

Safety

Instructions

**Inspect the system before any deployment.**

Perform safety related checks and inspections before any deployment.

Perform preventive maintenance at least once a year.

Refer to the preventive maintenance section in the user documentation for a list of actions and their periodicity. Insufficient upkeep of the product can void the warranty.

If any safety issue is detected during inspection, do not use the product before performing corrective maintenance.

Check for issues. A rigging system part or fastener is missing or loose. A rigging system part exhibits: bends, breaks, broken parts, corrosion, cracks, cracks in welded joints, deformation, denting, wear, holes. A safety cue or label is missing. A loose part is not adequately secured.

**All maintenance must be performed by qualified personnel.****This manual contains the maintenance operations authorized for the end user.**

Performing another operation exposes to hazardous situations.

**Strictly follow the sequence of successive steps in all procedures.****Never incorporate equipment or accessories not approved by L-Acoustics.**

Read all the related PRODUCT INFORMATION documents shipped with the products before exploiting the system.

**Beware of sound levels.**

Do not stay within close proximity of loudspeakers in operation.

Loudspeaker systems are capable of producing very high sound pressure levels (SPL) which can instantaneously lead to permanent hearing damage to performers, production crew and audience members. Hearing damage can also occur at moderate level with prolonged exposure to sound.

Check the applicable laws and regulations relating to maximum sound levels and exposure times.

**Do not store the product on an unstable cart, stand, tripod, bracket, or table.****Read the OWNER'S MANUAL before installing the system.**

As part of a continuous evolution of techniques and standards, L-Acoustics reserves the right to change the specifications of its products and the content of its documents without prior notice.

Check www.l-acoustics.com on a regular basis to download the latest document and software updates.

**Do not expose the product to extreme conditions.**

Do not expose the product to moisture (rain, mist, sea spray, steam, humidity, condensation...) or excessive heat (direct sun, radiator...) for a long period of time.




For more information, refer to the **Product protection ratings** document, available on the website.

**Contact L-Acoustics for advanced maintenance.**

Any unauthorized maintenance operation will void the product warranty.

Symbols


The following symbols are used in this document:

-  This symbol indicates a potential risk of harm to an individual or damage to the product. It can also notify the user about instructions that must be strictly followed to ensure safe installation or operation of the product.
-  This symbol notifies the user about instructions that must be strictly followed to ensure proper installation or operation of the product.
-  This symbol notifies the user about complementary information or optional instructions.

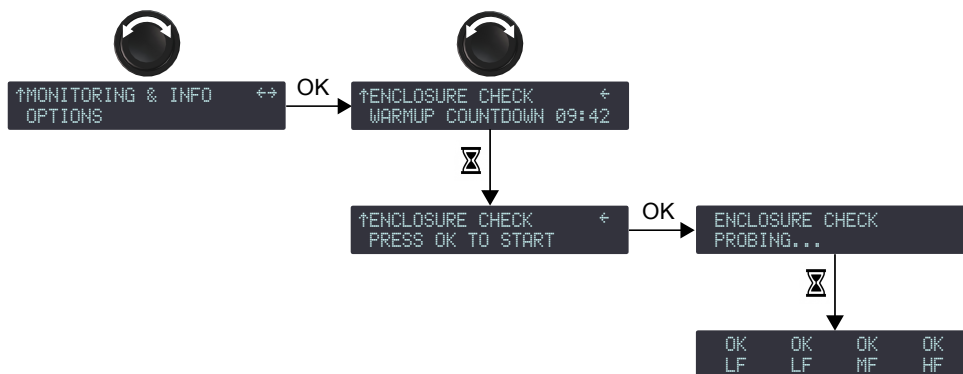
Enclosure check

How to use the LA4X and LA12X amplified controller ENCLOSURE CHECK function.

ENCLOSURE CHECK measures impedance at the reference frequencies for the connected loudspeaker family. The measured impedance is compared to the expected range allowing for fast detection of loudspeakers presenting circuit continuity issues.

-  The results can be used for preliminary diagnosis but cannot replace a comprehensive quality control.

example with one K2 connected to an LA4X



Prerequisite

-  **ENCLOSURE CHECK measurements can only be reliable if the following requirements are met:**

Environment and temperature:

- Ambient temperature must be comprised between 0 °C / 32 °F and 40 °C / 104 °F. Ideal temperature is 20 °C / 68 °F.
- Enclosures must be at room temperature. If warm from a recent high level use or recently moved from a cold environment, let the loudspeakers reach room temperature before starting.

