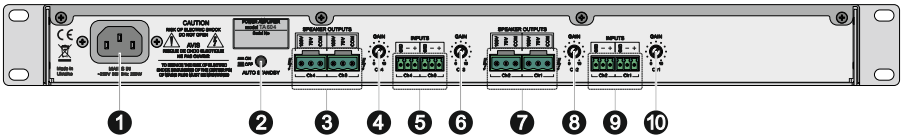
❷ **AUTO STANDBY** – button for activation the amplifier's auto standby mode.

❸❼ **SPEAKER OUTPUTS** – outputs for connecting loudspeakers (Euroblock connectors). Signals, applied to output connectors, and their polarity are indicated on the panel.

❹❻❽❿ **LEVEL** – output signal level controls.

❺❾ **INPUTS** – balanced inputs (Euroblock connectors) for channels 4, 3, 2, 1.

### TA604L Power Amplifier




❶ **MAINS IN** – power cord socket for 230 V AC 50/60 Hz grounded mains.

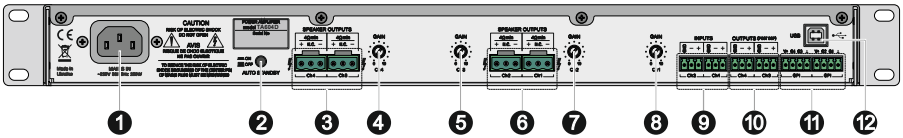
❷ **AUTO STANDBY** – button for activation the amplifier's auto standby mode.

❸❼ **SPEAKER OUTPUTS** – outputs for connecting loudspeakers (Euroblock connectors). Signals, applied to output connectors, and their polarity are indicated on the panel.

❹❻❽❿ **LEVEL** – output signal level controls.

❺❾ **INPUTS** – balanced inputs (Euroblock connectors) for channels 4, 3, 2, 1.

### TA604D Power Amplifier



❶ **MAINS IN** – power cord socket for 230 V AC 50/60 Hz grounded mains.

❷ **AUTO STANDBY** – button for activation the amplifier's auto standby mode.

❸❻ **SPEAKER OUTPUTS** – outputs for connecting loudspeakers (Euroblock connectors). Signals, applied to output connectors, and their polarity are indicated on the panel.

❹❺❼❽ **LEVEL** – output signal level controls.

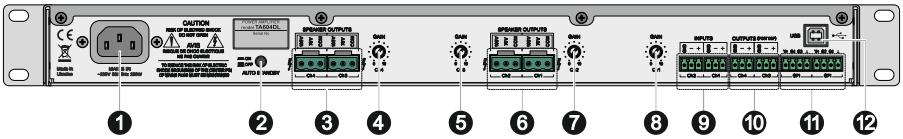
❾ **INPUTS** – balanced inputs (Euroblock connectors) for channels 2, 1.

❿ **OUTPUTS** – balanced line outputs (Euroblock connectors) POST DSP for channnels 4,3.

⓫ **GPI** – output for remote control connection (Euroblock connectors) for channnels 4,3,2 and 1.

⓬ **USB** – USB port for connection to personal computer.

### TA604DL Power Amplifier



❶ **MAINS IN** – power cord socket for 230 V AC 50/60 Hz grounded mains.

❷ **AUTO STANDBY** – button for activation the amplifier's auto standby mode.

❸❻ **SPEAKER OUTPUTS** – outputs for connecting loudspeakers (Euroblock connectors). Signals, applied to output connectors, and their polarity are indicated on the panel.

❹❺❼❽ **LEVEL** – output signal level controls.

❾ **INPUTS** – balanced inputs (Euroblock connectors) for channels 2, 1.

❿ **OUTPUTS** – balanced line outputs (Euroblock connectors) POST DSP for channnels 4,3.

⓫ **GPI** – output for remote control connection (Euroblock connectors) for channnels 4,3,2 and 1.

⓬ **USB** – USB port for connection to personal computer.

## CABLE REQUIREMENTS

**Input Cables**

Make sure to use only shielded cables whether balanced or unbalanced. Shielding, when properly grounded, protects a signal against external electrical interference.

