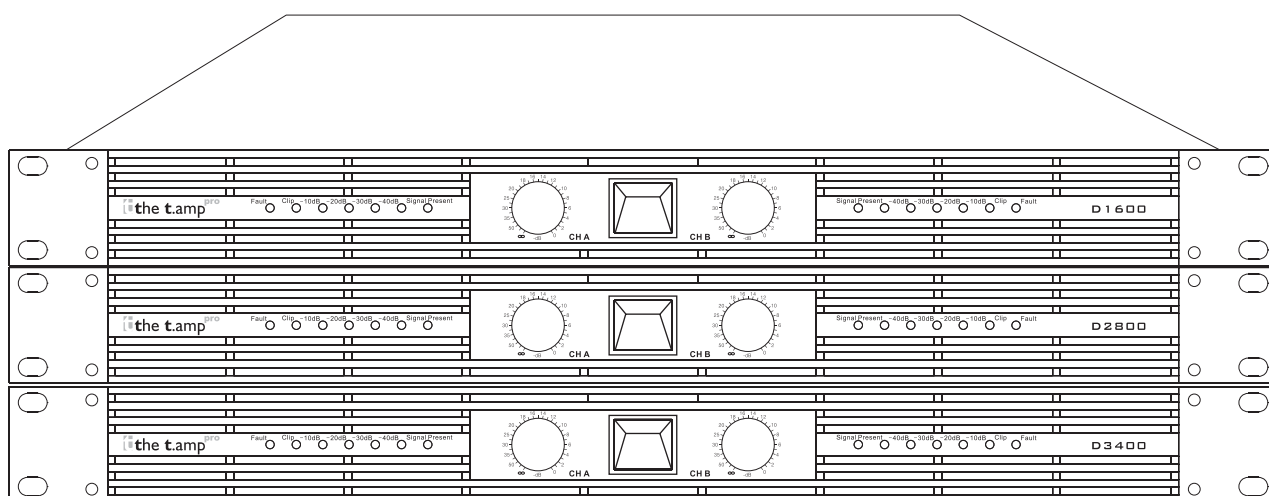


## D Series

**D 1600**

**D 2800**

**D 3400**



## Digital Amplifiers For Professional Applications

Thomann Musikhaus

Add: treppendorf 30 D-96138 burgebrach Germany

Tel : +49(0)9546-9223816

Fax : +49(0)9546-6774

Wed: [www.thomann.de](http://www.thomann.de)

## Important



**CAUTION**  
RISK OF ELECTRIC SHOCK  
DO NOT OPEN



**CAUTION:** To reduce the risk of electric shock, do not remove the cover. No user-serviceable parts inside. Refer servicing to qualified service personnel.

**WARNING:** To prevent fire or electric shock, do not expose this equipment to rain or moisture.

**SAFEGUARDS:** Electrical energy can perform many useful functions. This unit has been engineered and manufactured to assure your personal safety. Improper use can result in potential electrical shock or fire hazards. In order not to defeat the safeguards, observe the following instructions for its installation, use and servicing.

## Warning Notices

### Location

Install the amplifier in a well-ventilated location where it will not be exposed to high temperature or humidity.

Do not install the amplifier in a location that is exposed to direct rays of the sun, or near to hot appliances or radiators. Excessive heat can adversely affect the cabinet and internal components.

Installation of the amplifier in a damp or dusty environment may result in malfunction or accident.

### Precautions regarding installation

Placing and using the amplifier for long periods on heat-generation sources will affect performances. Avoid placing the amplifier on heat-generation sources. Install this amplifier as far as possible from tuners and TV sets. An amplifier installed in close proximity to such equipment may cause noise or degradation of the picture.

## **Safety rules**

This device must be powered exclusively by earth connected mains sockets.

It is absolutely necessary to verify this fundamental requirement of safety and, in case of doubt, require an accurate check by a qualified person.

The constructor cannot be considered responsible for eventual damages caused to persons, things or data for the missing of accurate earth link.

Before powering this device verify that the amplifier is supplied with the correct voltage rating.

Do not spill water or other liquids into it on the unit.

Do not use this unit if the electrical power cord is frayed or broken,

Do not remove the cover. Removing the cover will expose you to potentially dangerous voltage.

