Contents

Safety................................................................................................................................................................ 5
  Instructions................................................................................................................................................5
  Symbols................................................................................................................................................... 6

Introduction........................................................................................................................................................ 7
  How to use this manual............................................................................................................................ 7
  Kiva II ultra-compact modular line source............................................................................................ 7

System components.............................................................................................................................................8
  Loudspeaker cables...................................................................................................................................9
  Rigging elements.......................................................................................................................................9

Electro-acoustical description..............................................................................................................................10
  Directivity............................................................................................................................................... 10
  Preset description....................................................................................................................................11
  Connectors............................................................................................................................................. 12

Rigging system description .................................................................................................................................13
  Kiva II....................................................................................................................................................13
  Subwoofers.............................................................................................................................................15
    SB15m......................................................................................................................................... 15
    SB18 / SB18i / SB18m................................................................................................................16
  Rigging elements.....................................................................................................................................20
    KIBU-SB........................................................................................................................................ 20
    KIET II.......................................................................................................................................... 22
    KIVA-PULLBACK................................................... 23
    KIBU II......................................................................................................................................... 23

Mechanical safety.............................................................................................................................................24

Loudspeaker configurations................................................................................................................................26
  Kiva II line source...................................................................................................................................26
    With low-frequency element........................................................................................................... 27
  Kiva II line source element.......................................................................................................................29
    With low-frequency element........................................................................................................... 30

Inspection and preventive maintenance ............................................................................................................31
  How to do preventive maintenance.......................................................................................................... 31
  Mechanical system overview.................................................................................................................... 31
  Rigging part inspection........................................................................................................................... 37
  Inspection references............................................................................................................................. 38
<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Back cover inspection</td>
<td>44</td>
</tr>
<tr>
<td>Rigging check</td>
<td>45</td>
</tr>
<tr>
<td>Acoustical check</td>
<td>48</td>
</tr>
<tr>
<td>Rigging procedures</td>
<td>52</td>
</tr>
<tr>
<td>Flying</td>
<td>52</td>
</tr>
<tr>
<td>Flying a Kiva II array</td>
<td>52</td>
</tr>
<tr>
<td>Flying a Kiva II / SB15m array</td>
<td>58</td>
</tr>
<tr>
<td>Adding a pull-back under Kiva II</td>
<td>64</td>
</tr>
<tr>
<td>Ceiling-mounting Kiva II</td>
<td>67</td>
</tr>
<tr>
<td>Disassembly</td>
<td>70</td>
</tr>
<tr>
<td>Stacking</td>
<td>73</td>
</tr>
<tr>
<td>Pole-mounting</td>
<td>79</td>
</tr>
<tr>
<td>Loudspeaker connection</td>
<td>83</td>
</tr>
<tr>
<td>LA4X</td>
<td>83</td>
</tr>
<tr>
<td>LA8</td>
<td>85</td>
</tr>
<tr>
<td>LA12X</td>
<td>85</td>
</tr>
<tr>
<td>Corrective maintenance</td>
<td>87</td>
</tr>
<tr>
<td>Tools</td>
<td>87</td>
</tr>
<tr>
<td>Kiva II</td>
<td>87</td>
</tr>
<tr>
<td>SB15m</td>
<td>97</td>
</tr>
<tr>
<td>SB18</td>
<td>100</td>
</tr>
<tr>
<td>SB18m</td>
<td>110</td>
</tr>
<tr>
<td>SB18i</td>
<td>116</td>
</tr>
<tr>
<td>KIBU II</td>
<td>122</td>
</tr>
<tr>
<td>KIBU-SB</td>
<td>124</td>
</tr>
<tr>
<td>KIET II</td>
<td>129</td>
</tr>
<tr>
<td>Specifications</td>
<td>132</td>
</tr>
<tr>
<td>APPENDIX A: Installing an inclinometer on KIBU-SB.</td>
<td>146</td>
</tr>
<tr>
<td>APPENDIX B: Recommendation for speaker cables</td>
<td>147</td>
</tr>
</tbody>
</table>
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 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.

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.

Do not store the product on an unstable cart, stand, tripod, bracket, or table.

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.

Work with qualified personnel for rigging the system
Installation should only be carried out by qualified personnel that are familiar with the rigging techniques and safety recommendations outlined in this manual.

Ensure personnel health and safety
During installation and set-up personnel must wear protective headgear and footwear at all times. Under no circumstances is personnel allowed to climb on a loudspeaker assembly.

Respect the Working Load Limit (WLL) of third party equipment.
L-Acoustics is not responsible for any rigging equipment and accessories provided by third party manufacturers.
Verify that the Working Load Limit (WLL) of the suspension points, chain hoists and all additional hardware rigging accessories is respected.

Respect the maximum configurations and the recommended safety precautions.
For safety issue, respect the maximum configurations outlined in this manual. To check the conformity of any configuration in regards with the safety precautions recommended by L-Acoustics, model the system in Soundvision and refer to the warnings in Mechanical Data section.

Be cautious when flying a loudspeaker configuration.
Always verify that no one is standing underneath the loudspeaker array when it is being raised. As the array is being raised, check each individual element to make sure that it is securely fastened to the adjacent element. Never leave the array unattended during the installation process.
As a general rule, L-Acoustics recommends the use of safety slings at all times.

Be cautious when ground-stacking a loudspeaker array.
Do not stack the loudspeaker array on unstable ground or surface. If the array is stacked on a structure, platform, or stage, always check that the latter can support the total weight of the array.
As a general rule, L-Acoustics recommends the use of safety straps at all times.
**Risk of falling objects**
Verify that no unattached items remain on the array.

**Risk of tipping**
Remove all rigging accessories before transporting an array.

**Take into account the wind effects on dynamic load.**
When a loudspeaker assembly is deployed in an open air environment, wind can produce dynamic stress to the rigging components and suspension points.
If the wind force exceeds 6 bft (Beaufort scale), lower down and/or secure the loudspeaker array.

---

**Intended use**
This system is intended for use by trained personnel for professional applications.

**Read the USER MANUAL before operating the system.**
Use the loudspeaker system components described in the user manual and follow the operating instructions.

**Read the RIGGING MANUAL before installing the system.**
Use the rigging accessories described in the rigging manual and follow the associated procedures.

**Read the maintenance section of this document before servicing the product.**

---

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

**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.
Introduction

How to use this manual

The Kiva II owner’s manual is intended for all actors involved in the system design, implementation, preventive and corrective maintenance of the Kiva II system. It must be used as follows:

1. Read the technical description for an overview of all system elements, their features, and their compatibilities.
   - Electro-acoustical description (p.10)
   - Rigging system description (p.13)
2. Prepare the system configuration. Consider the mechanical limits and the available acoustical configurations.
   - Mechanical safety (p.24)
   - Loudspeaker configurations (p.26)
3. Before rigging the system, perform mandatory inspections and functional checks.
   - Inspection and preventive maintenance (p.31)
4. To deploy the system, follow the step-by-step rigging instructions and refer to the cabling schemes.
   - Rigging procedures (p.52)
   - Loudspeaker connection (p.83)

The Corrective maintenance (p.87) section contains the operations authorized for the end user. Performing another operation exposes to hazardous situations.

For advanced maintenance, contact your L-Acoustics representative.

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 document without prior notice. Please check www.l-acoustics.com on a regular basis to download the latest document and software updates.

Contact information

For information on advanced corrective maintenance:
- contact your Certified Provider or your L-Acoustics representative
- for Certified Providers, contact the L-Acoustics customer service: customer.service@l-acoustics.com

Kiva II ultra-compact modular line source

The Kiva II is an ultra-compact WST® modular line source designed for long-throw sound reinforcement applications with minimum visual impact. The Kiva II features two 6.5” speakers in a bass-reflex cabinet and a 1.75” diaphragm compression driver loaded by a DOSC waveguide and L-Fins.

Kiva II features an outstanding SPL/format ratio thanks to the excursion and power capability of the transducers. The amplifier density is maximized with 16 Ω impedance.

The Kiva II operates from 70 Hz to 20 kHz. The coplanar transducer arrangement and the new K front grill produce a 100° symmetric horizontal directivity output with a smooth tonal response free of secondary lobes over the entire frequency range. In accordance with the WST coupling criteria to preserve the wave front coherency, the maximum inter-element angle is 15°.

The internal passive crossover network uses custom filters. The L-Acoustics amplified controllers ensure the linearization and the protection of the transducers (L-Drive).

The cabinet is made of a new composite material, with a high immunity to moisture and shocks and remarkable acoustic properties. Kiva II weighs a mere 14 kg (31 lb) and its compact elegance makes for an easy integration in any situation. Available in white or custom RAL CLASSIC, it melts into any architecture. The enclosure is rated IP55. The flush-fitted rigging features a visual safety check.

Kiva II is particularly suited to multi-channel L-ISA systems in performing art centers or for sound reinforcement of special events. These fixed installations or rental projects demand an impactful and immersive sound system yet with a compact footprint to give room for either video displays, visual effects or preserve the architectural aspects of the venue.

Kiva II can be flown as a standalone system or with the SB15m. Under-balcony, pole-mount and pullback arrangements are also possible.
System components

Loudspeaker enclosures

Kiva II 2-way passive WST® enclosure: 2 x 6.5" LF + 1.75 HF diaphragm
SB15m High power compact subwoofer: 1 x 15"
SB18 High power compact subwoofer: 1 x 18"
SB18i High power compact subwoofer: 1 x 18" installation version
SB18m High power compact subwoofer: 1 x 18"

Powering and driving system

LA12X / LA4X / LA8 Amplified controller with DSP, preset library and networking capabilities
LA-RAK II Touring rack containing three LA12X, LA-POWER II for power distribution and LA-PANEL II for audio and network distribution
LA-RAK Touring rack containing three LA8 and power, audio and network distribution

Refer to the LA12X / LA4X / LA8 user manual for operating instructions.

Loudspeaker cables

SP cables 4-point speakON loudspeaker cables (4 mm² gauge)
SP cables come in four sizes: SP.7 (0.7 m/2.3 ft), SP5 (5 m/16.4 ft), SP10 (10 m/32.8 ft) and SP25 (25 m/82 ft)
SP-Y1 breakout cable for two passive enclosures (2.5 mm² gauge) provided with a CC4FP adapter
4-point speakON to 2 x 2-point speakON
DO 8-point PA-COM loudspeaker cables (4 mm² gauge)
DO cables come in three sizes: DO.7 (0.7 m/2.3 ft), DO10 (10 m/32.8 ft) and DO25 (25 m/82 ft)
DOSUB-LA8 breakout cable for four passive enclosures (4 mm² gauge)
8-point PA-COM to 4 x 2-point speakON

Information about the connection of the enclosures to the LA amplified controllers is given in this document.

Refer to the LA12X / LA4X / LA8 user manual for detailed instructions about the whole cabling scheme, including modulation cables and network.

Rigging elements

KIBU II Rigging frame for flying Kiva II/Kiva
KIBU-SB Rigging frame for flying or stacking KIVA II/KIVA and SB15m
KIET II Rigging plate for ceiling or pole-mount of 3 KIVA II/KIVA maximum
KIVA-PULLBACK Pullback accessory for KIVA II/KIVA
L-Case 2U Electronics transport and protection case
System components

Software applications

Soundvision 3D acoustical and mechanical modeling software
LA Network Manager Software for remote control and monitoring of amplified controllers

Refer to the Soundvision help.
Refer to the LA Network Manager help.

Loudspeaker cables

![Diagram of loudspeaker cables]

Rigging elements

KIET II
KIVA-PULLBACK
KIBU-SB

KIBU II
Electro-acoustical description

Directivity

Kiva II features a V-shaped transducer arrangement coupled with a DOSC waveguide that generates a horizontal directivity pattern of 100°.