Enclosures:

- Enclosures must be included in the embedded factory preset library.
- Enclosures must be in nominal operating conditions:
 - Remove covers or dollies obstructing the loudspeakers or the vents.
 - Check for obvious physical damage or air leak: visually inspect the grill, gasket, cabinet, and connector plate for loose, missing or damaged parts.

Connection:

- Use only 10 m / 30 ft 4 mm² / AWG 11 speaker cables.
- Do not connect enclosures in parallel.
- One amplified controller can simultaneously test up to:

- four passive loudspeakers or subwoofers (one per output)
- two 2-way active enclosures (one on output 1-2, one on output 3-4)
- one 3-way active quad-amplified enclosure

Amplified controllers:

- The ENCLOSURE CHECK function is only available on LA4X or LA12X amplified controllers.
- LA4X must run at least firmware version 1.1.0.
- LA4X load sensors must be calibrated. Refer to the **Load Sensor Calibration Tool** technical bulletin for more information.
- LA4X must warm up for at least 10 minutes after power up. Do not power off, reboot or switch to standby mode to avoid resetting the countdown.
- Load a preset corresponding to the connected loudspeaker's family. Presets from the user memories may be used on condition they are made of presets supported in the embedded factory preset library.

Procedure

1. Power up the amplified controller. Let LA4X warm up for at least 10 minutes.
2. Connect the loudspeaker enclosures to the amplified controller.
3. Load a preset from or built from the embedded library corresponding to the connected loudspeaker family.
4. On the amplified controller, use the encoder wheel to select **MONITORING & INFO**. Press the OK key or the encoder wheel to validate.
5. Use the encoder wheel to select **ENCLOSURE CHECK**.



Beware of sound levels.

Although the sound pressure levels generated for the ENCLOSURE CHECK are moderate, do not stay within close proximity of the loudspeakers and consider wearing ear protection.

6. Press the OK key or the encoder wheel to launch the ENCLOSURE CHECK.

The amplified controller generates short sinusoidal signals simultaneously for each connected output.

The amplified controller displays the results for each output.

7. Depending on the displayed results, follow the instructions in the table.

result	interpretation	instructions
OK	measured impedance is within expected range	enclosure is in working order electrically
?	unsupported preset family	only supported enclosures should be tested
NC	Not Connected	if cables are connected: a. inspect the cables and connections b. go to step 8 (p.3)
NOK	measured impedance is not within expected range	a. check that all the prerequisites are met, in particular that the loaded preset corresponds to the connected speaker's family b. inspect the cables and connections c. go to step 8 (p.3)
UNDEF	measured impedance is undefined	

8. Under NC, NOK and UNDEF results, press and hold the corresponding OUT key.

The amplified controller displays:

- the tested frequencies,
- information on the measured impedance:
 - OPEN for open circuit (found in NC results),
 - SHORT for short circuit (found in NOK results), or
 - a percentage of variation from the expected range (found in NOK and UNDEF results)
- the number of operational transducers out of the total



Low variations from the expected range are acceptable: displayed percentage can be different from 0 and all transducers considered operational.

Example

NC results on a K2

OK	OK	NC	OK
LF	LF	MF	HF

hold OUT3



604Hz:	OPEN	2/4
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- 604Hz: tested frequency
- OPEN: open circuit
- 2/4: two of the four transducers of the MF section are operational

1. Inspect the cables and connections.
2. Investigate the K2 enclosure further for continuity failures in the MF section.

UNDEF results on one of four 5XT

OK	OK	OK	UNDEF
PA	PA	PA	PA

hold OUT4



14000Hz:	-39%	?/1
400Hz:	+1%	1/1

- for the HF transducer:
 - 14000Hz: tested frequency
 - -39%: variation from the expected range
 - ?/1: further investigation is needed
- for the LF transducer:
 - 400Hz: tested frequency
 - +1%: variation from the expected range (acceptable)
 - 1/1: transducer is operational

1. Check that all the prerequisites are met. Check in particular that:
 - the cables are connected
 - the loaded preset corresponds to the connected speaker's family
2. Investigate the 5XT enclosure further for issues in the HF transducer.

What to do next

Open the enclosure to identify and fix the causes for short circuits and open circuits, then repeat ENCLOSURE CHECK to verify that the issue is resolved.