Naked flame sources such like lighted candles should not be placed on the amplifier.

Contact the authorized center for ordinary and extraordinary maintenance.

## **Speaker Damage**

The t.amp Digital Amplifier should use a suitable loudspeaker in a sensible way that will not cause damage because of its big power.

The t.amp will not be responsible for damaged speakers. Consult the speaker manufacturer for power handling recommendation.

Even if you reduce the gain using the amplifier front panel attenuation controls, it is still possible to reach full output power if the input signal level is high enough.

A single high-power crescendo can damage high-frequency drivers almost instantaneously, while low-frequency drivers can usually withstand very high, continuous power levels for a few seconds before they fail. Reduce power immediately if you hear any speaker bottoming out - harsh pops or cracking distortion that indicate that the speaker voice coil or is striking the magnet assembly.

The t.amp recommends that you use amplifiers of this power range for more headroom (cleaner sound) rather than for increased volume.

## **Speaker output shock hazard**

The t.amp amplifier is capable of producing hazardous output voltages. To avoid electrical shock, do not touch any exposed speaker wiring while the amplifier is operating. This manual contains important information on operation your The t.amp amplifier correctly and safety. Please read it carefully before operating your amplifier.

## Introduction

Thanks to amazing reductions in heat output along with reduction in weight and the characteristic high output power, The t.amp Digital Amplifier can be used in an unlimited range of applications such as concert touring, opera houses, theatres, churches, cinema, theme parks, television sound stages and industrial applications.

### **More sound and less weight**

Compared to a conventional amplifier, The t.amp Digital Amplifier technology offers very high efficiency and delivers more power to the loudspeakers with much reduced heat dissipation. This greater efficiency enables dimensions, weight and power consumption to be reduced. The output stages of the amplifier typically run at 95% efficiency, dissipating only 5% of the input energy as heat.

One of the most interesting characteristics is that The t.amp Digital Amplifier's efficiency is almost independent of output level. Conventional amplifiers achieve their best efficiency only at full rated power output. Since standard music has an average power density of 40% of the maximum level, conventional amplifiers can easily generate 10 times more heat than The t.amp Digital Amplifier for the same volume of sound.

### **Superior Sound-Sonic accuracy**

Crystal-clear high, and a tight, well-defined low end : the most accurate reproduction of an audio signal. Patented design features ensure very high performance in parameters such as distortion, frequency response, slew rate, power bandwidth and damping factor.

### **Totally Digital with High Reliability**

The The t.amp Digital Amplifier series is based on PWM technology that has been used for 30 years or more in power supplies and inverters. PWM provides high reliability, small size, low weight and high efficiency. A PWM converter works as a high frequency sampler, converting the variable amplitude (audio) signal into an impulse sequence with average value equal to the audio input.

The t.amp Digital Amplifier uses very high sampling frequencies to obtain high performances across the audio band.

### **The Show Always Goes On**

The t.amp Digital Amplifier is completely protected against every possible error in operation and is designed to work under every condition. It gives you maximum power with maximum safety and increases long-term reliability.

## Installation and Operation

### Unpacking

Carefully open the shipping carton and check for any noticeable damage. Every The t.amp Amplifier is completely tested and inspected before leaving the factory and should arrive in perfect condition. If you find any damage, notify the shipping company immediately. Be sure to save the carton and all packing materials for the carrier's inspection.

### Operating Precautions

Make sure the AC mains voltage is correct and is the same as that printed on the rear of the amplifier. Damage caused by connection the amplifier to improper AC voltage is not covered by the warranty. Make sure the power switch is off before making any input or output connections.

Whether you buy them or make them, use good-quality input and speaker cables. Most intermittent problems are caused by faulty cables. Use good-quality connectors and wire, along with good soldering technique, to ensure troublefree reliability.