Kiva II beamwidth

Dispersion angle diagram of an array of six enclosures with 0° inter-enclosure angle, using lines of equal sound pressure at -3 dB, -6 dB, -12 dB.
Preset description

[KIVA II_FI]

<table>
<thead>
<tr>
<th>outputs</th>
<th>channels</th>
<th>routing</th>
<th>gain</th>
<th>delay</th>
<th>polarity</th>
<th>mute</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUT 1</td>
<td>PA</td>
<td>IN A</td>
<td>0 dB</td>
<td>0 ms</td>
<td>+</td>
<td>ON</td>
</tr>
<tr>
<td>OUT 2</td>
<td>PA</td>
<td>IN A</td>
<td>0 dB</td>
<td>0 ms</td>
<td>+</td>
<td>ON</td>
</tr>
<tr>
<td>OUT 3</td>
<td>PA</td>
<td>IN B</td>
<td>0 dB</td>
<td>0 ms</td>
<td>+</td>
<td>ON</td>
</tr>
<tr>
<td>OUT 4</td>
<td>PA</td>
<td>IN B</td>
<td>0 dB</td>
<td>0 ms</td>
<td>+</td>
<td>ON</td>
</tr>
</tbody>
</table>

[KIVA II]

<table>
<thead>
<tr>
<th>outputs</th>
<th>channels</th>
<th>routing</th>
<th>gain</th>
<th>delay</th>
<th>polarity</th>
<th>mute</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUT 1</td>
<td>PA</td>
<td>IN A</td>
<td>0 dB</td>
<td>0 ms</td>
<td>+</td>
<td>ON</td>
</tr>
<tr>
<td>OUT 2</td>
<td>PA</td>
<td>IN A</td>
<td>0 dB</td>
<td>0 ms</td>
<td>+</td>
<td>ON</td>
</tr>
<tr>
<td>OUT 3</td>
<td>PA</td>
<td>IN A</td>
<td>0 dB</td>
<td>0 ms</td>
<td>+</td>
<td>ON</td>
</tr>
<tr>
<td>OUT 4</td>
<td>PA</td>
<td>IN A</td>
<td>0 dB</td>
<td>0 ms</td>
<td>+</td>
<td>ON</td>
</tr>
</tbody>
</table>

[SB18_60] [SB15_100]

<table>
<thead>
<tr>
<th>outputs</th>
<th>channels</th>
<th>routing</th>
<th>gain</th>
<th>delay</th>
<th>polarity</th>
<th>mute</th>
</tr>
</thead>
<tbody>
<tr>
<td>OUT 1</td>
<td>SB</td>
<td>IN A</td>
<td>0 dB</td>
<td>0 ms</td>
<td>+</td>
<td>ON</td>
</tr>
<tr>
<td>OUT 2</td>
<td>SB</td>
<td>IN A</td>
<td>0 dB</td>
<td>0 ms</td>
<td>+</td>
<td>ON</td>
</tr>
<tr>
<td>OUT 3</td>
<td>SB</td>
<td>IN A</td>
<td>0 dB</td>
<td>0 ms</td>
<td>+</td>
<td>ON</td>
</tr>
<tr>
<td>OUT 4</td>
<td>SB</td>
<td>IN A</td>
<td>0 dB</td>
<td>0 ms</td>
<td>+</td>
<td>ON</td>
</tr>
</tbody>
</table>

[SB18_60_C] [SB15_100_C]

<table>
<thead>
<tr>
<th>loudspeaker elements</th>
<th>outputs</th>
<th>channels</th>
<th>routing</th>
<th>gain</th>
<th>delay</th>
<th>polarity</th>
<th>mute</th>
</tr>
</thead>
<tbody>
<tr>
<td>SR</td>
<td>OUT 1</td>
<td>SR</td>
<td>IN A</td>
<td>0 dB</td>
<td>0 ms</td>
<td>+</td>
<td>ON</td>
</tr>
<tr>
<td>SB</td>
<td>OUT 2</td>
<td>SB</td>
<td>IN A</td>
<td>0 dB</td>
<td>0 ms</td>
<td>+</td>
<td>ON</td>
</tr>
<tr>
<td>SB</td>
<td>OUT 3</td>
<td>SB</td>
<td>IN A</td>
<td>0 dB</td>
<td>0 ms</td>
<td>+</td>
<td>ON</td>
</tr>
<tr>
<td>SB</td>
<td>OUT 4</td>
<td>SB</td>
<td>IN A</td>
<td>0 dB</td>
<td>0 ms</td>
<td>+</td>
<td>ON</td>
</tr>
</tbody>
</table>
Connectors

Kiva II is equipped with two 4-point speakON connectors.

**Kiva II**

![Kiva II diagram]

**Internal pinout for L-Acoustics 2-way passive enclosures**

<table>
<thead>
<tr>
<th>speakON points</th>
<th>1 +</th>
<th>1 -</th>
<th>2 +</th>
<th>2 -</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transducer connectors</td>
<td>+</td>
<td>-</td>
<td>Not linked</td>
<td>Not linked</td>
</tr>
</tbody>
</table>

SB15m is equipped with two 4-point speakON connectors.

SB18 is equipped with two 4-point speakON connectors.

**SB15m**

![SB15m diagram]

**Internal pinout for L-Acoustics subwoofers**

<table>
<thead>
<tr>
<th>speakON points</th>
<th>1 +</th>
<th>1 -</th>
<th>2 +</th>
<th>2 -</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transducer connectors</td>
<td>LF +</td>
<td>LF -</td>
<td>Not linked</td>
<td>Not linked</td>
</tr>
</tbody>
</table>
Rigging system description

Kiva II

Kiva II features a three-point rigging system composed of a rigging arm and a spring-loaded pin at the back and two pairs of rigging axis and lodging at the front.

The front linking points are locked with a spring-loaded safety mechanism inside the right handle. A yellow safety label is visible if the mechanism is not fully engaged.

⚠️ On every Kiva II, check that the logo is on the same side as the safety mechanism (identifiable by the eyelet and the handle shape).
Kiva II can be connected to other Kiva II or to dedicated rigging accessories. The inter-enclosure angle can be set between 0° and 15°.
**Subwoofers**

**SB15m**

SB15m features four rigging rails on top and bottom faces. Connection with other elements is ensured by two coupling bars with locking tabs.

The coupling bars can be stored on both sides on the storage pins. The locking tabs slide inside the coupling bars to keep them in place.

The locking tabs lugs fit into notches. A yellow safety label is visible if the locking tabs are not fully engaged.
The top face is equipped with a 35 mm pole socket. Two stacking runners meet two runner tracks in stacked deployments.

SB15m rigging is compatible with KIBU-SB.

**SB18 / SB18i / SB18m**

**SB18**

For more information on rigging SB18, refer to the [SB18 rigging manual](#).

SB18 has a four-point rigging system with two rigging arms and two pins on each side.

---

**Pin (x4)**

**Rigging Arm (x4)**

**Storage Position**

**Rigging Position**
SB18i

For more information on rigging SB18i, refer to the SB18i rigging manual.

The SB18i rigging system consists in four rigging bars for attaching enclosures together with screws.

SB18m

For more information on rigging SB18m, refer to the SB18m rigging manual.

SB18m features four rigging rails on top and bottom faces. Connection with other elements is ensured by two coupling bars with locking tabs.
The coupling bars can be stored on both sides on the storage pins. The locking tabs slide inside the coupling bars to keep them in place.

The locking tabs lugs fit into notches. A yellow safety label is visible if the locking tabs are not fully engaged.

Two stacking runners meet two runner tracks in stacked deployments.
SB18, SB18m, and SB18i feature a 35 mm pole socket.
Rigging elements

KIBU-SB

Kiva II/SB15m rigging interface

KIBU-SB is a rigging interface to connect Kiva II to SB15m. Each side of the rigging structure is designed to fit one enclosure type.

One side is compatible with the Kiva II three-point rigging system.

The other side features two rigging rails and two coupling bars with two locking tabs for securing the SB15m.

Flying frame

KIBU-SB provides 13 pickup points for flying SB15m and 14 pickup points for flying Kiva II.

Refer to the Soundvision configuration to choose the pickup point.
Stacking platform

KIBU-SB features four runners for stacking Kiva II.

⚠️ The coupling bars must be removed.

In stacked configuration, Kiva II can be secured in front or rear position on KIBU-SB.

For optimal stability, the array must be secured in front position when tilted towards the rear, and in rear position when tilted towards the front.

⚠️ Kiva II in rear position with a positive 7.5° angle

The positive 7.5° angle is only available when Kiva II and KIBU-SB are stacked on SB15m. When Kiva II and KIBU-SB are ground-stacked, the rigging arm cannot be secured at 7.5°.
KIET II

KIET II rear linking point
KIET II features two dedicated rear linking points, one for pole-mounting and one for ceiling-mounting deployment.

Pole-mount
KIET II is a rigging accessory compatible with the Kiva II rigging system. It is delivered with a removable 35 mm pole socket. It can be used to mount up to three Kiva II on a pole.

Ceiling-mount
KIET II can be used to secure up to three Kiva II under a ceiling, a balcony or structure.

Pole-mounting on SB15m
A maximum of two Kiva II can be pole-mounted on a SB15m

Use the spacers provided with the pole-mount socket.
KIVA-PULLBACK

KIVA-PULLBACK is used to implement pull-back configurations with up to nine Kiva II.

KIBU II

Flying frame

KIBU II is a rigging structure designed to fit the Kiva II rigging system in flown configuration. 13 pickup points are available.
Mechanical safety

Flown configurations

The Kiva II rigging system complies with 2006/42/EC: Machinery Directive. It has been designed following the guidelines of BGV-C1.

2006/42/EC: Machinery Directive specifies a safety factor of 4 against the rupture. The flown deployments described in this manual achieve a safety factor of **4 or higher**.

Refer to Soundvision for the safety factor of a specific deployment.

The **safe limit** gives the maximum number of elements for which the safety factor is compliant with the 2006/42/EC: Machinery Directive, within the use defined in this manual and regardless of the other deployment parameters (site angles, inter-enclosure angles, etc.).

The **maximum limit** gives the maximum number of elements for which the safety factor can be compliant with the 2006/42/EC: Machinery Directive, when the other deployment parameters provide the best mechanical conditions.

For mixed arrays refer to your Soundvision model.

### Kiva II

<table>
<thead>
<tr>
<th>configuration</th>
<th>rigging accessory</th>
<th>safe limit</th>
<th>maximum limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>flown</td>
<td>KIBU-SB</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>flown</td>
<td>KIBU II</td>
<td>8</td>
<td>20</td>
</tr>
<tr>
<td>pullback</td>
<td>KIBU II / KIBU-SB + KIVA-PULLBACK</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>ceiling-mounted</td>
<td>KIET II</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

### SB15m

<table>
<thead>
<tr>
<th>configuration</th>
<th>rigging accessory</th>
<th>maximum / Safe limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>flown</td>
<td>KIBU-SB</td>
<td>8</td>
</tr>
</tbody>
</table>

### Kiva II + SB15m

<table>
<thead>
<tr>
<th>configuration</th>
<th>rigging accessory</th>
<th>maximum / safe limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>pullback</td>
<td>KIBU-SB + KIVA-PULLBACK</td>
<td>9 Kiva II + 3 SB15m</td>
</tr>
</tbody>
</table>

### Other configurations

For other configurations, respect the recommended maximum limit for optimal stability.

