

**XTE**  
*electronic*  
SOUND AND COMMUNICATIONS SYSTEMS



**AL2024**  
Feedback Suppressor

**User's Manual**

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## 1. Important safety instructions



This symbol indicates the presence of important directions for use and information that should be given particular attention so as to use the product properly.



This symbol indicates the presence of "dangerous voltage" that may cause the risk of electrical shock. Pay the utmost attention and proceed cautiously.

1. Follow carefully the attached documentation and keep it for future reference
2. Comply with the warnings
3. Store the packaging and check that all material is in excellent conditions.
4. Do not use water near the product, do not pour water or any other liquid on the amplifier. Do not to use it with wet hands or feet into the water.
5. Do not use next to heat sources such as radiators, stoves or the like.
6. Check the integrity of the mains cable. Do not tread on the cable and do not squeeze the plug.
7. Connect the plug to a socket equipped with grounding. Do not camper the plug. If the plug supplied is not consistent with your socket, please apply to an electrician for its replacement.
8. Connect to supply mains with the same voltage as indicated on the back of the device.
9. Install the device in compliance with the instructions.
10. Do not obstruct the air ducts.
11. Disconnect the appliance in case of storm and if unused.
12. Connect according to the instructions only.
13. Do not connect input signal higher than that indicated in the manual.
14. Do not connect the amplifier output to the input.
15. Do not connect any output of the device to power sources such as battery, voltage supply or outlet, regardless of the amplifier is on or off.
16. Keep the volume controls to a minimum during the device switching on/off .
17. Do not remove the upper or lower cover: there is a risk of electrical shock.
18. Do not try to self-repair the appliance, but apply to qualified personnel.
19. Clean with a dry cloth only.
20. The product shall be handled by skilled personnel in the following cases:
  - mains cable or plug damaged
  - Exposure of the product to rain or humidity
  - Some liquid entered inside the unit.
  - An object fell on the unit
  - The unit fell down and is damaged
  - The product does not work correctly or shows a remarkable change of performance.
21. A careful supervision is necessary if the product is used in the presence of children or inexperienced adults.
22. This product could produce sound levels, which cause damage to the hearing. Pay the utmost attention and do not operate at high level of volume or at an uncomfortable level for a long time. Consult an audiometric specialist in case of hearing loss or complaints.

## 2. Declaration of conformity

This device conforms to the requirements of the EMC directive 89/336/EEC, amended by 92/31/EEC, and the requirements of the Low Voltage Directive 73/23/EEC, amended by 93/68/EEC.

Standards Applied:  
EN55103-1 (Emissions)  
EN55103-2 (Immunity)  
EN60065, Class I (Safety)



## 3. User's liability



### 3.1. Radio interferences

A sample of this product has been tested and approved to meet the requirements of the Electromagnetic Compatibility Directive (EMC). These requirements have been defined so as to provide reasonable protection against dangerous interference of electrical equipment. Whenever this product has not been installed or handled according to these guidelines, it might interfere with other equipment such as radio receivers. However, there is no guarantee that they should not occur in a specific installation. Should this equipment interfere with transceiver equipment (such possibility can be checked by switching on and off the device), the user should try to cancel the interference by observing one or more of the following measures:

- Increase the distance between the device and the receiver.
- Connect the device to a plug linked to a different circuit with respect to the one to which the receiver is connected.
- Redirect or move the receiver's antenna.
- Make sure that the unit concerned conforms to the EMC immunity limits (CE-labelled). All electrical equipment sold in the EC should be approved as for what concerns protection against electromagnetic fields, high tension and radio interference.
- Contact qualified personnel.

## 4. Introduction

Congratulations on choosing XTE device and thanks for trusting us and our products. Your device has been carefully planned in the smallest details, starting with every part of its equipment till final assemblage. All products XTE are made with the main purpose of guaranteeing our clients' full satisfaction, thus we underline that the product you have chosen uses the most advanced technology.

An improper use of the device can compromise its correct operation. Therefore we recommend you to carefully and correctly use it.

Read this manual carefully as it contains essential information for a safe use of your device.

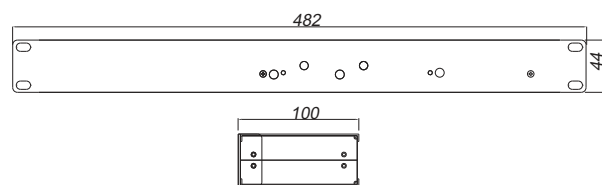
### 4.1. Unpacking

Immediately inspect the package and its content so as to check whether there are any signs of damage. After unpacking check the product and all parts, if you notice any damage inform your dealer immediately.

It is advisable to save the packaging materials even if the device shows no sign of shipping damage; you might have to return it to XTE or to one of its dealers. Use the original package only, which is the best way to protect the equipment from shipping mishandling.

### 4.2. Assembly

Metal framing of all the XTE products is suitable to be supported on a surface (table, etc.) and is equipped with separated stirrups for assembly in 19" rack standard.



**Fig1.** Dimension for mounting

Pay particular attention during the installation; we remind you that the devices should not be installed in places with:

- High temperatures
- Dust and excessive humidity
- Presence of intense magnetic fields
- Water next to the component
- Vibrations
- Closed spaces inhibiting a proper ventilation

## 5. Description

This processor is capable of reducing the effects of acoustic feedback between the speaker unit and the microphone (also known as the Larsen effect).

