Professional Amplifiers

AX Series – Manual

AX2120T
AX2240T
AX2150
AX2300
AX2500
AX2800

PAT
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IMPORTANT SAFETY PRECAUTIONS & EXPLANATION OF SYMBOLS

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 PERSONNEL.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous" voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to humans.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in this manual.

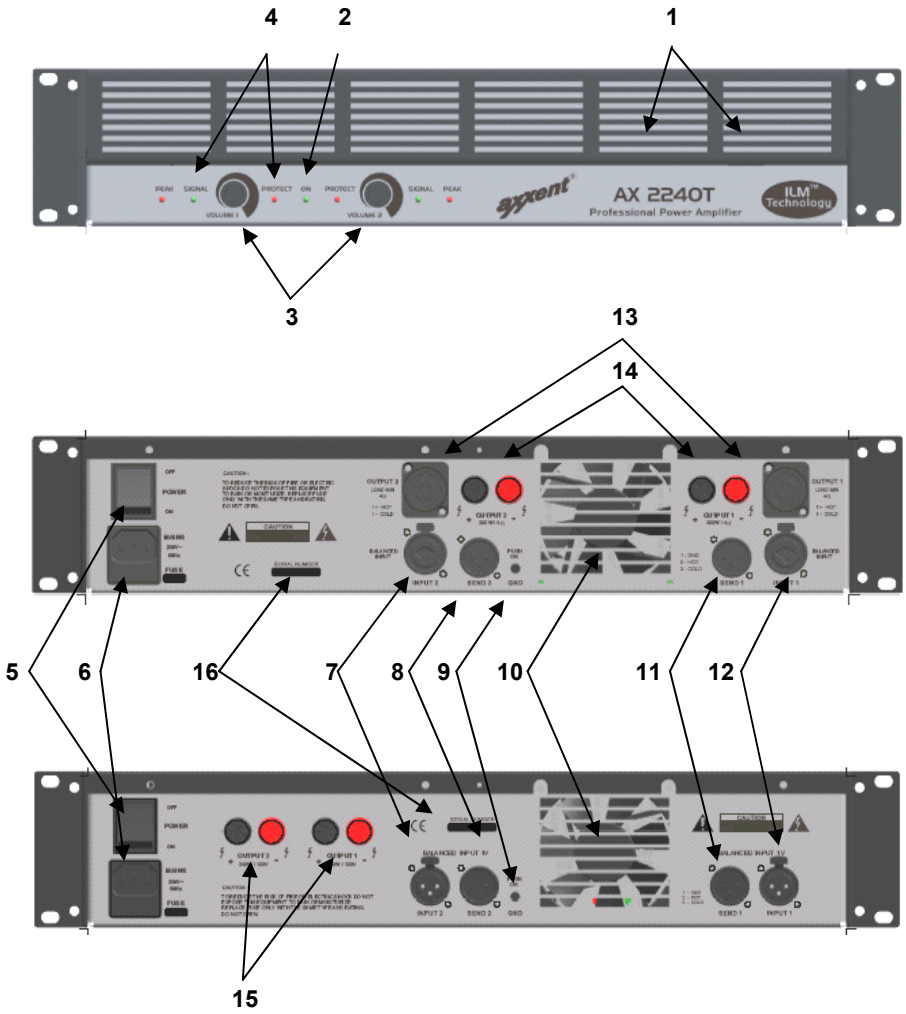
The lightning flashes printed next to the OUTPUT terminals of all AX amplifiers are intended to alert the user to the risk of hazardous energy. Output connectors that could pose a risk are marked with the lightning flash. **Do not touch output terminals while amplifier power is on. Make all connections with amplifier turned off.**

WARNING: TO PREVENT FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

Introduction and overview

With your choice of this Axxent professional amplifier you have decided on a high quality, reliable and rugged part of your sound system. In order to gain the maximum performance from this amplifier, we recommend to carefully read this manual. We tried to keep it as compact as possible.

Important functions and features:
Models AX2150, AX2500, AX500 and AX2800: 2 channels with a nominal imedance of 4 Ohms
Models with the suffix „T“ provide electrically insulated outputs of 100 Volts for constant voltage distribution systems.