### Kiva II

<table>
<thead>
<tr>
<th>configuration</th>
<th>rigging accessory</th>
<th>safe limit</th>
<th>maximum limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>stacked</td>
<td>KIBU-SB</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>pole-mounted</td>
<td>KIET II + 35 mm pole</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>pole-mounted</td>
<td>KIET II + 35 mm pole + SB15m</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

### SB15m

<table>
<thead>
<tr>
<th>configuration</th>
<th>rigging accessory</th>
<th>maximum / safe limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ground-stacked</td>
<td>no rigging accessory</td>
<td>4</td>
</tr>
</tbody>
</table>
Assessing mechanical safety

**Mechanical safety of the rigging system**
Before any installation, always model the system in Soundvision and check the *Mechanical Data* section for any stress warning or stability warning.

In order to assess the actual safety of any array configuration before implementation, refer to the following warnings:

**Rated working load limit (WLL) is not enough**
The rated WLL is an indication of the element resistance to tensile stress. For complex mechanical systems such as loudspeaker arrays, WLLs cannot be used per se to determine the maximum number of enclosures within an array or to assess the safety of a specific array configuration.

**Maximum pullback angle**
If a pullback accessory is available, the pullback angle must not exceed a 90° negative site angle.

**Mechanical modeling with Soundvision**
The working load applied to each linking point, along with the corresponding safety factor, will depend on numerous variables linked to the composition of the array (type and number of enclosures, splay angles) and the implementation of the flying or stacking structure (number and location of flying points, site angle). This cannot be determined without the complex mechanical modeling and calculation offered by Soundvision.

**Assessing the safety with Soundvision**
The overall safety factor of a specific mechanical configuration always corresponds to the lowest safety factor among all the linking points. Always model the system configuration with the Soundvision software and check the *Mechanical Data* section to identify the weakest link and its corresponding working load. By default, a stress warning will appear when the mechanical safety goes beyond the recommended safety level.

**Safety of ground-stacked arrays in Soundvision**
For ground-stacked arrays, a distinct stability warning is implemented in Soundvision. It indicates a tipping hazard when the array is not secured to the ground, stage or platform. It is the user's responsibility to secure the array and to ignore the warning.

**Additional safety for flown arrays**
When flying an array, use available holes to implement a secondary safety.

**Considerations must be given to unusual conditions**
Soundvision calculations are based on usual environmental conditions. A higher safety factor is recommended with factors such as extreme high or low temperatures, strong wind, prolonged exposition to salt water, etc. Always consult a rigging specialist to adopt safety practices adapted to such a situation.

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Rigging Accessory</th>
<th>Maximum / Safe Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>ground-stacked</td>
<td>no rigging accessory</td>
<td>4</td>
</tr>
</tbody>
</table>
Loudspeaker configurations

Kiva II line source

In this configuration the system operates over the nominal bandwidth of the enclosure.
The [KIVA II] preset allows for a reference frequency response in medium to long throw applications.
Kiva II is driven by the LA12X / LA4X / LA8 amplified controllers.

<table>
<thead>
<tr>
<th>Enclosure</th>
<th>Kiva II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preset</td>
<td>[KIVA II]</td>
</tr>
<tr>
<td>Frequency range (-10 dB)</td>
<td>70 Hz - 20 kHz</td>
</tr>
</tbody>
</table>
**Kiva II line source with low-frequency element**

In this configuration, the bandwidth of the Kiva II system is extended in the low end and the LF contour is reinforced. The [KIVA II] preset allows for a reference frequency response in medium to long throw applications. The [SB15_100] and [SB18_60] presets provide SB15m and SB18 with an upper frequency limit at 100 Hz and 60 Hz respectively.

Kiva II, SB18 and SB15m are driven by the LA12X / LA4X / LA8 amplified controllers.

**Kiva II line source with SB15m**

With SB15m, the system bandwidth is extended down to 40 Hz.

- **3 Kiva II : 1 SB15m**
  - reinforced contour

- **2 Kiva II : 1 SB15m**
  - reinforced contour
  - + 3 dB at 100 Hz

Maximum line length: 12 Kiva II + 4 SB15m

---

<table>
<thead>
<tr>
<th>Enclosure</th>
<th>Kiva II</th>
<th>SB15m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preset</td>
<td>[KIVA II]</td>
<td>[SB15_100]</td>
</tr>
<tr>
<td>Frequency range (-10 dB)</td>
<td>40 Hz - 20 kHz</td>
<td></td>
</tr>
</tbody>
</table>

Use [xxxx_xx_C] on a reversed subwoofer in a cardioid configuration

- The cardioid configuration consists in reversing 1 element in an array of 4 subwoofers.
- Refer to the subwoofer user manual and to the **Cardioid configurations** technical bulletin.

Delay values

- Do not forget to add the pre-alignment and geometric delays depending on the configuration.

**Pre-alignment delays**

<table>
<thead>
<tr>
<th>Configuration</th>
<th>Kiva II</th>
<th>SB15m</th>
</tr>
</thead>
<tbody>
<tr>
<td>[KIVA II] + [SB15_100]</td>
<td>0 ms</td>
<td>1 ms</td>
</tr>
<tr>
<td>[KIVA II] + [SB15_100_C]</td>
<td>2.7 ms</td>
<td>0 ms</td>
</tr>
</tbody>
</table>
Kiva II line source with SB15m and SB18

With SB15m and SB18, the system bandwidth is extended down to 32 Hz.

**3 Kiva II : 1 SB15m : 1 SB18**
reinforced contour

Maximum line length:
12 Kiva II + 4 SB15m

**2 Kiva II : 1 SB15m : 1 SB18**
reinforced contour
+ 3 dB at 100 Hz

---

**Enclosure**

<table>
<thead>
<tr>
<th>Kiva II</th>
<th>SB15m</th>
<th>SB18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preset</td>
<td>[KIVA II]</td>
<td>[SB15_100]</td>
</tr>
</tbody>
</table>

**Frequency range (-10 dB)**

32 Hz - 20 kHz

---

**Use [xxxx_xx_C] on a reversed subwoofer in a cardioid configuration**

The cardioid configuration consists in reversing 1 element in an array of 4 subwoofers. Refer to the subwoofer user manual and to the **Cardioid configurations** technical bulletin.

**Grouping subwoofers**

Place the subwoofer enclosures side by side. If not possible, the maximum distance between two adjacent acoustic centers must be 2.8 m or 1.7 m if the upper frequency limit of the subwoofer system is at 60 Hz or 100 Hz, respectively.

**Delay values**

Do not forget to add the pre-alignment and geometric delays depending on the configuration.

**Pre-alignment delays**

| [KIVA II] + [SB15_100] + [SB18_60] | Kiva II = 0 ms | SB15m = 1 ms | SB18 = 8.5 ms |
| [KIVA II] + [SB15_100] + [SB18_60_C] | Kiva II = 0 ms | SB15m = 1 ms | SB18 = 2.95 ms |
| [KIVA II] + [SB15_100_C] + [SB18_60] | Kiva II = 2.7 ms | SB15m = 0 ms | SB18 = 11.2 ms |
| [KIVA II] + [SB15_100_C] + [SB18_60_C] | Kiva II = 2.7 ms | SB15m = 0 ms | SB18 = 5.65 ms |
Kiva II line source element

Up to three Kiva II can be used as a line source element. In this configuration, the system operates over the nominal bandwidth of Kiva II.

The [KIVA II_FI] preset allows for a reference frequency response in short throw applications.

Kiva II is driven by the LA12X / LA4X / LA8 amplified controllers.

<table>
<thead>
<tr>
<th>Enclosure</th>
<th>Kiva II</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preset</td>
<td>[KIVA II_FI]</td>
</tr>
<tr>
<td>Frequency range (-10 dB)</td>
<td>70 Hz - 20 kHz</td>
</tr>
</tbody>
</table>
**Kiva II line source element with low-frequency element**

Up to three Kiva II can be used as a line source element with a complementary subwoofer. In this configuration, the system bandwidth is extended in the low end and the LF contour is reinforced.

The [KIVA II_FI] preset allows for a reference frequency response in medium to long throw applications. The [SB15_100] preset provides SB15m with an upper frequency limit at 100 Hz.

Kiva II and SB15m are driven by the LA12X / LA4X / LA8 amplified controllers.

**Kiva II line source element with SB15m**

With SB15m, the system bandwidth is extended down to 40 Hz.

<table>
<thead>
<tr>
<th>3 Kiva II : 1 SB15m</th>
<th>2 Kiva II : 1 SB15m</th>
</tr>
</thead>
<tbody>
<tr>
<td>reinforced contour</td>
<td>reinforced contour</td>
</tr>
<tr>
<td>+ 3 dB at 100 Hz</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Enclosure</th>
<th>Kiva II</th>
<th>SB15m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preset</td>
<td>[KIVA II_FI]</td>
<td>[SB15_100]</td>
</tr>
<tr>
<td>Frequency range (-10 dB)</td>
<td>40 Hz - 70 Hz</td>
<td></td>
</tr>
</tbody>
</table>

**Delay values**

Do not forget to add the pre-alignment and geometric delays depending on the configuration.

**Pre-alignment delays**

| [KIVA II_FI] + [SB15_100] | Kiva II = 0 ms | SB15m = 0.7 ms |
| [KIVA II_FI] + [SB15_100_C] | Kiva II = 3 ms | SB15m = 0 ms |

**Use [xxxx_xx_C] on a reversed subwoofer in a cardioid configuration**

The cardioid configuration consists in reversing 1 element in an array of 4 subwoofers.

Refer to the subwoofer user manual and to the **Cardioid configurations** technical bulletin.

**Grouping subwoofers**

Place the subwoofer enclosures side by side. If not possible, the maximum distance between two adjacent acoustic centers must be 2.8 m or 1.7 m if the upper frequency limit of the subwoofer system is at 60 Hz or 100 Hz, respectively.
Inspection and preventive maintenance

How to do preventive maintenance

Inspect the system before any deployment and after any corrective maintenance operation.
Perform preventive maintenance at least once a year.
Refer to the maintenance manuals for advanced maintenance.

Rigging and hardware

Refer to the Mechanical system overview (p.31) to identify critical parts of the system.
Perform the Rigging part inspection (p.37) on each part using the Inspection references (p.38).
Do the Rigging check (p.45).

Acoustics

Perform the Enclosure check (p.48).
Perform the Listening test (p.50) to detect any degradation in sound quality.

Mechanical system overview

Critical parts of the lifting chains are highlighted.

The 🎈 indicates a visual inspection. The 🔄 indicates a functional check.

⚠️ Perform the Rigging part inspection (p.37) on critical parts.
For each part, use the inspection references indicated over the preview illustration.
Mixed Kiva II array with SB15m and KIBU-SB

Refer to Rigging part inspection (p.37).

- Rigging rails, storage pins (p.41)
- Shackles (p.43)
- Rigging rails, storage pins (p.41)
- Coupling bars, locking tabs (p.38)
- Coupling bars, locking tabs (p.38)
- Ball-locking pins (p.39)
- Rigging check (p.45)
- Back cover inspection (p.44)
- Rigging axis, lodging (p.42)

logo on the same side as the safety mechanism
Kiva II array with KIBU II and KIVA-PULLBACK

Refer to Rigging part inspection (p.37).

- **Shackles (p.43)**
- **Ball-locking pins (p.39)**
- **Rigging axis, lodging (p.42)**
- **Rigging check (p.45)**
- **Back cover inspection (p.44)**
- **Shackles (p.43)**
- **Rigging axis, lodging (p.42)**

*logo on the same side as the safety mechanism*

*tab is not bent*
Inspection and preventive maintenance

Kiva II ceiling-mounted with KIET II

Refer to Rigging part inspection (p.37).