### Mounting

All The t.amp amplifiers will mount in a standard 19" rack. Four front panel mounting holes are provided. Your amplifier uses a forced-air cooling system to maintain a low, ever operating temperature. Drawn by an internal fan, air enters through the slots in the front panel and courses over which is controlled by heat sink temperature sensing circuits: the fan speed will increase only when the temperature of either heat sink requires it, which keeps fan noise to minimum and helps cut dust the heat sinks. If either heat sink gets too hot, its sensing circuit will reduce the output gain. If the amplifier overheats, another sensing circuit shuts down its circuit to cut off power until it cools to a safe temperature. The exhaust cooling air is forced out through the rear of the chassis, so make sure there is enough space around the sides of the amplifier to allow the air to escape. If it is rack mounted, make sure the exhaust air can flow without resistance. If you are using a racks with closed backs, there must be at least one stacked directly on top of each other (no space needed between units), starting from the bottom of the rack.

### Connecting Inputs

Input connecting are made via the 3-pin XLR-female type connectors on the rear side of the amplifier. The inputs are actively balanced, with polarity as shown in figure.

### Connecting Outputs

Output connectors are made via neutrik speakon connectors. Consult the wire gauge chart to find a suitable wire gauge to minimize power and damping factor losses in the speaker cables. For each device the 1+ and 1- pins (2+ and 2- pins) of speaker connector have to be considered the positive and the negative output of a single channel.

## Controls

### Input attenuators

The four inputs attenuator controls, located on the front panel adjust gain for their respective amplifier channels in all modes. With the attenuator fully clockwise at 32 dB on the silk screen ( minimum attenuation), the amplifier gain will be set to 32dB (40X). The silk screen scale is calibrated on 2 dB increasing attenuation, and a step by step detent on potentiometer helps for calibration, except for the last three positions (- , 4,14 dB).

## Led indicators and controls

### Led indicators

The t.amp digital amplifier has LED indicators on the front panel. The “SIGNAL” and “FAULT” LED are present for each channel. Each channel has an 4-segment LED bar for the output signal. Each segment will be lightened every 3dB. The green Segments will be lightened during normal working. If the level of the audio signal Exceeds the channels output capability, it clips, triggering the red LED.

### Front panel controls

The power switch,gain controls and LED indicators are on the front panel.

- 1) Power switch
- 2) Gain
- 3) Protection LED(PROTECT)(one for each channel)
- 4) Output level LED bar
- 5) Clip LED

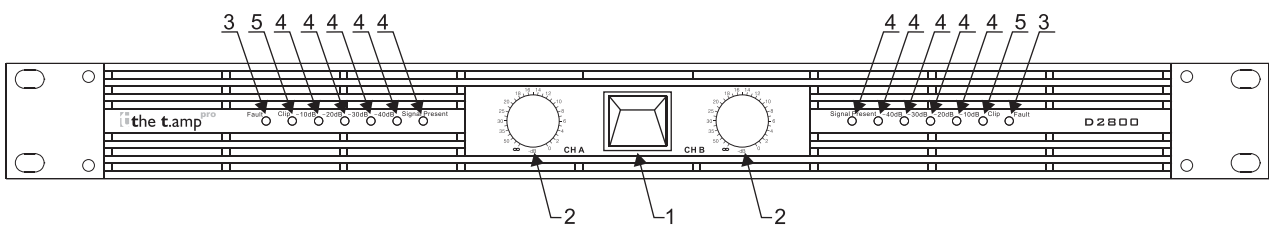


Fig. 1: Front panel

## Rear panel controls

- 1) Female Neutrik Speakon connectors for audio output for each channel(2+ / 2-for Bridge Mode)
- 2) Female Cannon XLR connectors or Jack stereo (COMBO) for input signal for each channel
- 3) AC main cord
- 4) Cooling fan outlet

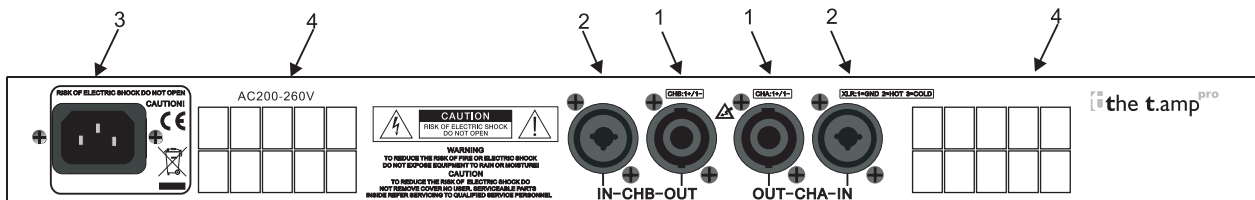


Fig. 2:Rear panel

## Protection

### Turn-On/Turn-Off Muting

For about four seconds after turn-on, and immediately at turn-off, the amplifier outputs are muted.