1 Slots for cooling airflow (rear to front)
2 Power ON/OFF indicator
3 Volume controls (detachable knobs)
4 Indicators for: Peak, signal, and protection per channel
5 Power on/off-switch
6 IEC-power connector
7 XLR-Inputs channel 2
8 XLR-connectors for signal loop through
9 Ground lift switch
10 Slots for cooling airflow
11 XLR-inputs channel 1
12 XLR-connectors for signal loop through
13 Loudspeaker outputs with Speakon® connectors
14 Touch proof binding posts
15 Touch proof binding posts (100 V)
16 Serial number

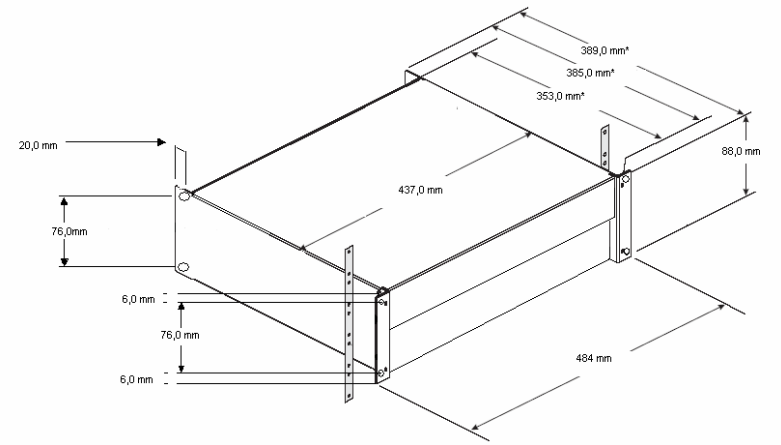
Content of the packaging box

The original packaging contains the following components:
(Please always use the original box when shipping the unit e.g. for service)

- Amplifier
- User manual
- Detachable power cable (IEC)
- Security caps for the control knobs
- 4 rubber feet for non-rack applications

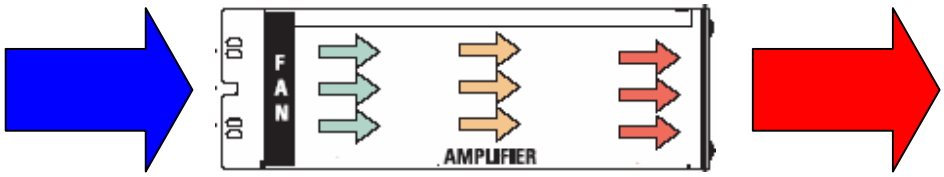
Rack mounting

For mounting the amplifier into a standard 19“ rack, pls. use 4 screws and washers.
For surface mounting please use the attched 4 selfadhesive rubber feet on the bottom of the unit.
Hint for the amplifier model AX2150: The depth of this model is 278 mm (instead of 389 mm)



Cooling scheme

Airflow in the AX-amplifiers is from rear to front as indicated in the following schematic drawing.
The fan speed is automatically controlled via thermo sensors.



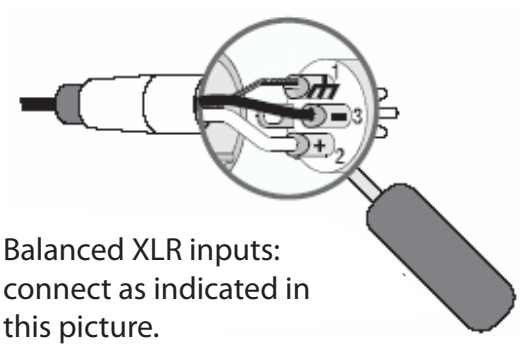
Please make sure that the rear airflow slots are not blocked!

Connection to power line

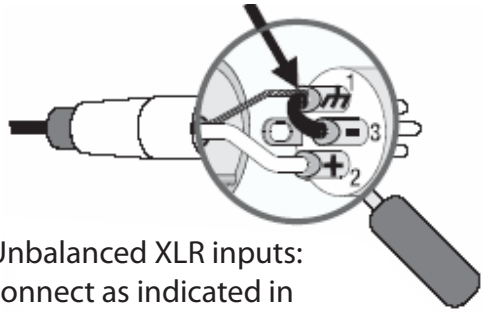
Make sure that the power on/off switch of the unit is in „off“ position before you connect the raer IEC power plug with a 230 V power outlet.