Greater distances require a balanced cable. Avoid placing input cables close to power cords or power transformers.

## RACK-MOUNTING REQUIREMENTS

The amplifier is designed to fit a standard 19”rack. For stationary use, it will be enough to fix securely only the front panel of the amplifier to the rack. However, never attempt to transport the unit unless its rear end is properly supported and/or securely fixed, as it may be fraught with danger of damage.

While mounting, make sure to provide free air access to the front and rear sides of the rack. It is necessary to leave 1U empty space above or below the amplifier.

## AC POWER REQUIREMENTS

The amplifier is supplied with a three-wire grounded AC power cord, and should be plugged into a standard 3-wire grounded electrical outlet, which supplies 230VAC 50/60Hz.

The amplifier is equipped with stabilized switching power supply, which ensures normal amplifier operation at the mains voltage range from 160VAC to 250VAC, giving the full rated output power.

The amplifier is connected to the mains via cable, supplied with the amplifier.

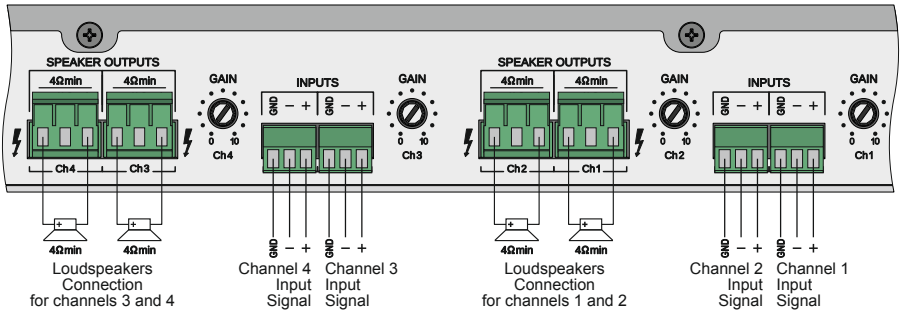
The actual AC current consumption depends on the audio signal level and the load impedance. For system design purposes it must be noted, that for typical audio program material the amplifiers, driving all channels at nominal impedance, just peaking at the clipping level, have 1A average power consumption.

In order to reduce the AC hum, please, plug all sound equipment, interconnected with signal cables, into the same power mains outlet.

## AMPLIFIER MODES

**TA604L** and **TA604DL** amplifiers operate only in four-channel mode, i.e. each channel is connected to its load. In **TA604** and **TA604D** amplifier each channel can be used individually, as well BRIDGE mode can be used for each channels pair. Input signal and load connection for **TA** series amplifier is shown in the picture below.

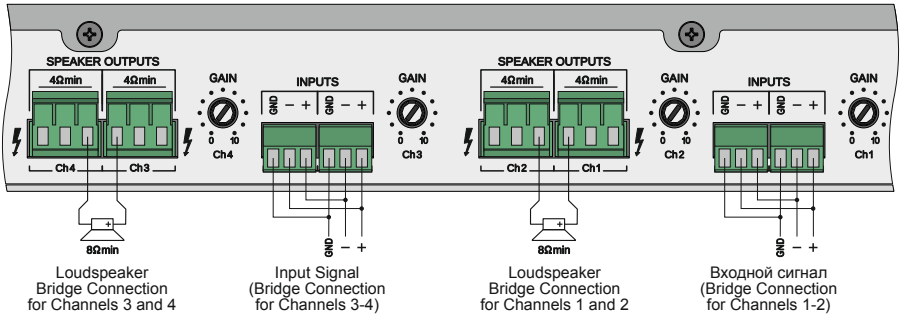
**TA604**
**Four-channel Mode**




The loudspeakers are connected to the respective channels. The polarity of connection is shown on the rear panel near corresponding sockets. Nominal impedance should be not less than 4 Ohm. Balanced input signal of each channel is applied to the corresponding input.

Gain control is performed via controls of the corresponding channels.