### Short circuit protection

A short circuit protection system safeguards the amplifier's output transistors under short circuit and other stressful loads. It is completely inaudible when inactive. In case of short circuit, the PROTECTION LED will be lightened. Turn OFF/ON the amplifier to reset protection mode status.

### Thermal protection

The t.amp Digital Amplifier uses a continuously variable speed fan to assist cooling (the fan speed changes in response to the amplifier's cooling needs).

### **DC fault protection**

If DC or excessive subsonic energy appears at a channel output, an instantaneous protection circuit will inhibit the power supply for all channels. Power supply shutdown is used in lieu of speaker relays, thereby improving the damping factor and reliability.

### **Input/output protection**

AN ultrasonic network decouples RF from the outputs and keeps the amplifier stable with reactive loads.

## **User maintenance**

**Cleaning :** Disconnect the amplifier from the AC main source first; use a soft cloth and mild non-abrasive solution to clean the faceplate and chassis.

**Dust removal:** Especially in a dusty environment, the heat sink may clog with dust after prolonged use, which will interfere with cooling. You may use compressed air to remove the dust; severe cases, though, should be referred to qualified service personnel for a thorough cleaning with the top cover removed.

## **Technical assistance and service**

Servicing your unit requires a trained technician capable of performing the type of service you need. There are no user serviceable components inside your unit and the danger of electric shock exists. Additionally, some of the components in your unit are The t.amp specific parts that require The t.amp replacements.

### **Technical assistance**

If you suspect that your amplifier is defective, check your system configuration and amplifier settings to determine the origin of the problem. In many cases, incorrect audio interfacing, poor cabling, or other system level impairments are the cause of problems in audio systems. For technical assistance beyond the information given in this manual, the The t.amp technical Services department may be contacted.

### **Product Return Guidelines**

1. Pack the product well for protection during shipment.
2. Include a copy of the sales receipt, your name, return address, phone number, and defect description with your return correspondence.
3. Call the The t.amp Technical Authorization Services department for an outside of the pack aging.
4. Ship the product prepaid to The t.amp..



## **Power Factor Correction**

The The t. amp amplifier has an automatic power factor correction system for a perfect main network interface. The amplifier is a resistive load for the main network, minimizing the reactive power and the harmonic distortion on the current. The system allows performance to be maintained even in circumstances of varying the mains voltage.

## D - Series specifications

### General

Type	Digital amplifier for professional applications
Power requirements:	AC 200V-265V, 50/60Hz
Weight	10 kg
External dimensions	Standard rack 19(W), 1 units (H), 455mm(D)
Consumption average	900 VA

### Audio section

Bandwidth (1w,8 $\Omega$ )	5 Hz – 30 kHz
Damping factor (8 $\Omega$ )	100Hz=500 10kHz=100
Slew Rate (8 $\Omega$ )	40v/ $\mu$ s(input filter bypassed)
S/N ratio	>105 dB/A (20Hz to 20KHz)
Distortion	THD: Max<0.5% from 0.1W at full power (typically<0.1%)
Intermodulation SMPTE	Max<0.5% from 0.1W at full power (typically<0.1%)
Intermodulation DIM 100	Max<0.02% from 0.1W at full power (typically<0.01%)
Inputs	Balanced to ground, XLR female combo jack 6.3mm
Impedance	10K $\Omega$ each leg, balanced to ground
Gain	0 dB detent selection)
Outputs	Neutrik4-pole speakon connectors [pins 1+1- (2+/2-bridge)]

### Output specifications

#### Power RMS x Channel(W)

	D 1600	D 2800	D 3400
	Single	Single	Single

#### 2 Channels working

(1KHZ,0.5%TUD)				
	2 $\Omega$	1550W	2750W	3350W
	4 $\Omega$	800W	1400W	1700W
	8 $\Omega$	450W	800W	1000W