Ball-locking pins (p.39)

Rigging check (p.45)

Back cover inspection (p.44)

Rigging axis, lodging (p.42)

logo on the same side as the safety mechanism
**Kiva II pole-mounted on SB15m with KIET II**

Refer to Rigging part inspection (p.37).

- **Back cover inspection** (p.44)
- **Rigging axis, lodging** (p.42)
  - Logo on the same side as the safety mechanism
- **Ball-locking pins** (p.39)
- **Rigging check** (p.45)
- **Rigging axis, lodging** (p.42)
  - Pole-mount (p.131)
  - Screws are tightened
  - Washers are present
  - Screws are tightened
**SB18 / SB18i / SB18m stacked**

Refer to [Rigging part inspection](#) (p.37).

**SB18**

**Ball-locking pins** (p.39)

- Screws are tightened

**SB18i**

- Screws are tightened
- Tabs are not bent

**SB18m**

**Rigging rails, storage pins** (p.41)

- Screws are tightened

**Coupling bars, locking tabs** (p.38)

- Screws are tightened
Rigging part inspection

About this task
For each rigging part, use the Inspection references (p.38) for comparison and specific manipulations.

Prerequisite
Perform the inspection in a well-lit environment.

Procedure
1. Check that the rigging part is present.
2. If applicable, disassemble the rigging part from the enclosure or the rigging accessory.
   - Check that the tethers are intact and safely secured.
3. Inspect the part from every side.
   - Compare with the reference pictures.
   - Check for:
     • corrosion
     • wear and cracks
     • bends and dents
     • holes
     • missing safety cues
     • missing or loose fasteners
   
   **Replacing screws**
   - If a screw is loose, remove and replace it.
   - Always use the new screws provided in the KR.
   - If no new screw is available, add blue threadlocker before reusing the screw.
   - Do not apply more than the indicated torque.
4. Check the geometry of the part to identify critical deformations.
   - Place the rigging part on a flat surface or hold a level against it.
5. Check the moving parts.
   - Make sure that the mechanism engages correctly.

What to do next
If a problem is detected, perform the authorized maintenance operations or contact your L-Acoustics representative.
**Inspection references**

**Coupling bars and locking tabs**

**Reference pictures**

![safety cue](image1)

![tether](image2)

**Moving parts**

The tab returns to its initial position upon release.

**Repair kits (KR)**

**Coupling bars**

<table>
<thead>
<tr>
<th>Model</th>
<th>Kit Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIBU-SB</td>
<td>KR SB15MRIG (Kit SB15M 2 coupling bars)</td>
</tr>
<tr>
<td>SB15m</td>
<td>KR SB15MRIG (Kit SB15M 2 coupling bars)</td>
</tr>
<tr>
<td>SB18m</td>
<td>KR SB18MRIG (Kit SB18M 2 coupling bars)</td>
</tr>
</tbody>
</table>

**Locking tabs**

<table>
<thead>
<tr>
<th>Model</th>
<th>Kit Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>KIBU-SB</td>
<td>KR WIFOVER (Kit 2 locking tabs with slings)</td>
</tr>
<tr>
<td>SB15m</td>
<td>KR WIFOVER (Kit 2 locking tabs with slings)</td>
</tr>
<tr>
<td>SB18m</td>
<td>KR WIFOVER (Kit 2 locking tabs with slings)</td>
</tr>
</tbody>
</table>

*: contact your L-Acoustics representative

**Related tasks**

**Rigging part inspection** (p.37)
Ball-locking pins

Reference pictures

Moving parts

1. Press the push button. The ball-locking mechanism is retracted.
2. Release the button. The ball-locking mechanism is activated.
3. Insert the pin in its storage and rigging locations. If the pin is inserted in two plates, the ball must pass between both plates and lock the pin in place.

⚠️ If the check fails, immediately withdraw the product from use and contact L-Acoustics.

Repair kits (KR)

**Ball-locking pin**

- KIBU II: KR PIN670 (KR ball-locking pin KIBU/KIBU II)  
  Pins (p.123)
- KIET II: KR PIN670 (KR ball-locking pin KIBU/KIBU II)  
  Pins (p.130)
  Pins (p.128)
- SB18: KR PIN601 (Kit 10 pins long T-shaped head screws & rivets)  
  Pins (p.106)

*: contact your L-Acoustics representative

**Related tasks**

- Rigging part inspection (p.37)
Rigging rails and storage pins

Reference pictures

SB15m geometry

SB18m geometry

KIBU-SB geometry

Repair kits

⚠️ Contact your L-Acoustics representative for repair instructions.

Rail

<table>
<thead>
<tr>
<th>Geometry</th>
<th>Repair Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB15m</td>
<td>KR SB15MJOUE (Kit 2 side rigging assemblies SB15M)</td>
</tr>
<tr>
<td>SB18m</td>
<td>KR SB18MRAIL (Kit 2 rails for SB18M rigging assembly)</td>
</tr>
<tr>
<td>KIBU-SB</td>
<td>on demand</td>
</tr>
</tbody>
</table>

Storage pin

<table>
<thead>
<tr>
<th>Geometry</th>
<th>Repair Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>SB15m</td>
<td>KR WIFOPION (Kit 4 pins for coupling bars in storage mode)</td>
</tr>
<tr>
<td>SB18m</td>
<td>KR WIFOPION (Kit 4 pins for coupling bars in storage mode)</td>
</tr>
<tr>
<td>KIBU-SB</td>
<td>on demand</td>
</tr>
</tbody>
</table>

Related tasks

Rigging part inspection (p.37)
**Rigging axis and lodging**

**Reference pictures**

- Check that the screws are tightened.
- Check that the tabs are not bent.

*Rigging axis and lodging Reference pictures*

![Kiva II](image1)

![KIET II](image2)

![KIVA-PULLBACK](image3)

![KIBU II](image4)

![KIBU-SB](image5)

**Repair kits**

⚠️ **Contact your L-Acoustics representative for repair instructions.**

**Rigging axis**

- Kiva II: G03307 (KR rigging axes KIVA II (x2))
- KIBU-SB: KR CVKIRIGAXE (Kit 10 rigging axe & screws)
- KIET II: G03307 (KR rigging axes KIVA II (x2))
- KIVA-PULLBACK: G03307 (KR rigging axes KIVA II (x2))
- KIBU II: G03307 (KR rigging axes KIVA II (x2))

**Related tasks**

*Rigging part inspection* (p.37)
**Shackles**

**Moving parts**

Drive the shackle axis in its lodging. Make sure that the end is flush with the shackle.

**Repair kits**

**12 mm shackles**

- KIBU-SB
- KIVA-PULLBACK
- KIBU II

KR CAMAN12 (Kit 4 straight shackles 12 mm )

**Related tasks**

* Rigging part inspection (p.37)
Back cover inspection

About this task
In order to assess the deformation of the back cover of Kiva II, inspect the back cover on every single enclosure. Take down the enclosure before inspection.

Procedure

— Check the rigging pin holes for signs of **ovalization**. The hole should fit the pin with no visible gap.
— Touch the rim around the rigging pin and make sure no **bump** is perceptible.

What to do next
If any deformation is detected, immediately withdraw the product from use for corrective maintenance:

<table>
<thead>
<tr>
<th>enclosure</th>
<th>repair kit(s)</th>
<th>procedure</th>
</tr>
</thead>
</table>
| Kiva II   | • 1 x G03298 (KR rear rigging KIVA II )  
|           | • 1 x G03303 (KR screws and fasteners KIVA II ) | Kiva II back cover (p.89) |
Rigging check

Procedure

1. Secure one Kiva II on top of a second one (logos on the left).

   - The safety clicks back into place.
   - Both rigging axis fit in their lodgings.
   - The yellow label is not visible at all on the logo side.

2. Secure the rear rigging arm at the 0° and at the 15° position.
3. Hold the top enclosure by the handles and shake the assembly.
   The two enclosures remain attached.
4. Release the rigging arm of the top enclosure.

⚠️ **Risk of trapping hand/fingers**

Carefully release the back of the enclosure until it rests on the assembly.
5. Unlock the mechanism inside the left handle of the top enclosure and slide the enclosure to the left.

6. Switch the enclosures and repeat the procedure.
Acoustical check

Enclosure check

This feature is available on:
- LA4X
- LA12X

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.

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.

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.

<table>
<thead>
<tr>
<th>result</th>
<th>interpretation</th>
<th>instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK</td>
<td>measured impedance is within expected range</td>
<td>enclosure is in working order electrically</td>
</tr>
<tr>
<td>?</td>
<td>unsupported preset family</td>
<td>only supported enclosures should be tested</td>
</tr>
<tr>
<td>NC</td>
<td>Not Connected</td>
<td>if cables are connected:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>a. inspect the cables and connections</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. go to step 8 (p.49)</td>
</tr>
<tr>
<td>NOK</td>
<td>measured impedance is not within expected range</td>
<td>a. check that all the prerequisites are met, in</td>
</tr>
<tr>
<td></td>
<td></td>
<td>particular that the loaded preset corresponds</td>
</tr>
<tr>
<td></td>
<td></td>
<td>to the connected speaker's family</td>
</tr>
<tr>
<td></td>
<td></td>
<td>b. inspect the cables and connections</td>
</tr>
<tr>
<td></td>
<td></td>
<td>c. go to step 8 (p.49)</td>
</tr>
<tr>
<td>UNDEF</td>
<td>measured impedance is undefined</td>
<td></td>
</tr>
</tbody>
</table>

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.
**Listening test**

<table>
<thead>
<tr>
<th>enclosure</th>
<th>preset</th>
<th>usable bandwidth</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kiva II</td>
<td>[KIVA II]</td>
<td>70 Hz - 20 kHz</td>
</tr>
<tr>
<td>SB15m</td>
<td>[SB15_100]</td>
<td>40 Hz - 120 Hz</td>
</tr>
<tr>
<td>SB18 / SB18i / SB18m</td>
<td>[SB18_100]</td>
<td>32 Hz - 110 Hz</td>
</tr>
</tbody>
</table>

**Procedure**

1. Load the preset on an LA12X / LA4X / LA8 amplified controller.
2. Connect a sinus generator to the amplified controller.

⚠️ **Risk of hearing damage**

   Set a low sound level to start and use ear protection to adjust before testing.

3. Scan the bandwidth focusing on the usable range.
   The sound should remain pure and free of unwanted noise.

**Troubleshooting for LF speakers**

One or more LF loudspeaker produces distorted, buzzing, rubbing, clicking, muffled or weak sound.

**Possible causes**

- The screws are not tightened with the appropriate torque.
- There is an air leak in the gasket.
- There is dust on the cone.
- The cone is damaged.
- The surround is torn or delaminated.
- The voice coil or the spider is damaged.

**Procedure**

1. Perform the loudspeaker disassembly procedure.
2. Visually inspect the loudspeaker and the cables.
   If any damage is visible, replace the loudspeaker.
3. Carefully clean the loudspeaker with a dry cloth.
4. Perform the reassembly procedure.
   Replace the loudspeaker gasket and the screws.
   Apply the recommended torque.
5. Repeat the listening test.
   If the problem persists, replace the loudspeaker.

**Troubleshooting for HF speakers**

One or more HF loudspeaker produces high-frequency harmonic distortions, strange vibrations or weak sound.

**Possible causes**

- There are foreign particles on the air gap.
- The screws used for reassembly are too loose.
- The diaphragm is damaged.

