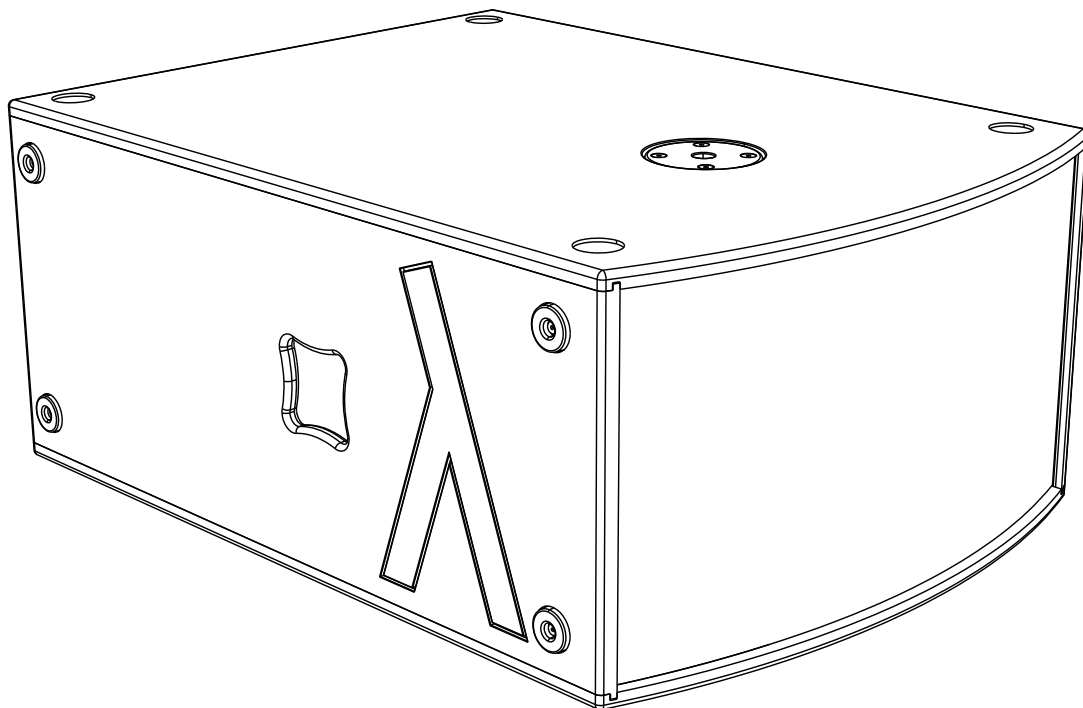


MF-15A Manual



Version 1.2

MF-15A Manual
Version 1.2 05/2020
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This manual is optimized to save paper and to print 2 pages per DIN A4 sheet.

Lambda Labs
professional acoustics



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1. Safety

1.1. General safety information



This manual contains essential information on product safety, installation and usage. Read this manual carefully in order to become familiar with the operation and usage of the product/s. Read this manual carefully BEFORE operating the product/s for the first time! Read the IMPORTANT GENERAL SAFETY REGULATIONS you can find on the next pages!

- Keep this manual within reach while operating the product/s all the time!
- As a Lambda Labs products rental partner, always attach the appropriate user manuals to the devices. Should you need additional printed manuals, please order them from Lambda Labs or download a latest version!
- When reselling the product/s, hand over the manual to the new owner and provide written documentation about any changes of the system which may have been applied!
- Always use the latest manual edition! Check our website regularly for updates!



While all information in this manual has been prepared to the best knowledge and with the utmost care, Lambda Labs can not guarantee the accuracy of the documentation in all cases. Lambda Labs disclaims any liability for any errors or omissions that may be inferred from this manual or the products described therein. This does not apply to intent and gross negligence. Technical specifications, as well as dimensions, weight and properties do not constitute guaranteed characteristics. Lambda Labs expressly reserves the right to make changes and modifications in accordance with statutory provisions and to improve product features.

1.2. Declaration of Symbols and Illustrations of this Manual










In order to point out potential sources of danger and application errors, the following symbols and illustrations are used in this manual:

	<p>DANGER:</p> <p>The warning symbol "DANGER" indicates that non-observance may pose a danger to the operator or to other persons in close range and the loudspeaker product!</p>
	<p>CAUTION:</p> <p>The warning symbol "CAUTION" requires the operator to take particular precautions to prevent possible damage to the loudspeaker product!</p>












	<p>ATTENTION:</p> <p>The warning symbol "ATTENTION" indicates that a special attention should be given to certain setup activities or applications!</p>
	<p>NOTE:</p> <p>This illustration notifies the operator about hints and help to simplify and to accelerate the use of the loudspeaker, the setup process or to better understand some contexts.</p>




