




Safety

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.

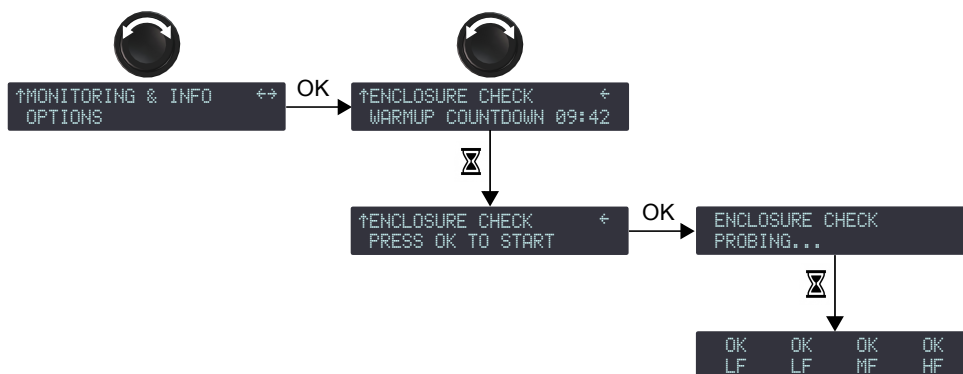
Enclosure check

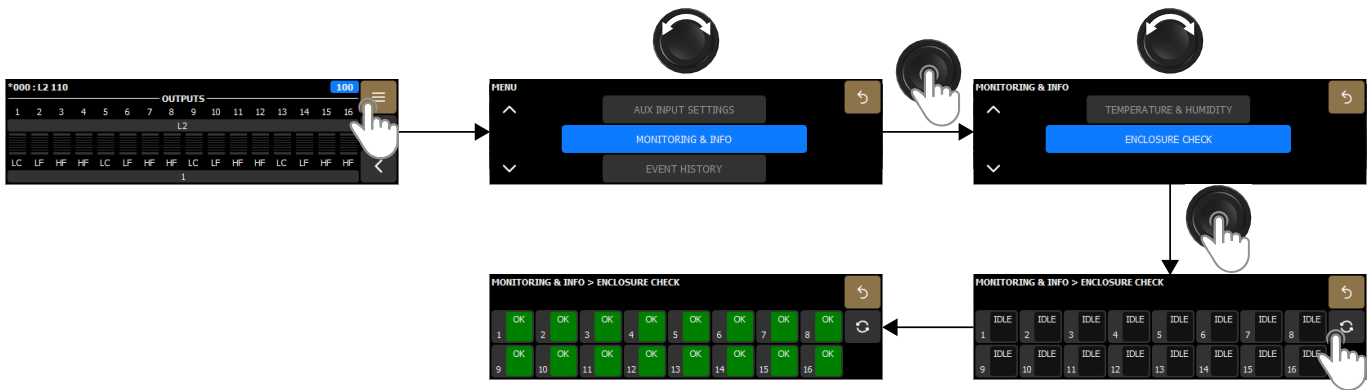
How to use the LA4X, LA7.16, and LA12X amplified controller ENCLOSURE CHECK function.

ENCLOSURE CHECK measures impedance at the reference frequencies for the connected loudspeaker family. The test compares the measured impedance against the typical reference value for fast detection of loudspeakers with 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



example with one L2 connected to an LA7.16**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 or layout 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.

Amplified controllers:

- The ENCLOSURE CHECK function is only available on LA4X, LA7.16, 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 or a layout 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 or a layout from (or built from) the embedded library and corresponding to the connected loudspeaker family.
4. On the amplified controller, select **MONITORING & INFO**.
5. 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. 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 close to the reference value	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 too different from the typical reference value	a. check that all the prerequisites are met, in particular that the loaded preset or layout corresponds to the connected speaker's family b. inspect the cables and connections c. go to step 8 (p.3)
UNDEF / UNDF	measured impedance is undefined	

8. Select each output with a NC, NOK, or UNDEF / UNDF result.

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 typical reference value (found in NOK and UNDEF / UNDF results)
- the number of operational transducers out of the total



Low variations from the typical reference value are acceptable: displayed percentage can be different from 0 and all transducers considered operational. These variations can be caused by the room temperature being different from the ideal 20 °C / 68 °F, and by component or cable tolerances.

Example**on LA4X / LA12X****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

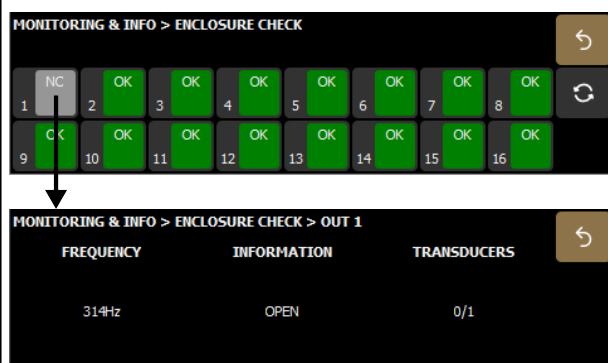
- for the HF transducer:
 - 14000Hz: tested frequency
 - -39%: variation from the typical reference value
 - ?/1: further investigation is needed
- for the LF transducer:
 - 400Hz: tested frequency
 - +1%: variation from the typical reference value (acceptable)
 - 1/1: transducer is operational

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.

Example

on LA7.16

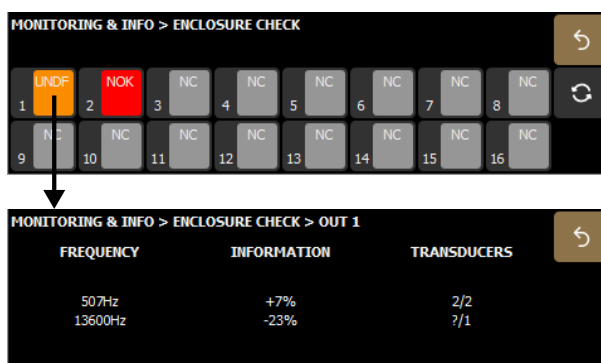
NC result on a L2



- 314Hz: tested frequency
- OPEN: open circuit
- 0/1: the LC transducer is not operational

1. Inspect the cables and connections.
2. Investigate the L2 enclosure further for continuity failures in the corresponding LC section.

UNDF result on one Kiva II



- for the HF transducer:
 - 13600Hz: tested frequency
 - -23%: variation from the typical reference value
 - ?/1: further investigation is needed
- for the LF transducers:
 - 507Hz: tested frequency
 - +7%: variation from the typical reference value (acceptable)
 - 2/2: transducer is operational

1. Check that all the prerequisites are met. Check in particular that:
 - the cables are connected
 - the loaded layout corresponds to the connected speaker's family
2. Investigate the Kiva II 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.