Inputs

Each channel is equipped with a 3 pin balanced XLR connector (male and female) for a loop-through of the signal. The nominal imput impedance is 20 kOhms (balanced) or 10 kOhms (unbalanced). Due to the fact that noise, interferences and hum are drastically reduced in balanced lines, especially when long cable runs are a neccessesety, we strongly recommend to use a balanced cable network. Unbalanced connections should only be used on short cable runs. The source impedance of the signal should be ≤600 Ohms. In an unbalanced configuration use the “+“ pin (2) for the signal and connect the shielding to the corresponding pin 1. Finnaly connect shielding and the “-“ pin with a wire bridge. This procedure is shown in the drawings below:



Balanced XLR inputs: connect as indicated in this picture.

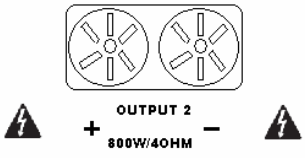


Unbalanced XLR inputs: connect as indicated in this picture. Watch the bridge between pin 1 + 3 of the XLR connector.

Direct low impedance outputs

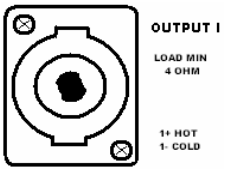
(models AX2150, AX2300, AX2500 and AX2800)

Direct low impedance outputs are provided on all of the above mentioned AX models on the rear side of the case above the other audio inputs. The speakers may be connected either via touch proof binding posts (see drawing right) or the Speakon® connector (see drawing bottom right). Please make sure that the speakers are hocked up with the correct polarity.



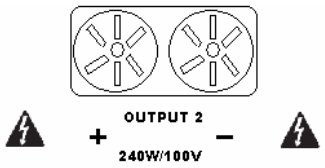
WARNING

DO NOT USE SPEAKER LOADS (IMPEDANCES WITH LESS THAN 4 OHMS). THE NOMINAL IMPEDANCE IS 4 OHMS. FOR YOUR SAFETY do not touch uninsolated metal parts of the amplifier when the unit is switched on. Make all neccessary connections with disconnected power cord.



Constant voltage outputs
(models AX2120T and AX2240T)

Constant voltage outputs (100 volts) are available on the above mentioned models on the rear side of the housing, using touch proof binding posts. Please make sure that the loudspeakers are connected with the correct polarity („+" = red, „–" = black) as shown on the right drawing.



WARNING
FOR YOUR SAFETY do not touch uninsolated metal parts of the amplifier when the unit is switched on.
Make all neccessary connections with disconnected power cord.

Front Panel

LED indicators
The comprehensive LED indicators let you monitor the most important parameters of the amplifier

ON
After the amplifier is switched on, the green LED in the middle between the volume controls will light. When this LED remains dark, you should check the power cable, the wall outlet etc.

PEAK
Two red LED indicators, one per channel.
LEDs are on when the amplifier is driven beyond the rated output power. The LED directly reflects the amount of distortion. A short blinking of the LED indicates that the output signal is close to clipping, but the resulting distortion may not be heard yet.

SIGNAL
Two green LEDs, per channel
Lights when a sufficient input signal is achieved. When the LED is steady on when the output power reaches its maximum value.
If these LEDs remain off you should check on the volume controls (increase the volume if neccessary). You might also check the input connections of all signal sources. If the peak LED comes up, despite no or only a very weak signal are indicated, check the output cables regarding short circuit.
When the signal LED is lit without any input signal most likely system oscillation or other faults may be the cause. In this case try to shut off the load (disconnect the speakers) or/and reduce the amplification down to zero. If the signal LED still stays on, the amplifier possibly might need servicing.

PROTECT

Two red LED indicators per channel
In normal operation the LED remains off. If the LED comes up the thermal protection circuit is activated. If the amplifier is becoming too hot, please leave the unit on, so that the neccessary cooling by he automatic regulated fan brings the amp to normal operating temperature again. When reaching this safe operating temperature the amplifier goes back to normal operation within appr. 1 minute. Make sure that sufficient airflow from rear to front is possible and that the rear cooling slots are not blocked.