**Procedure**

1. Perform the diaphragm disassembly procedure.
2. Visually inspect the diaphragm and the voice coil.
   If any damage is visible, replace the diaphragm.
3. Clean the air gap thoroughly.
4. Perform the reassembly procedure.
   Pay close attention to the position of the diaphragm.
   Apply the recommended torque.

5. Repeat the listening test.
Rigging procedures

Flying

Flying a Kiva II array

<table>
<thead>
<tr>
<th>type of deployment</th>
<th>flown array</th>
</tr>
</thead>
<tbody>
<tr>
<td>rigging accessory</td>
<td>KIBU II / KIBU-SB</td>
</tr>
<tr>
<td></td>
<td>2 x Ø12 mm shackles WLL 1 t (provided)</td>
</tr>
<tr>
<td>min number of operators</td>
<td>2</td>
</tr>
</tbody>
</table>

Risk of falling objects

Verify that no unattached items remain on the array.

On every Kiva II, check that the logo is on the same side as the safety mechanism (identifiable by the eyelet and the handle shape).

Pickup point for pullback deployment

Use hole 13 on KIBU II.

Use hole 14 on KIBU-SB for Kiva II.
Assembly

Procedure

1. Bring a stack of four Kiva II (logos on the right-hand side) under the lifting point. All angles must be at 0°.
2. Secure the rigging frame on top of the stack.
   - With KIBU-SB
     Use the front or rear position.
     Select the 0° angle on the rigging arm.
     Secure the rigging arm with the ball-locking pin.

![Front position diagram](image)

![Rear position diagram](image)
Final check
The yellow label is not visible on the logo side.
Shake the assembly up and down and from side to side to verify that all linking points are secured.

- With KIBU II

Insert the rigging arm in the slot. Lower the KIBU II until it rests on the enclosure to ensure a 0° angle.
Secure the rigging arm with the ball-locking pin.

Final check
The yellow label is not visible on the logo side.
Shake the assembly up and down and from side to side to verify that all linking points are secured.

3. Choose the pickup point(s) and fly the assembly.
Hold the bottom enclosure at all times.

4. Set each inter-enclosure angle by lifting the array.

Align the mark on the rigging arm with the chosen angle mark.

5. Bring a second stack of four Kiva II (logos on the right-hand side) under the array. All angles must be at 0°.
**Risk of trapping hand/fingers**

**Do not rest the array completely on the stack**
Make adjustments to align the rigging points.

6. Lower the array and connect it to the stack.

Set the inter-enclosure angle at 0°.

**Final check**

The yellow label is not visible on the logo side.
Shake the assembly up and down and from side to side to verify that all linking points are secured.

**Do not stand behind the array.**
The array swings backward when it is raised.

7. Raise the assembly.
8. Set the inter-enclosure angles.

   **Do not use this method for an array bigger than eight enclosures.**

   Any additional enclosure must be connected one by one as follows.

9. Connect a Kiva II (logo on the right-hand side) under the array.

   ![Diagram showing rigging procedure]

   Set the inter-enclosure angle.

   Align the mark on the rigging arm with the chosen angle mark.

   ![Diagram showing set angle]

   **Final check**

   The yellow label is not visible on the logo side.

   Shake the assembly up and down and from side to side to verify that all linking points are secured.

   ![Diagram showing final check]
Flying a Kiva II / SB15m array

<table>
<thead>
<tr>
<th>type of deployment</th>
<th>flown array</th>
</tr>
</thead>
<tbody>
<tr>
<td>rigging accessory</td>
<td>KIBU-SB</td>
</tr>
<tr>
<td>min number of operators</td>
<td>2</td>
</tr>
</tbody>
</table>

2 x Ø12 mm shackles WLL 1 t (provided)

Risk of falling objects
Verify that no unattached items remain on the array.
On every Kiva II, check that the logo is on the same side as the safety mechanism (identifiable by the eyelet and the handle shape).

Pickup point for pullback deployment
Use hole 13 on KIBU-SB for SB15m.

Maximum negative site angle with SB15m
The negative site angle is limited by the lifting element.
The element must not come in contact with KIBU-SB

Cardioid configuration
A cardioid configuration is an array of four subwoofers with one reversed element.
Refer to the subwoofer user manual and to the Cardioid configurations technical bulletin for details about the use of this configuration.
Any of the following subwoofer arrays can be set in cardioid configuration.
Assembly Procedure

1. Secure KIBU-SB on SB15m.
   Use the coupling bars provided with the KIBU-SB.
   Secure the coupling bars with the locking tabs.

   ! Make sure the safety label on each locking tab is fully covered.
   Make sure the lugs are in the notches.

2. Lift the array.
3. Position a SB15m under the assembly.
4. Lower the array until it rests on the subwoofer
5. Secure the SB15m under the array.
   Use the coupling bars from the top subwoofer.

   Secure the coupling bars with the locking tabs.
6. Repeat steps 2 (p.59) to 5 (p.59) until the subwoofer array is complete.

7. Secure a Kiva II (logo on the left-hand side) on a KIBU-SB (coupling bars removed).

- **Front position**

Select the 0° angle on the rigging arm.

- **Rear position**
Select the 0° angle on the rigging arm.

![Diagram showing 0° angle](image)

**Final check**

The yellow label is not visible on the logo side.
Shake the assembly up and down and from side to side to verify that all linking points are secured.

![Check marks and cross](image)

8. Turn the assembly upside-down and secure it under the SB15m array with coupling bars.

![Coupling bars under SB15m array](image)

Secure the coupling bars with the locking tabs.
Make sure the safety label on each locking tab is fully covered.
Make sure the lugs are in the notches.

9. Connect a Kiva II (logo on the right-hand side) under the array.

Set the inter-enclosure angle.
Align the mark on the rigging arm with the chosen angle mark.
Final check
The yellow label is not visible on the logo side.
Shake the assembly up and down and from side to side to verify that all linking points are secured.
Adding a pull-back under Kiva II

<table>
<thead>
<tr>
<th>type of deployment</th>
<th>flown array</th>
</tr>
</thead>
<tbody>
<tr>
<td>rigging accessory</td>
<td>KIVA-PULLBACK</td>
</tr>
<tr>
<td>min number of operators</td>
<td>1 x Ø12 mm shackle WLL 1 t</td>
</tr>
</tbody>
</table>

**Space between lifting points**

The space between the two lifting points must be aligned with the array pickup points. The deployment load-bearing lines must be parallel to each other.

On every Kiva II, check that the logo is on the same side as the safety mechanism (identifiable by the eyelet and the handle shape).

**Pickup point for pullback deployment**

Use hole 13 on KIBU II.
Use hole 14 on KIBU-SB for Kiva II.
Use hole 13 on KIBU-SB for SB15m.

**Maximum negative site angle with SB15m**

The negative site angle is limited by the lifting element. The element must not come in contact with KIBU-SB.
Assembly

Procedure

1. Secure a KIVA-PULLBACK under the bottom enclosure.
   Rotate the accessory to find the correct locking position.

Secure the rear piece in the spring-lock safety of the bottom enclosure.
### Final check

The yellow label is not visible on the logo side.
Shake the assembly up and down and from side to side to verify that all linking points are secured.

2. Secure a shackle to KIVA-PULLBACK and lift it with an additional motor.
Ceiling-mounting Kiva II

<table>
<thead>
<tr>
<th>type of deployment</th>
<th>ceiling-mount</th>
</tr>
</thead>
<tbody>
<tr>
<td>rigging accessory</td>
<td>KIET II</td>
</tr>
<tr>
<td></td>
<td>3 M8 spacers (provided)</td>
</tr>
<tr>
<td></td>
<td>3 M8 screws (depending on the ceiling material)</td>
</tr>
<tr>
<td>min number of operators</td>
<td>2</td>
</tr>
</tbody>
</table>

⚠️ On every Kiva II, check that the logo is on the same side as the safety mechanism (identifiable by the eyelet and the handle shape).

Assembly Procedure

1. Secure KIET II (pole socket removed) with the three M8 screws and spacers.

⚠️ Use the spacers provided with the pole-mount socket.
2. Secure Kiva II (logo on the right-hand side) under KIET II.

Select the site angle on the rigging arm.

⚠️ Use the applicable rear linking point, as illustrated.

-4.1° -5.3° -3° -0.5° +5.2° N/A
-1.8° -3° N/A
+0.9° -0.5° N/A

Final check

⚠️ The yellow label is not visible on the logo side.
Shake the assembly up and down and from side to side to verify that all linking points are secured.
3. Connect a Kiva II (logo on the right-hand side) under the array.

Set the inter-enclosure angle.
Align the mark on the rigging arm with the chosen angle mark.

**Final check**
The yellow label is not visible on the logo side.
Shake the assembly up and down and from side to side to verify that all linking points are secured.
Disassembly

Removing one Kiva II

Procedure

1. Release the rigging arm of the bottom enclosure.
   Slightly lift the enclosure if necessary.

   ![Risk of fall](image)
   Carefully lower the rear of the enclosure.

2. Release the enclosure.
   Slightly lift the rear of the enclosure if necessary.
Removing a stack of four Kiva II

About this task

⚠️ Use this method for an array of eight or less Kiva II.
Any additional enclosure must be removed one by one.

⚠️ Minimum number of operators: 2

Procedure

⚠️ Hold the bottom enclosure at all times.

1. Set the inter-enclosure angles at 0° for the four bottom enclosures.

2. Lower the array onto a platform or a chariot.
3. Release the rigging arm of the upper enclosure to disconnect the stack at the rear.

4. Release the top enclosure.

5. Raise the array and put the stack aside.
Stacking

Stacking Kiva II on SB15m

<table>
<thead>
<tr>
<th>type of deployment</th>
<th>stacking</th>
</tr>
</thead>
<tbody>
<tr>
<td>rigging accessory</td>
<td>KIBU-SB</td>
</tr>
<tr>
<td>min number of operators</td>
<td>1</td>
</tr>
</tbody>
</table>

⚠️ **Additional safety**
Secure the stack with straps.

⚠️ **Risk of falling objects**
Verify that no unattached items remain on the array.

ℹ️ **Cardioid configuration**
A cardioid configuration is an array of four subwoofers with one reversed element.
Refer to the subwoofer user manual and to the Cardioid configurations technical bulletin for details about the use of this configuration.
Any of the following subwoofer arrays can be set in cardioid configuration.

**Assembly**

**About this task**
To ground-stack Kiva II on KIBU-SB, start at step 3 (p.74).

**Procedure**

1. Prepare a stack of SB15m.
   Secure the coupling bars with the locking tabs.

   ![Image 1]

   Make sure the safety label on each locking tab is fully covered.
   Make sure the lugs are in the notches.

2. Secure KIBU-SB on top of the SB15m stack.
   Use the KIBU-SB coupling bars.

   ![Image 2]
Secure the coupling bars with the locking tabs.

- Secure Kiva II (logo on the left-hand side) on KIBU-SB (coupling bars removed).

3. For optimal stability, prefer the rear position for a front-tilting array and the front position for a rear-tilting array.

- Front position

Make sure the safety label on each locking tab is fully covered.
Make sure the lugs are in the notches.
Select the site angle on the rigging arm.

- Rear position

Select the site angle on the rigging arm.
Kiva II in rear position with a positive 7.5° angle

The positive 7.5° angle is only available when Kiva II and KIBU-SB are stacked on SB15m. When Kiva II and KIBU-SB are ground-stacked, the rigging arm cannot be secured at 7.5°.

Final check

The yellow label is not visible on the logo side. Shake the assembly up and down and from side to side to verify that all linking points are secured.

4. Secure a Kiva II (logo on the left-hand side) on top of the first one.

Align the mark on the rigging arm with the chosen angle mark on the bottom enclosure.
Final check

The yellow label is not visible on the logo side.
Shake the assembly up and down and from side to side to verify that all linking points are secured.