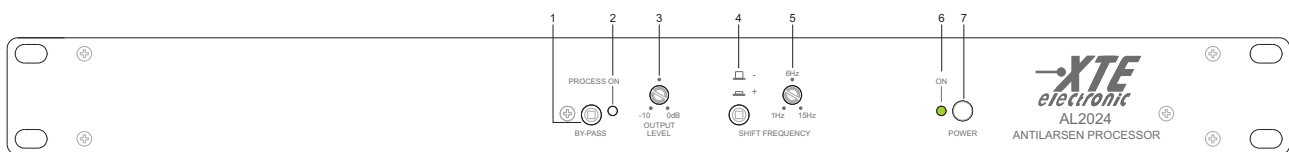
The effect is typical of sound-broadcasting systems that are obliged to have the microphones positioned within the same field of action as the speaker units (e.g. churches, congress halls).

## 6. Features

AL2024 feedback suppressor processor, incorporate a set of features that make them adaptable to any application.

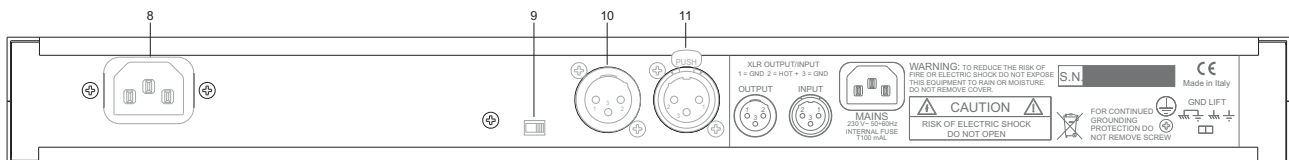
- Process on indicator
- Input and Output on 3 pin XLR sockets
- Shift Frequency adjustment
- By-pass control
- Output level adjustment
- Arranged for 19" rack mounting in 1 RU space

## 7. Front Panel: Controls and Indicators



1. BY-PASS – By pass insertion switch
2. PROCESS ON – Process on activation led indicator
3. OUTPUT LEVEL – Output signal level control
4. - / + – Shift frequency addition/subtraction control
5. SHIFT FREQUENCY – Shift frequency control
6. ON – Power on led indicator
7. POWER – Power on switch

## 8. Back Panel: Controls and Connectors



8. MAINS – AC 230V power supply socket
9. GND LIFT – Selector for the connection of the electric ground with chassis
10. OUTPUT – Output signal on XLR socket
11. INPUT – Input signal on XLR socket

## 9. Power Supply

The unit is expected to work with 230 VCA – 50/60 Hz distribution system.

In case of power dysfunction, check the outside protection fuses and eventually replace them with others of same calibration; if one of them burns out immediately, do not go on and have check the unit by qualified personnel.

Take away plug from 230 VCA electric power socket always, before removing fuses and, in any case, open the unit framing.

## 10. Connections

### 10.1. General criteria

In order to allow the equipment to work properly, it is advisable to comply with a number of general criteria when making the connections:

- Avoid positioning cables or microphones on the cabinet of the equipment.
- Avoid laying the signal lines parallel to the power-supply lines. Keep a minimum distance of 30/40 cm.
- Position the input lines and the output lines at a distance from one another.
- In order to avoid acoustic feedback (the Larsen effect), position the microphones out of the angle of coverage of the loudspeakers.

## 10.2. Input

The female XLR input socket (11) for the line level signals are located on the rear panel of the equipment. The figure Fig2. shows the connections to this socket. This input is unbalanced.

## 10.3. Output

The male XLR output socket (10) for the line level signals are located on the rear panel of the equipment. The figure Fig2. shows the connections to this socket. This output is unbalanced.

Output signal level can be adjusted by the potentiometer (3) located on the front panel.



Fig2. XLR Bal Input / Output Pin-out

## 11. System SetUp (Step by Step)

Being the LARSEN EFFECT influenced by different environment conditions and by system features, a calibration should be found for getting the best possible result.

Available controls are:

- shift frequency adjustment, that could change from 1 Hz to  $\pm 15$  Hz.
- addition/subtraction selection of shift frequency to input signal.
- output level adjustment from 0 dB to  $- 10$  dB.
- Activation/deactivation selection of ANTILARSEN process.

Set maximum output exit, 1 Hz of shift frequency, button in + position, and exclude processor by pushing BYPASS button.

Turn on the system and adjust volume until singing limit of LARSEN EFFECT.

At this point insert processor with BYPASS button, and process on luminous switch should be turned on.

Increase system volume and adjust frequency to obtain the possible maximum volume.

Frequency value changes from case to case, so it is necessary to find the one giving best results in the examined environment.

Alternatively passing from bypass condition to process on condition it is possible to feel the processor effectiveness.

## 12. Technical Specifications

MODEL	AL2024
Configuration	1 Input / 1 Output Feedback suppressor
Input sensitivity	0 dBu
Output level	- 10 dBu $\div$ 0 dBu
Nominal level	0 dBu
Controls	Level, shift frequency, by-pass
Shift frequency range	1 Hz $\div$ 15Hz
Frequency response	85 $\div$ 15.000 Hz
SN Ratio	> 72dB
Power Requirements	AC 230V-50-60Hz
Consumption (1/8 power program)	880VA
Dimensions (WxHxD)	482x44x100mm
Weight - Net	0,7kg

XTE Electronic reserve the right to make changes to the drawings and specifications at any time and without notice.

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