A fast blinking of the peak LED indicates a short circuit or an overload of the output current circuit and can lead to overheating of the amplifier. When distortion becomes noticable without indication of the clip LED, the problem most likely is located in the chain before or after the amplifier. Check wether the loudspeakers are faulty or the signal source is at too high levels. The volume controls of the amplifier should be in the upper half (appr. 3 o'clock) of the control range, so that an input overload is avoided. If the protect LED remains on, the amplifier might need servicing.

Volume controls

Rotate these controls clockwise to increase amplification and counterclockwise to reduce it. In fully counterclockwise position the signal is attenuated by appr. 60 dB, which means you barely might hear anything.

For safety reasons the knob of these controls can be removed and the holes can be filled with the attached blind covers.

AX-T-SERIES

100 V Professional Amplifiers

Technical Specifications

Output Power (100 V, 1 kHz, 1% THD)
Model AX 2120T: 2 x 120 W
Model AX 2240T: 2 x 240 W

Input Sensitivity
1 V

Input Impedance
20 kΩ, balanced

Total Harmonic Distortion (THD)
<0,02% @ 1 kHz

Frequency Response
20-20 000 Hz (+0/-3 dB)

Signal to Noise Ratio
>100 dB

Output Voltage
100 V at nominal input voltage

Cooling
automatic controlled variable speed fan

Inputs
XLR (balanced, male and female)

Outputs
binding posts, touch proof

Electronic Protections
Thermal overload, short circuit, open circuit, current limiter and RF. Stable into reactive and mismatched loads

LED Indicators
for on/off, signal present, activation of protection circuits and signal overload (peak and protect)

Power Supply 230 V AC, 50 Hz

Power Consumption
Full Power: 530 W (AX 2120T), 1060 W (AX 2240T)
$^1/_3$ Power: 235 W (AX 2120T), 440 W (AX 2240T)
$^1/_8$ Power: 130 W (AX 2120T), 230 W (AX 2240T)

Heat Emission
Full Power: 254 kcal (AX 2120T), 482 kcal (AX 2240T)
$^1/_3$ Power: 135 kcal (AX 2120T), 245 kcal (AX 2240T)
$^1/_8$ Power: 86 kcal (AX 2120T), 145 kcal (AX 2240T)
Figures also available in Btu/hr

Dimensions
483 (Standard 19"-Rack) x 88 (2U) x 387 mm (W x H x D)

Net Weight
Model AX 2120T: 12 kg; Model AX 2240T: 15 kg

Data in parentheses = Model AX 2240T.

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AX-SERIES

Professional Amplifiers

Technical Specifications

Output Power	AX 2150	AX 2300	AX 2500	AX 2800
(4 Ω, 1 kHz, 1% THD)	2 x 150 W	2 x 300 W	2 x 500 W	2 x 800 W

Input Sensitivity
1 V

Input Impedance
20 kΩ, balanced

Total Harmonic Distortion (1 kHz/-3 dB)
AX 2150: <0,05%, other models: <0,02%

Frequency Response (+0/-3 dB)
AX 2150: 20-55000 Hz; other models: 36-55000 Hz

Signal to Noise Ratio
>106 dB (20-20 000 Hz, A rated)

Cooling
automatic controlled variable speed fan

Inputs
Neutrik Combo™ (XLR/phone plug, balanced)
with link-out (XLR-M, balanced)

Outputs
Neutrik Speakon™ + binding posts (touch proof)

Power Cunsumption	AX 2150	AX 2300	AX 2500	AX 2800
Full Power	660 W	1130 W	1640 W	2280 W
1/3 Power	380 W	680 W	950 W	1150 W
1/8 Power	240 W	430 W	610 W	450 W
Heat Emission				
Full Power	266 kcal	383 kcal	481 kcal	731 kcal
1/3 Power	226 kcal	390 kcal	509 kcal	582 kcal
1/8 Power	169 kcal	297 kcal	409 kcal	234 kcal

Figures also available in Btu/hr

Electronic Protections
Thermal overload, short circuit, open circuit, current limiter and RF, stable into reactive and mismatched loads

LED-Indicators
for on/off signal present, activation of protection circuits, signal overload (peak and protect)

Power Supply
230 V AC, 50 Hz

Dimensions
483 (rack) x 88 (2U) x 387 mm (w x h x d) for all models except AX 2150: 278 mm depth

Net Weight
AX 2150: 9 kg, AX 2300: 12 kg, AX 2500: 15 kg, AX 2800: 19 kg

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