5. Repeat the previous step until the array is complete.
Disassembly

Removing Kiva II

Procedure

1. Release the rigging arm of the top enclosure.

Risk of trapping hand/fingers

Carefully release the back of the enclosure until it rests on the assembly.

2. Unlock the mechanism inside the left handle of the top enclosure and slide the enclosure to the left.

3. Repeat until all enclosures are removed.
Pole-mounting

Pole-mounting Kiva II

<table>
<thead>
<tr>
<th>type of deployment</th>
<th>pole-mount</th>
</tr>
</thead>
<tbody>
<tr>
<td>rigging accessory</td>
<td>KIET II</td>
</tr>
<tr>
<td></td>
<td>4 x M8 screws, nuts and spacers (provided)</td>
</tr>
<tr>
<td>additional material</td>
<td>35 mm / 1.4&quot; pole</td>
</tr>
<tr>
<td></td>
<td>torque screwdriver</td>
</tr>
<tr>
<td></td>
<td>6 mm hex bit</td>
</tr>
<tr>
<td></td>
<td>13 mm hex key</td>
</tr>
<tr>
<td>min number of operators</td>
<td>1</td>
</tr>
</tbody>
</table>

⚠️ Pole-mounting on SB15m
A maximum of two Kiva II can be pole-mounted on a SB15m

⚠️ Risk of falling objects
Verify that no unattached items remain on the array.

Assembly

Procedure

1. Assemble KIET II and the pole-socket with the four M8 hex bolts, spacers and nuts.

2. Place Kiva II on a stable surface with the logo on the right.
3. Secure KIET II on top of Kiva II.

Select the site angle on the rigging arm.

⚠️ Use the applicable rear linking point, as illustrated.

Final check

⚠️ The yellow label is not visible on the logo side.
Shake the assembly up and down and from side to side to verify that all linking points are secured.

4. Reverse the assembly and mount it on the pole.
5. Secure a Kiva II (logo on the left-hand side) on top of the assembly.

Align the mark on the rigging arm with the chosen angle mark on the bottom enclosure.

Final check
The yellow label is not visible on the logo side.
Shake the assembly up and down and from side to side to verify that all linking points are secured.

6. Repeat the previous step until the array is complete.
**Disassembly**

**Procedure**

1. Lower the pole.
2. Release the rigging arm of the top enclosure.

![Diagram showing step 1 and 2]

**Risk of trapping hand/fingers**

Carefully release the back of the enclosure until it rests on the assembly.

![Diagram showing risk of trapping]

3. Unlock the mechanism inside the left handle of the top enclosure and slide the enclosure to the left.

![Diagram showing step 3]
Loudspeaker connection

Connection to LA4X

Maximum number of enclosures per LA4X

<table>
<thead>
<tr>
<th>enclosure</th>
<th>max enclosures in parallel</th>
<th>max enclosures per controller</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kiva II</td>
<td>2</td>
<td>8</td>
</tr>
<tr>
<td>SB15m</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>SB18</td>
<td>1</td>
<td>4</td>
</tr>
</tbody>
</table>

Impedance load

SB15m  SB18
1 enclosure: 8 Ω

Kiva II
1 enclosure: 16 Ω
2 enclosures in parallel: 8 Ω

Connecting 2-way passive enclosures or subwoofers

SP on speakON output
Loudspeaker connection

SP and SP-Y1 on speakON output

OUT1/OUT2
OUT3/OUT4

same as OUT1/OUT2

CH(1) (OUT1)
CH(2) (OUT2)
Connection to LA8

Maximum number of enclosures per LA8

<table>
<thead>
<tr>
<th>enclosure</th>
<th>max enclosures in parallel</th>
<th>max enclosures per controller</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kiva II</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>SB15m</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>SB18</td>
<td>2</td>
<td>8</td>
</tr>
</tbody>
</table>

⚠️ Make sure the total number of connected enclosures does not exceed the maximum number of enclosures per controller.

LA8 can drive up to two SB15m per output, but no more than six per controller at high level.

Impedance load

SB15m SB18

1 enclosure: 8 Ω
2 enclosures in parallel: 4 Ω

Kiva II

1 enclosure: 16 Ω
2 enclosures in parallel: 8 Ω
3 enclosures in parallel: 5.3 Ω
4 enclosures in parallel: 4 Ω

Connection to LA12X

Maximum number of enclosures per LA12X

<table>
<thead>
<tr>
<th>enclosure</th>
<th>max enclosures in parallel</th>
<th>max enclosures per controller</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kiva II</td>
<td>6</td>
<td>24</td>
</tr>
<tr>
<td>SB15m</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>SB18</td>
<td>3</td>
<td>12</td>
</tr>
</tbody>
</table>

Impedance load

SB15m SB18

1 enclosure: 8 Ω
2 enclosures in parallel: 4 Ω
3 enclosures in parallel: 2.7 Ω

Kiva II

1 enclosure: 16 Ω
2 enclosures in parallel: 8 Ω
3 enclosures in parallel: 5.3 Ω
4 enclosures in parallel: 4 Ω
5 enclosures in parallel: 3.2 Ω
6 enclosures in parallel: 2.7 Ω
Connecting 2-way passive enclosures or subwoofers

SP and SP-Y1 on speakON output

DO and DOSUB-LA8 on CA-COM output
Corrective maintenance

Tools

Before performing corrective maintenance, make sure all the tools listed are available. Reference are given for FACOM® products in this table. Other manufacturers can be used.

<table>
<thead>
<tr>
<th>name</th>
<th>reference</th>
<th>distributor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set of 6-point 1/4&quot; sockets</td>
<td>R.360NANO</td>
<td>FACOM</td>
</tr>
<tr>
<td>T10 Torx bit</td>
<td>EX.110</td>
<td>FACOM</td>
</tr>
<tr>
<td>Torque screwdriver (2 - 10 N.m)</td>
<td>A.404</td>
<td>FACOM</td>
</tr>
<tr>
<td>riveting pliers</td>
<td>Y.103B</td>
<td>FACOM</td>
</tr>
</tbody>
</table>

Kiva II

Exploded view

In the exploded view, each assembly corresponds to a D/R procedure and the necessary repair kit(s).
Corrective maintenance

HF LOUDSPEAKER
G03256

BACK COVER
G03298
G03303

HF DIAPHRAGM
G03296
D/R - Kiva II back cover

How to replace the back cover on Kiva II.

Tools

- torque screwdriver
- screwdriver extension
- 4 mm hex bit

Repair kits

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>G03298</td>
<td>KR rear rigging KIVA II</td>
</tr>
<tr>
<td>G03303</td>
<td>KR screws and fasteners KIVA II</td>
</tr>
</tbody>
</table>

G100004  x1

back cover

S338  x6

M5×10 hex

⚠️ For safety reasons, always use the new screws and spare parts provided in the KR.

Exploded view

BACK COVER
G03298
G03303 (screws)

FILTER ASSEMBLY
Disassembly

Procedure

1. Remove the six screws and carefully disconnect the cables to remove the back cover. Use a screwdriver extension.

2. Remove the filter assembly.
Reassembly

About this task

⚠️ For safety reasons, always use the new screws and spare parts provided in the KR. If no new screws are available, use blue threadlocker.

Procedure

1. Secure the filter assembly on the new back cover.

2. Check that the HF speaker terminals are not bent.
3. Position the back cover and connect the cables.  
The speakON connectors must be on the same side as the safety mechanism.

4. Position the HF speaker positive cable (red) against the back cover.

5. Secure the back cover with the six screws.  
Use a screwdriver extension.
D/R - HF diaphragm

Tools and consumables

- torque screwdriver
- T20 Torx bit
- compressed air blower
- double face adhesive

Repair kits

G03296
KR diaphragm 1.75" KIVA II

17736 x1
S17736 x6

diaphragm kit for 1.75" driver - 16 Ω
M4x8 Torx

Prerequisite

Back cover disassembled. See Kiva II back cover (p.89).

Exploded view

⚠️ For safety reasons, always use the new screws and spare parts provided in the KR.

⚠️ Make sure the air gap is perfectly clean before reassembly.

Use a blower or double face adhesive to remove any particle.

Position the diaphragm assembly with the positive (red) connector aligned with the red mark.

Gradually tighten the screws following a star pattern.

What to do next

Perform the Acoustical check (p.48) procedures.
Corrective maintenance

D/R - HF loudspeaker

Tools

• torque screwdriver
• 4 mm hex bit

Repair kits

G03256

KR compression driver 1.75" KIVA II

1 The screws are also available in G03296 - KR diaphragm 1.75" KIVA II.

Prerequisite

Back cover disassembled. See Kiva II back cover (p.89).

Exploded view

⚠️ For safety reasons, always use the new screws and spare parts provided in the KR.
If no new screws are available, use blue threadlocker.

Position the positive (red) connector on the same side as the safety mechanism.

⚠️ Gradually tighten the screws following a star pattern.

What to do next

Perform the Acoustical check (p.48) procedures.
D/R - Grill

Tools
- torque screwdriver
- T20 Torx bit

Repair kits

G03257
KR loudspeaker 6.5” KIVA II

×2
S337
M4×20 Torx

Exploded view

Position the logo on the same side as the safety mechanism (identifiable by the eyelet and the handle shape).

For safety reasons, always use the new screws and spare parts provided in the KR.
If no new screws are available, use blue threadlocker.

Use a lever.
Insert the tabs first when reassembling.
Corrective maintenance

D/R - LF loudspeaker

Tools

• torque screwdriver
• 4 mm hex bit

Repair kits

G03257
KR loudspeaker 6.5" KIVA II

<table>
<thead>
<tr>
<th>1741</th>
<th>S342</th>
</tr>
</thead>
<tbody>
<tr>
<td>x1</td>
<td>x4</td>
</tr>
</tbody>
</table>

6.5" loudspeaker - 16 Ω (with gasket)

M5×20 hex

Prerequisite

Grill disassembled. See Grill (p.95).

⚠️ For safety reasons, always use the new screws and spare parts provided in the KR.
If no new screws are available, use blue threadlocker.

Exploded view

Use a lever.

⚠️ Gradually tighten the screws following a star pattern.
Position the connectors toward the center of the enclosure.

What to do next

Perform the Acoustical check (p.48) procedures.
SB15m

Exploded view

In order to operate, follow the order outlined here.
Corrective maintenance

D/R - Grill

Tools

- torque screwdriver
- 5 mm hex bit

Consumables

- blue threadlocker

Exploded view

Use blue threadlocker on the captive screw.
D/R - LF loudspeaker

Tools
• torque screwdriver
• 5 mm hex bit

Repair kit
KR HPBC152*
Kit HP BC152 Speaker 15"

FT789
15" LF/MF speaker - 8 ohms

S100054
M6×30 hex

- speaker gasket kit

* The screws and fasteners are also provided in the.

Prerequisite
Grill disassembled. See Grill (p.98).

Exploded view
For safety reasons, always use the new screws and spare parts provided in the KR.

Gradually tighten the screws following a star pattern.

If the gasket is damaged, remove and replace it using the speaker gasket kit.

What to do next
Perform the Acoustical check (p.48) procedures.
Exploded view

In order to operate, follow the order outlined here.
**D/R - GRILL**

**Tools**
- torque screwdriver
- T30 Torx bit

**Repair kit**

**KR HPBC182**

Kit HP BC182 Speaker 18" - 8 ohms

For safety reasons, always use the new screws and spare parts provided in the KR. If no new screws are available, use blue threadlocker.