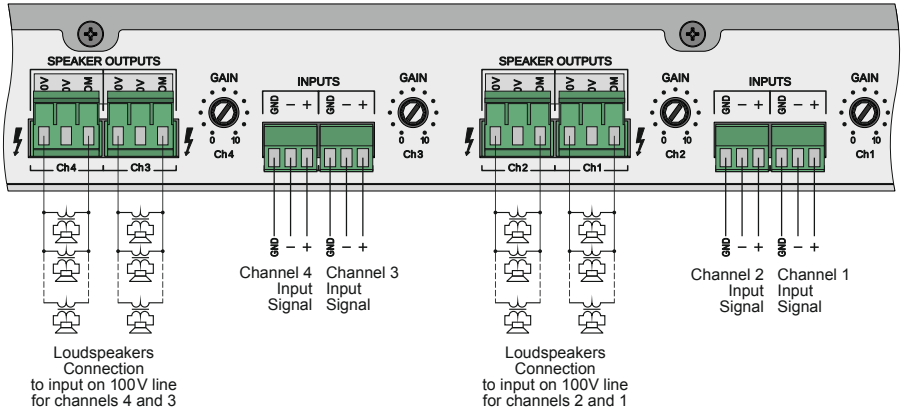
**TA604**
**Two-channel (BRIDGE) Mode**




Loudspeakers are connected between Channel 1(3) **+** and Channel 2 (4) **–** SPEAKER OUTPUTS output. Nominal impedance should be not less than 8Ohm. Balanced input signal is applied to channels 1 and 2 (3 and 4) inputs simultaneously, while inverse polarity signal should be applied to channel 2 (4) input.

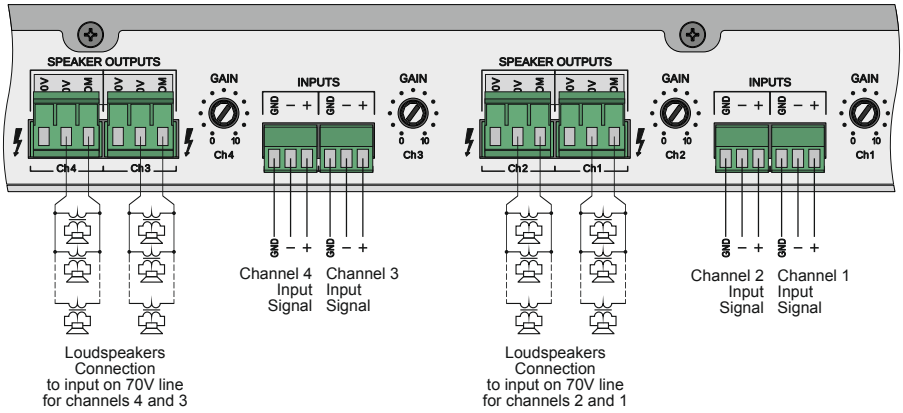
Gain control is performed via controls of both channels, connected in bridge mode. The controls should be installed in the same position.

**TA604L**
**Four-channel Mode (connection on 100V line)**



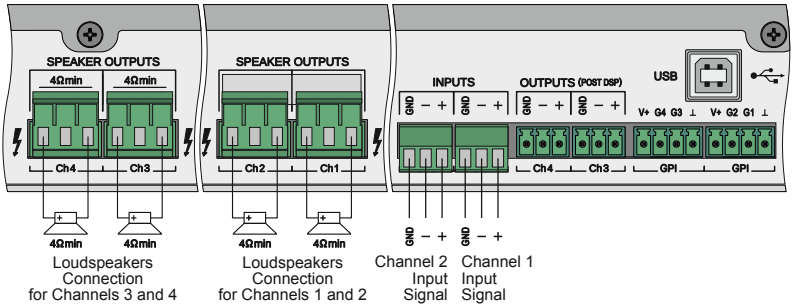

Output Lines are connected to «COM» and «100V» sockets of corresponding channels. Balanced signal of each channel is applied to corresponding input. Gain control is performed via controls of the corresponding channels.

**TA604L**
**Four-channel Mode (connection on 70V line)**




Output Lines are connected to «COM» and «70V» sockets of corresponding channels. Balanced signal of each channel is applied to corresponding input. Gain control is performed via controls of both channels, connected in bridge mode. The controls should be installed in the same position.