![Exploded view](image)
D/R - LF loudspeaker

Tools
- torque screwdriver
- T30 Torx bit
- 5 mm hex bit
- blue threadlocker

Repair kit

KR HPBC182
Kit HP BC182 Speaker 18" - 8 ohms

627
18" speaker - 8 ohms
S100054
M6×30 hex
S221
M6×35 Torx
- speaker gasket kit

Prerequisite
Grill disassembled. See GRILL (p.101).

Disassembly Procedure
1. Remove the plate.
2. Remove the screws securing the loudspeaker.

3. Remove the loudspeaker from the enclosure and disconnect the loudspeaker cables.
Reassembly

About this task

⚠️ For safety reasons, always use the new screws and spare parts provided in the KR.

Procedure

1. Stick the gasket on the cabinet.
2. Connect the loudspeaker cables and position the loudspeaker in the enclosure.
3. Secure the loudspeaker.

⚠️ Gradually tighten the screws following a star pattern.
4. Secure the plate.

⚠️ Gradually tighten the screws following a star pattern.

![Diagram showing screw tightening instruction]
D/R - Pins

Tools

- torque screwdriver
- T30 Torx bit
- blue threadlocker

Repair kit

⚠️ For safety reasons, always use the new screws and spare parts provided in the KR. If no new screws are available, use blue threadlocker.

KR PIN601

Kit 10 pins long T-shaped head screws & rivets

- S142 ×20
- M4x10 rivet ×10
- 601 ball-locking pin Ø5/16" with lanyard
Disassembly Procedure

1. Remove the five screws securing the protective cover to the cabinet.

2. Remove the screw securing the steel tab.
Corrective maintenance

Reassembly Procedure

1. Insert the pin in the storage hole.

2. Position the steel tab on the screw.

⚠️ Position the flat side of the steel tab toward the cabinet.
3. Secure the steel tab to the cabinet.

4. Secure the protective cover with the five screws.
SB18m

Exploded view

In order to operate, follow the order outlined here.
D/R - GRILL

Tools
- torque screwdriver
- T30 Torx bit

Repair kit

KR HPBC183

Kit HP BC183 speaker 18'' - 8 ohms

Exploded view

For safety reasons, always use the new screws and spare parts provided in the KR. If no new screws are available, use blue threadlocker.
D/R - LF LOUDSPEAKER

Tools
- torque screwdriver
- T30 Torx bit
- 5 mm hex bit

Repair kit
KR HPBC183
Kit HP BC183 speaker 18\" - 8 ohms

1073
18" subwoofer speaker - 8 ohms

1276
18" speaker gasket

S100054
M6×30 hex

S221
M6×35 Torx

Prerequisite
Grill disassembled. See GRILL (p.101).

Disassembly
Procedure
1. Remove the screws securing the plate.
2. Remove the loudspeaker screws.

3. Remove the loudspeaker from the enclosure and disconnect the loudspeaker cables.
Reassembly

About this task

⚠️ For safety reasons, always use the new screws and spare parts provided in the KR.

Procedure

1. Stick the gasket on the cabinet.
2. Connect the loudspeaker cables and position the loudspeaker in the enclosure.

3. Secure the loudspeaker.

⚠️ Tighten the screws following a star pattern.
4. Secure the plate.
**SB18i**

**Exploded view**

In order to operate, follow the order outlined here.
D/R - GRILL

Tools
- torque screwdriver
- T30 Torx bit

Repair kit

KR HPBC182

Kit HP BC182 Speaker 18" - 8 ohms

Exploded view

⚠️ For safety reasons, always use the new screws and spare parts provided in the KR. If no new screws are available, use blue threadlocker.

*S221 M6×35 Torx*
**D/R - LF LOUDSPEAKER**

**Tools**
- torque screwdriver
- T30 Torx bit
- 5 mm hex bit
- blue threadlocker

**Repair kit**

**KR HPBC182**

Kit HP BC182 Speaker 18" - 8 ohms

<table>
<thead>
<tr>
<th>Part Code</th>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>627</td>
<td>18&quot; speaker - 8 ohms</td>
<td>1 x</td>
</tr>
<tr>
<td>S100054</td>
<td>M6x30 hex</td>
<td>8 x</td>
</tr>
<tr>
<td>S221</td>
<td>M6x35 Torx</td>
<td>14 x</td>
</tr>
<tr>
<td>-</td>
<td>speaker gasket kit</td>
<td>2 x</td>
</tr>
</tbody>
</table>

**Prerequisite**

Grill disassembled.

See GRILL (p.117).

**Disassembly Procedure**

1. Remove the plate.
2. Remove the screws securing the loudspeaker.

3. Remove the loudspeaker from the enclosure and disconnect the loudspeaker cables.
Reassembly

About this task

⚠️ For safety reasons, always use the new screws and spare parts provided in the KR.

Procedure

1. Stick the gasket on the cabinet.
2. Connect the loudspeaker cables and position the loudspeaker in the enclosure.

3. Secure the loudspeaker.

⚠️ Gradually tighten the screws following a star pattern.
4. Secure the plate.

⚠️ Gradually tighten the screws following a star pattern.
KIBU II

Exploded view

In order to operate, follow the order outlined here. Each assembly refers to the corresponding D/R procedure and the necessary repair kit(s).
**Corrective maintenance**

**D/R - Pin**

**Tools**
- riveting pliers

**Repair kits**

**KR PIN670**

KR ball-locking pin KIBU/KIBU II

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>S142</td>
<td>x1</td>
</tr>
<tr>
<td>M4x10 rivet</td>
<td></td>
</tr>
<tr>
<td>470</td>
<td>x1</td>
</tr>
<tr>
<td>ball-locking pin (with lanyard)</td>
<td></td>
</tr>
</tbody>
</table>

**Exploded view**

For safety reasons, always use the new screws and spare parts provided in the KR. If no new screws are available, use blue threadlocker.
KIBU-SB

Exploded view

In order to operate, follow the order outlined here. Each assembly refers to the corresponding D/R procedure and the necessary repair kit(s).
**D/R - Lasermount**

**Tools**
- torque screwdriver
- T20 Torx bit
- 5 mm hex bit
- 7 mm hex socket
- 10 mm hex socket

**Repair kits**

**KR MBUMPLAS**

Kit laser mount for MBUMP

<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>laser support plate</td>
<td>x1</td>
<td></td>
</tr>
<tr>
<td>S100105</td>
<td>x2</td>
<td>M6×20 hex</td>
</tr>
<tr>
<td>S121</td>
<td>x4</td>
<td>M4 hex lock nut</td>
</tr>
<tr>
<td>M4×16 Torx</td>
<td>x4</td>
<td></td>
</tr>
<tr>
<td>S210</td>
<td>x4</td>
<td></td>
</tr>
<tr>
<td>S550</td>
<td>x1</td>
<td></td>
</tr>
</tbody>
</table>

**Exploded view**

⚠️ For safety reasons, always use the new screws and spare parts provided in the KR.
If no new screws are available, use blue threadlocker.
D/R - Runners

Tools
- torque screwdriver
- T30 Torx bit

Consumables
- blue threadlocker

Repair kits

KR SB18IPAT

Kit SB18i 4 pads

Exploded view

For safety reasons, always use the new screws and spare parts provided in the KR. If no new screws are available, use blue threadlocker.
**D/R - Locking tabs**

**Tools**
- riveting pliers

**Repair kits**

**KR WIFOVER**

Kit 2 locking tabs with slings

![Diagram of locking tab](image)

- S142 ×2
- G1734 ×2
- M4×10 rivet
- locking tab (with lanyard)

**Prerequisite**

Coupling bar removed.

**Exploded view**

- For safety reasons, always use the new screws and spare parts provided in the KR.
- If no new screws are available, use blue threadlocker.

Pop the rivet from the outside of the coupling bar.
Corrective maintenance

D/R - Pin

Tools
- riveting pliers

Repair kits

KR PIN670
KR ball-locking pin KiBU/KiBU II

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>S142</td>
<td>1</td>
</tr>
<tr>
<td>M4x10 rivet</td>
<td></td>
</tr>
<tr>
<td>470</td>
<td>1</td>
</tr>
<tr>
<td>ball-locking pin (with lanyard)</td>
<td></td>
</tr>
</tbody>
</table>

Exploded view

For safety reasons, always use the new screws and spare parts provided in the KR.
If no new screws are available, use blue threadlocker.
Exploded view

In order to operate, follow the order outlined here. Each assembly refers to the corresponding D/R procedure and the necessary repair kit(s).
D/R - Pin

Tools

• riveting pliers

Repair kits

KR PIN670

KR ball-locking pin KIBU/KIBU II

x1
S142
M4x10 rivet

x1
470
ball-locking pin (with lanyard)

Exploded view

⚠️ For safety reasons, always use the new screws and spare parts provided in the KR. If no new screws are available, use blue threadlocker.
D/R - Pole-mount

Tools

- torque screwdriver
- 6 mm hex bit
- 13 mm hex socket

Exploded view

⚠️ For safety reasons, always use the new screws and spare parts provided in the KR. If no new screws are available, use blue threadlocker.
### Specifications

#### Kiva II specifications

| **Description** | 2-way passive WST® enclosure: 2 x 6.5” LF + 1.75 HF diaphragm, amplified by LA12X / LA4X / LA8 |
| **Usable bandwidth (-10 dB)** | 70 Hz - 20 kHz ([KIVA II]) |
| **Maximum SPL**<sup>1</sup> | 138 dB ([KIVA II]) |
| **Nominal directivity** | horizontal: 100° symmetrical  
vertical: 15° (single), depending on the number of elements and array curvature |
| **Transducers** | LF: 2 × 6.5” neodymium cone driver  
HF: 1 × 1.75” neodymium diaphragm compression driver |
| **Acoustical load** | LF: bass-reflex  
HF: DOSC, L-Fins |
| **Nominal impedance** | 16 Ω |
| **Connectors** | IN: 1 × 4-point speakON  
LINK: 1 × 4-point speakON |
| **Rigging and handling** | flush-fitting 3-point rigging system  
inter-enclosure angles: 0°, 1°, 2°, 3°, 4°, 5°, 7.5°, 10°, 12.5° and 15°  
2 handles |
| **Weight (net)** | 14 kg / 31 lb |
| **Cabinet** | composite sandwich structure |
| **Front** | composite grill with anti-corrosion coating  
acoustically neutral 3D fabric |
| **Rigging components** | high grade steel |
| **Finish** | dark grey brown Pantone 426C  
pure white RAL 9010  
custom RAL code on special order |
| **IP** | IP55 |

<sup>1</sup> Peak level measured at 1 m under free field conditions using pink noise with crest factor 4 (preset specified in brackets).
Kiva II dimensions

- 104 mm / 4.1 in
- 202 mm / 8 in
- 520 mm / 20.5 in
- 525 mm / 20.7 in
- 175 mm / 6.9 in
- 357 mm / 14 in
## SB15m

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>High power compact subwoofer: 1 x 15&quot;, amplified by LA12X / LA4X / LA8</td>
</tr>
<tr>
<td><strong>Low frequency limit</strong></td>
<td>40 Hz ([SB15_100])</td>
</tr>
<tr>
<td><strong>Maximum SPL</strong></td>
<td>137 dB ([SB15_100])</td>
</tr>
<tr>
<td><strong>Directivity</strong></td>
<td>standard or cardioid</td>
</tr>
<tr>
<td><strong>Transducers</strong></td>
<td>1 x 15&quot; cone driver</td>
</tr>
<tr>
<td><strong>Acoustical load</strong></td>
<td>bass-reflex, L-Vents</td>
</tr>
<tr>
<td><strong>Nominal impedance</strong></td>
<td>8 Ω</td>
</tr>
<tr>
<td><strong>Connectors</strong></td>
<td>IN: 1 x 4-point speakON</td>
</tr>
<tr>
<td></td>
<td>LINK: 1 x 4-point speakON</td>
</tr>
<tr>
<td><strong>Rigging and handling</strong></td>
<td>2 handles</td>
</tr>
<tr>
<td></td>
<td>2 coupling bars and 2 locking tabs</td>
</tr>
<tr>
<td></td>
<td>1 x 35 mm pole socket</td>
</tr>
<tr>
<td><strong>Weight (net)</strong></td>
<td>36 kg / 79.4 lb</td>
</tr>
<tr>
<td><strong>Cabinet</strong></td>
<td>first grade Baltic birch plywood</td>
</tr>
<tr>
<td><strong>Front</strong></td>
<td>steel grill with anti-corrosion coating</td>
</tr>
<tr>
<td></td>
<td>acoustically neutral 3D fabric</td>
</tr>
<tr>
<td><strong>Rigging components</strong></td>
<td>high grade steel with anti-corrosion coating</td>
</tr>
<tr>
<td><strong>Finish</strong></td>
<td>dark grey brown Pantone 426C</td>
</tr>
<tr>
<td></td>
<td>pure white RAL 9010</td>
</tr>
<tr>
<td></td>
<td>custom RAL code on special order</td>
</tr>
<tr>
<td><strong>IP</strong></td>
<td>IP45</td>
</tr>
</tbody>
</table>

---

1 Peak level at 1 m under half space conditions using pink noise with crest factor 4 (preset specified in brackets).
**SB15m dimensions**

- 520 mm / 20.5 in
- 439 mm / 17.3 in
- 580 mm / 22.8 in
## SB18 specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
<td>High power compact subwoofer: 1 x 18'', amplified by LA12X / LA4X / LA8</td>
</tr>
<tr>
<td><strong>Low frequency limit (-10 dB)</strong></td>
<td>32 Hz ([SB18_100])</td>
</tr>
<tr>
<td><strong>Maximum SPL</strong></td>
<td>138 dB ([SB18_100])</td>
</tr>
<tr>
<td><strong>Nominal directivity</strong></td>
<td>standard or cardioid</td>
</tr>
<tr>
<td><strong>Transducers</strong></td>
<td>1 x 18''</td>
</tr>
<tr>
<td><strong>Acoustical load</strong></td>
<td>dual bass-reflex, L-Vents</td>
</tr>
<tr>
<td><strong>Nominal impedance</strong></td>
<td>8 Ω</td>
</tr>
<tr>
<td><strong>Connectors</strong></td>
<td>IN: 1 x 4-point speakON</td>
</tr>
<tr>
<td></td>
<td>LINK: 1 x 4-point speakON</td>
</tr>
<tr>
<td><strong>Rigging and handling</strong></td>
<td>2 handles integrated into the cabinet</td>
</tr>
<tr>
<td></td>
<td>captive rigging system</td>
</tr>
<tr>
<td></td>
<td>1 x 35 mm pole socket</td>
</tr>
<tr>
<td><strong>Weight (net)</strong></td>
<td>52 kg / 115 lb</td>
</tr>
<tr>
<td><strong>Cabinet</strong></td>
<td>first grade Baltic birch plywood</td>
</tr>
<tr>
<td><strong>Front</strong></td>
<td>steel grill with anti-corrosion coating</td>
</tr>
<tr>
<td></td>
<td>acoustically neutral 3D fabric</td>
</tr>
<tr>
<td><strong>Rigging components</strong></td>
<td>steel with anti-corrosion coating</td>
</tr>
<tr>
<td><strong>Finish</strong></td>
<td>dark grey brown Pantone 426C</td>
</tr>
<tr>
<td><strong>IP</strong></td>
<td>IP55</td>
</tr>
</tbody>
</table>

1 Peak level at 1 m under half space conditions using pink noise with crest factor 4 (preset specified in brackets).
SB18 dimensions

707 mm / 27.8 in

553 mm / 21.8 in

750 mm / 29.5 in
<table>
<thead>
<tr>
<th><strong>SB18i</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Description</strong></td>
</tr>
<tr>
<td><strong>Low frequency limit</strong></td>
</tr>
<tr>
<td><strong>Maximum SPL</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
</tr>
<tr>
<td><strong>Directivity</strong></td>
</tr>
<tr>
<td><strong>Transducers</strong></td>
</tr>
<tr>
<td><strong>Acoustical load</strong></td>
</tr>
<tr>
<td><strong>Nominal impedance</strong></td>
</tr>
</tbody>
</table>
| **Connectors** | IN: 1 x 4-point speakON  
LINK: 1 x 4-point speakON |
| **Rigging and handling** | captive rigging system  
2 handles integrated into the cabinet  
1 x 35 mm pole socket |
| **Weight (net)** | 50 kg / 110 lb |
| **Cabinet** | first grade Baltic birch plywood |
| **Front** | steel grill with anti-corrosion coating  
acoustically neutral 3D fabric |
| **Rigging components** | steel with anti-corrosion coating |
| **Finish** | dark grey brown Pantone 426C  
pure white RAL 9010  
custom RAL code on special order |
| **IP** | IP55 |

<sup>1</sup> Peak level at 1 m under half space conditions using pink noise with crest factor 4 (preset specified in brackets).
SB18i dimensions

700 mm / 27.6 in

543 mm / 21.4 in

713 mm / 28.1 in
### SB18m specifications

<table>
<thead>
<tr>
<th>Description</th>
<th>High power compact subwoofer: 1 x 18'', amplified by LA12X / LA4X / LA8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low frequency limit</td>
<td>32 Hz ([SB18_100])</td>
</tr>
<tr>
<td>Maximum SPL (^1)</td>
<td>138 dB ([SB18_100])</td>
</tr>
<tr>
<td>Directivity</td>
<td>standard or cardioid</td>
</tr>
<tr>
<td>Transducers</td>
<td>1 x 18'' cone driver</td>
</tr>
<tr>
<td>Acoustical load</td>
<td>L-Vents, dual bass-reflex</td>
</tr>
<tr>
<td>Nominal impedance</td>
<td>8 (\Omega)</td>
</tr>
<tr>
<td>Connectors</td>
<td>IN: 1 x 4-point speakON</td>
</tr>
<tr>
<td></td>
<td>LINK: 1 x 4-point speakON</td>
</tr>
<tr>
<td>Rigging and handling</td>
<td>2 coupling bars and 2 locking tabs</td>
</tr>
<tr>
<td></td>
<td>2 handles integrated into the cabinet</td>
</tr>
<tr>
<td></td>
<td>1 x 35 mm pole socket</td>
</tr>
<tr>
<td></td>
<td>2 ground runners</td>
</tr>
<tr>
<td>Weight (net)</td>
<td>62 kg / 137 lb</td>
</tr>
<tr>
<td>Cabinet</td>
<td>first grade Baltic birch plywood</td>
</tr>
<tr>
<td>Front</td>
<td>steel grill with anti-corrosion coating</td>
</tr>
<tr>
<td></td>
<td>acoustically neutral 3D fabric</td>
</tr>
<tr>
<td>Rigging components</td>
<td>high grade steel with anti-corrosion coating</td>
</tr>
<tr>
<td>Finish</td>
<td>dark grey brown Pantone 426C</td>
</tr>
<tr>
<td></td>
<td>pure white RAL 9010</td>
</tr>
<tr>
<td></td>
<td>custom RAL code on special order</td>
</tr>
<tr>
<td>IP</td>
<td>IP55</td>
</tr>
</tbody>
</table>

\(^1\) Peak level at 1 m under half space conditions using pink noise with crest factor 4 (preset specified in brackets).
**SB18m dimensions**

- Width: 717 mm / 28.2 in
- Height: 543 mm / 21.4 in
- Depth: 759 mm / 29.9 in
# KIBU II specifications

<table>
<thead>
<tr>
<th><strong>Description</strong></th>
<th>Rigging frame for flying Kiva II/Kiva 2 × Ø12 mm shackles WLL 1 t</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight (net)</strong></td>
<td>3.8 kg / 8.4 lb</td>
</tr>
<tr>
<td><strong>Material</strong></td>
<td>high grade steel with anti-corrosion coating</td>
</tr>
</tbody>
</table>

## KIBU II dimensions

- 91 mm / 3.6 in
- 482 mm / 19 in
- 522 mm / 20.6 in
KIBU-SB specifications

**Description**  
Rigging frame for flying or stacking KIVA II/KIVA and SB15m  
2 × Ø12 mm shackles WLL 1 t

**Weight (net)**  
10.7 kg / 23.6 lb

**Material**  
high grade steel with anti-corrosion coating

KIBU-SB dimensions
KIET II specifications

**Description**  Rigging plate for ceiling or pole-mount of 3 KIVA II/KIVA maximum

**Weight (net)**  3.2 kg / 7.1 lb

**Material**  high grade steel with anti-corrosion coating

**KIET II dimensions**

- 47 mm / 1.9 in
- 516 mm / 20.3 in
- 135 mm / 5.3 in
- 415 mm / 16.3 in
- 372 mm / 14.6 in
- 350 mm / 13.8 in
**KIVA-PULLBACK specifications**

**Description**
Pullback accessory for KIVA II/KIVA
1 x Ø12 mm shackle WLL 1 t

**Weight (net)**
2.6 kg / 5.7 lb

**Material**
High grade steel with anti-corrosion coating

**KIVA-PULLBACK dimensions**

![Dimensions diagram]

- 380 mm / 15 in
- 53 mm / 2.1 in
- Ø 25 mm / 1 in
- 532 mm / 20.9 in
Installing an inclinometer on KIBU-SB

Tools

- torque screwdriver
- T20 Torx bit
- 7 mm wrench

About this task

KIBU-SB is equipped with a support plate for installing an optional inclinometer. Three models are compatible: TEQSAS® LAP-TEQ PLUS (provided in the TECH TOOLCASE), TEQSAS® LAP-TEQ (legacy model), and KSG® RECLINE Compact.

⚠️ LAP-TEQ / LAP-TEQ PLUS sensor and display compatibility

The legacy LAP-TEQ sensors are compatible with the new TEQSAS® LAP-TEQ PLUS displays. Conversely, the new sensors are not compatible with the legacy displays.

Calibrating the inclinometer

Refer to the manufacturer instructions. An additional XLR cable is needed.

Exploded view

Use the screws and nuts provided with KIBU-SB. Before tightening the screws, align the laser with the slit opening.

LAP-TEQ mounted on KIBU-SB.
Recommendation for speaker cables

Follow the recommended maximum length for loudspeaker cables to ensure minimal SPL attenuation.

⚠️ Cable quality and resistance

Only use high-quality fully insulated speaker cables made of stranded copper wire.

Use cables with a gauge offering low resistance per unit length and keep the cables as short as possible.

The table below provides the recommended maximum length for loudspeaker cables depending on the cable gauge and on the impedance load connected to the amplifier.

<table>
<thead>
<tr>
<th>cable gauge</th>
<th>recommended maximum length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>8 Ω load</td>
</tr>
<tr>
<td>mm²</td>
<td>SWG</td>
</tr>
<tr>
<td>2.5</td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>13</td>
</tr>
<tr>
<td>6</td>
<td>11</td>
</tr>
</tbody>
</table>

For your installation projects, you can use the more detailed L-ACOUSTICS calculation tool to evaluate cable length and gauge based on the type and number of enclosures connected. The calculation tool is available on our website:

http://www.lacoustics.com/installation-outils-de-calcu-137.html