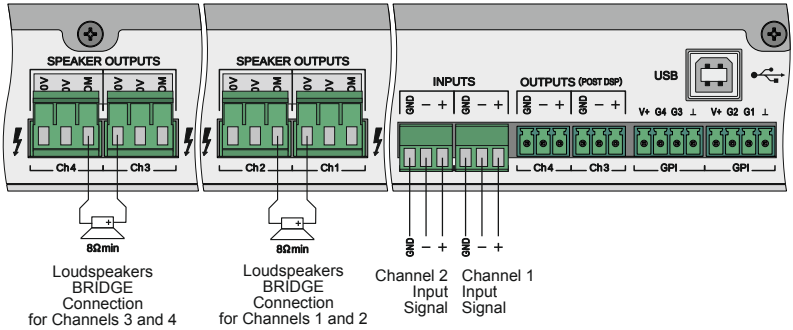
**TA604D**
**Four-channel Mode**




The loudspeakers are connected to the respective channels. The polarity of connection is shown on the rear panel near corresponding sockets. Nominal impedance should be not less than 4 Ohm. Balanced input signal is applied to channels 1 and 2, as it is shown in the picture. Mode setting and **DSP** signal processing is performed by **Park Editor**, using personal computer, connected to the amplifier via **USB** interface.

Gain control is performed via controls of the corresponding channels.

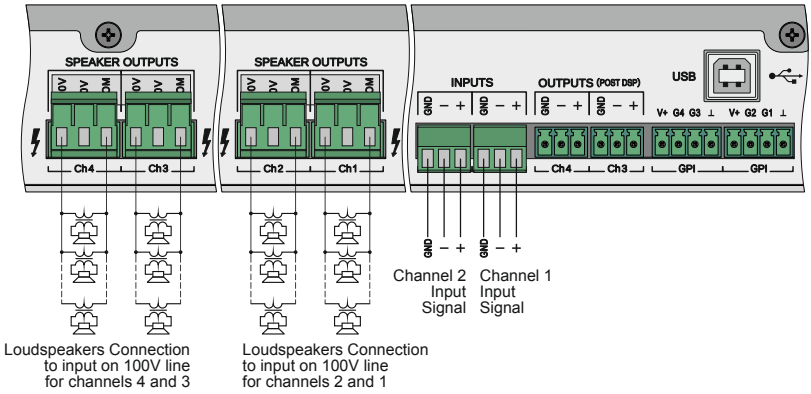
**TA604D**
**Two-channel(BRIDGE) Mode**




Loudspeakers are connected between channel 1 «+» output and channel 2 «-» output for channels 1-2 pair, and between channel 3 «+» output and channel 4 «-» output for channels 3-4 pair. Nominal impedance should be not less than 8 Ohm. Balanced input signal is applied to channels 1 and 2, as it is shown in the picture. Mode setting and **DSP** signal processing is performed by **Park Editor**, using personal computer, connected to the amplifier via **USB** interface.

Gain control is performed via controls of both channels, connected in bridge mode. The controls should be installed in the same position.

**TA604DL**
**Four-channel Mode (connection on 100V line)**

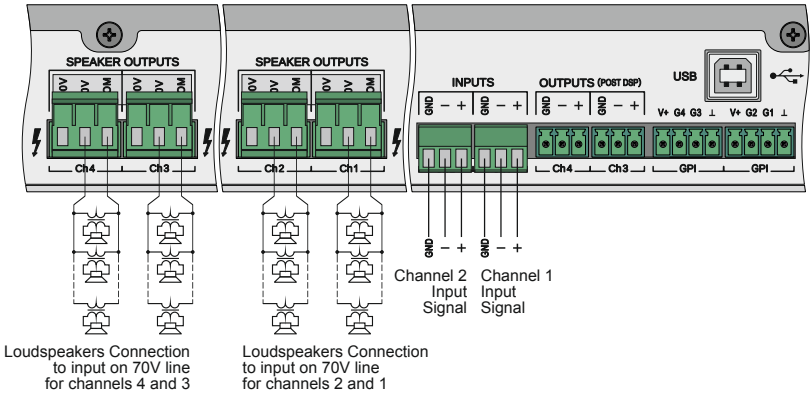



Output Lines are connected to «COM» and «100V» sockets of corresponding channels. Balanced signal of each channel is applied to channels 1 and 2, as it is shown in the picture.

Mode setting and **DSP** signal processing is performed by **Park Editor**, using personal computer, connected to the amplifier via **USB** interface.

Gain control is performed via controls of the corresponding channels.

**TA604L**
**Four-channel Mode (connection on 70V line)**




Output Lines are connected to «COM» and «70V» sockets of corresponding channels. Balanced signal of each channel is applied to channels 1 and 2, as it is shown in the picture.

Mode setting and **DSP** signal processing is performed by **Park Editor**, using personal computer, connected to the amplifier via **USB** interface.

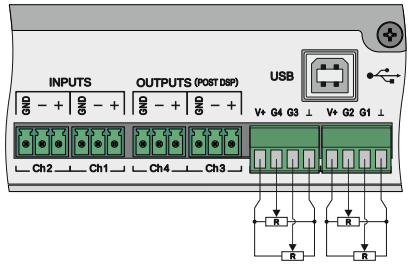
Gain control is performed via controls of the corresponding channels.

## REMOTE LEVEL CONTROLS CONNECTION

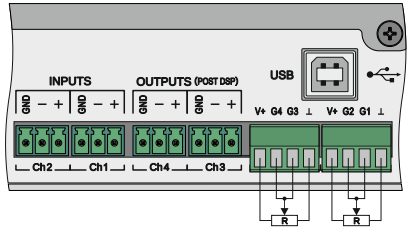
(only for **TA604D, TA604DL**)

Installation amplifiers **TA604D**, **TA604DL** ensure the connection of remote level controls. Level controls are connected to GPI inputs via 4-pin Euroblock plug.

The connections with individual control for each channel (pic.1) and general connection for pairs of channels 1-2 and 3-4 for BRIDGE mode (pic.2) are shown below.



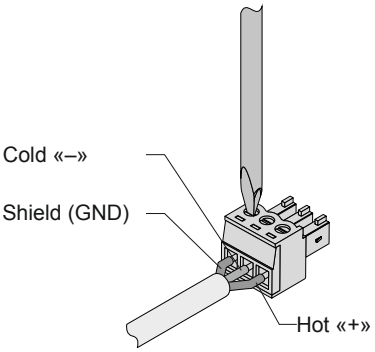

Pic.1



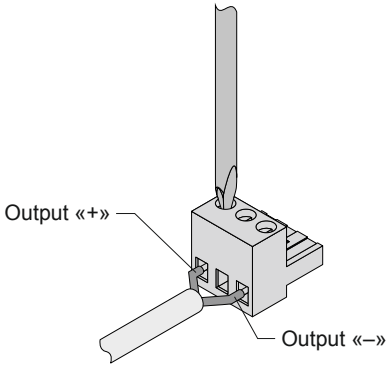

Pic.2

## Wiring Connection to EUROBLOCK Connectors

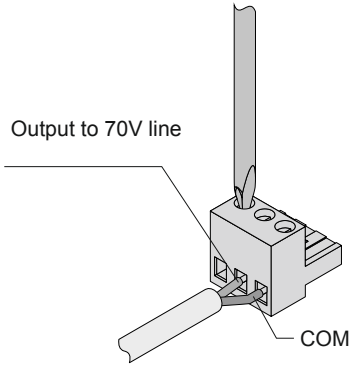
Cable connection to EUROBLOCK plug is shown on the pictures below.
To connect the cables to the connectors it is important to:
– strip 15-20 mm of external cable insulation ;
– strip 5 mm of insulation of the connecting wire;
– insert the wire fully to EUROBLOCK plug;
– using a flat-blade screwdriver, turn screw clockwise to clamp wire tightly.



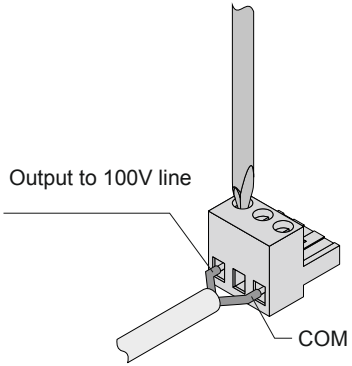

Input Cable




Output Cable
(for TA604, TA604D)




Output Cable
for 70V Line
(for TA604L, TA604DL)



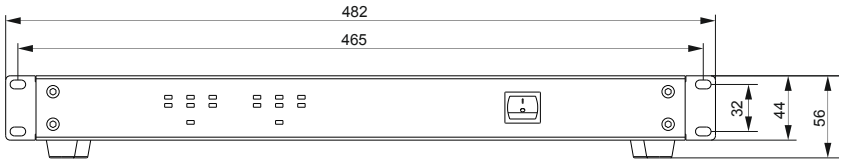

Output Cable
for 100V Line
(for TA604L, TA604DL)

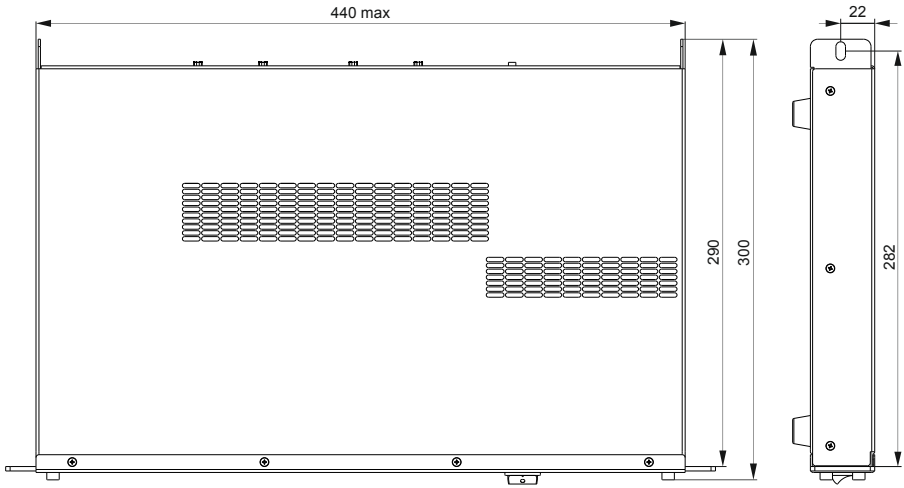
Wire connection to line input connectors and for remote control connection is performed similarly.

## SPECIFICATIONS

| | |
|---|---|
| **Number of Output Channels** | **4** |
| **Number of Input Channels** | |
| – TA604, TA604L | **4** |
| – TA604D, TA604DL | **2** |
| **Power Rating:** | |
| – TA604, TA604D | **4 x 150/75W** (4/8Ohm)<br>**2 x 300W** (BRIDGE, 8 Ohm) |
| – TA604L, TA604DL | **4 x 150W** (70/100V line) |
| **Frequency Range:** | |
| – TA604, TA604D | **45Hz – 20kHz** (±0.5dB, Pnom., HPF 45Hz/24dB/oct) |
| – TA604L, TA604DL | **100Hz – 20kHz** (HPF100Hz/24dB/oct) |
| **Total Harmonic Distortion** | **0.02%** (20Hz – 20kHz) |
| **Slew Rate** | **60dB** (1kHz) |
| **Signal-to-Noise Ratio** | **100dB** (unweighted) |
| **Input Impedance** | **10kOhm** (balanced) |
| **Sensitivity** | **0.775V** |
| **Power Requirements** | **~220/230V, 50/60Hz** |
| **Power Consumption:** | **120W** (Pink Noise, 1/8 Power, 4 Ohm)<br>**14W** (Standby) |
| **Weight:** | |
| – TA604 | **4.3kg** |
| – TA604L | **9.4kg** |
| – TA604D | **4.4kg** |
| – TA604DL | **9.5kg** |
| **Dimensions** | **482mm** (W), **44mm** (H), **300mm** (D) |
| **Height in RACK** | **1U** |
| **Depth in RARK** | **290mm** |
| **DSP engine:** | **Sampling Rate 48kHz**<br>**DAC/ADC 24-bit**<br>**Internal Processing 56-bit** |

## DIMENSIONS



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