1.3. IMPORTANT GENERAL SAFETY REGULATIONS

	<p>Safe stand on suitable underground !</p> <p>Always ensure a good stability of the loudspeaker, especially when using it with distance rods. When placing the loudspeaker on the ground or platforms, make sure the area is even and capable to carry the total load! Secure the loudspeaker with straps to the ground or suitable platforms! Do NOT stack more than 8 subwoofers on each other!</p>
	<p>High sound pressure levels!</p> <p>Loudspeakers are capable to deliver dangerously high sound pressure levels and can cause permanent hearing loss. Always pay close attention to the SPL levels when using a sound reinforcement product or system! Always adhere to the corresponding statutory provisions and safety regulations.</p>
	<p>Qualified operators!</p> <p>The operation as well as the planning of the setup may only be carried out by qualified personnel who are familiar and experienced with the instructions and the implementation of the operating procedures!</p>
	<p>Work safety!    </p> <p>In order to avoid accidents, it is the responsibility of the operator and the contractor to ensure that the local accident prevention regulations are always fulfilled. During the set up process of the loudspeaker and especially the entire rigging process, the operators should always wear head and foot protection, hand protection and possibly ear protection! Never climb on stacked or flown loudspeakers!</p>
	<p>Local safety regulations!</p> <p>Other safety regulations may apply in different countries. If changes occur, get to know the local regulations and if necessary, adapt them to the respective loudspeaker setup. It is the duty and responsibility of the operator to carry out any ground setup and any flown installation in accordance with the local regulations!</p>



	<p>Inspection of electrical items!</p> <p>Check ALL involved electrical devices such as cables, Powercon sockets and other components which are involved in the powering process of the loudspeaker before every use! Even with the slightest doubts about the function and safety of any components, these should not be used!</p>
	<p>Dynamic Load (Wind Load)!</p> <p>Lambda Labs does not recommend the use of stacked Lambda Labs subwoofers higher than 3 meters (78,7") with wind forces greater than 6 bft (12.3 m / s, 44 km / h). If the wind force exceeds 8 bft (17.8 m / s, 62 km / h), clear the loudspeaker area, bring down the loudspeakers and secure them!</p>
	<p>Setup environment!</p> <p>Keep the device dry and avoid the contact to heavy dust, sand and prolonged exposure to intense sunlight or strong vibrations and impact. For safety reasons, it is not allowed to place any liquid containers on or near to the enclosure.</p>
	<p>Placement & interaction with other devices!</p> <p>The device should not be placed near any heat producing sources or exposed to extremely high temperatures or below zero degrees Celsius. Sufficient ventilation should be provided when operating the loudspeakers!</p>
	<p>Setup area protection!</p> <p>When setting up a system with stacked loudspeaker arrays, secure the entire work area with crowd control barriers. Make sure that the secured area is sufficiently large in proportion to the height of the stack!</p>
	<p>Cabling!</p> <p>Lay down all cables with care. Additionally, secure the cables with duct tape or cable bridges and mark them for safety reasons. Do not place anything on the cables of the device. Use intact power cords only! The use of power cables and power distributions with insulated or missing protective earth conductor (PE) is strictly forbidden!</p>
	<p>Power line!</p> <p>Always ensure, that the power line is sufficient, stable and safe.</p>
	<p>Invisible damages!</p> <p>In the event of a potential damage of a loudspeaker by falling down from a height or being involved in a transportation accident, it is mandatory to check the loudspeaker for mechanical stability.</p>
	<p>Maintenance!</p> <p>Please refer to Chapter 2.3 „Maintenance“. If any damage or failure occurs to the loudspeaker itself or the integrated rigging system, please contact the Lambda Labs technical support and wait for further instructions! Do NOT repair or exchange speaker parts or rigging components by yourself and without support of a qualified service personnel!</p>



	<p>Manual!</p> <p>Keep this manual within easy reach for operating the product/s all the time!</p> <p>As a Lambda Labs products rental partner, always attach the appropriate user manuals to the devices. Should you need further manuals, please order them from Lambda Labs or download a current copy!</p> <p>If you resell the loudspeaker, hand over the manual to the next operator and provide written records about any changes of the device which may have been applied! Check our website regularly for updates in order to use always and only the latest manual version!</p>
	<p>Storing!</p> <p>Store the devices in a dry, cool and clean environment!</p>
	<p>Shipping</p> <p>Keep the packaging of the devices in order to send them in original packaging in case of damage. This minimizes the risk of possible transport damage.</p>



1.4. EC declaration and conformity

Lambda Labs
Austria

Declares that the following product:
MF-15A

Are in conformity with the provisions of:
Machinery Directive 2006/42/EC
2011/65/EU, RoHS

To guarantee the safety of the components, the following standards and rules have been complied:
EN ISO 12100-1: 2011 (Mechanical Safety)
DIN 18800 (Mechanical Structure)
BGV-C1 / DGUV Regulation 17 & 18 (Mechanical Standard applied in Germany)



Graz, 17/02/2020

Steffen Kroschel, Chief Technology Officer (CTO)

WEEE Declaration (Disposal)

Electrical and electronic devices must be disposed of separately from household or municipal waste at the end of its operational lifetime. Please dispose of this product according to the respective national regulations or contractual agreements. If there are any further questions regarding the disposal of this product, please contact Lambda Labs.



2. The MF-15A

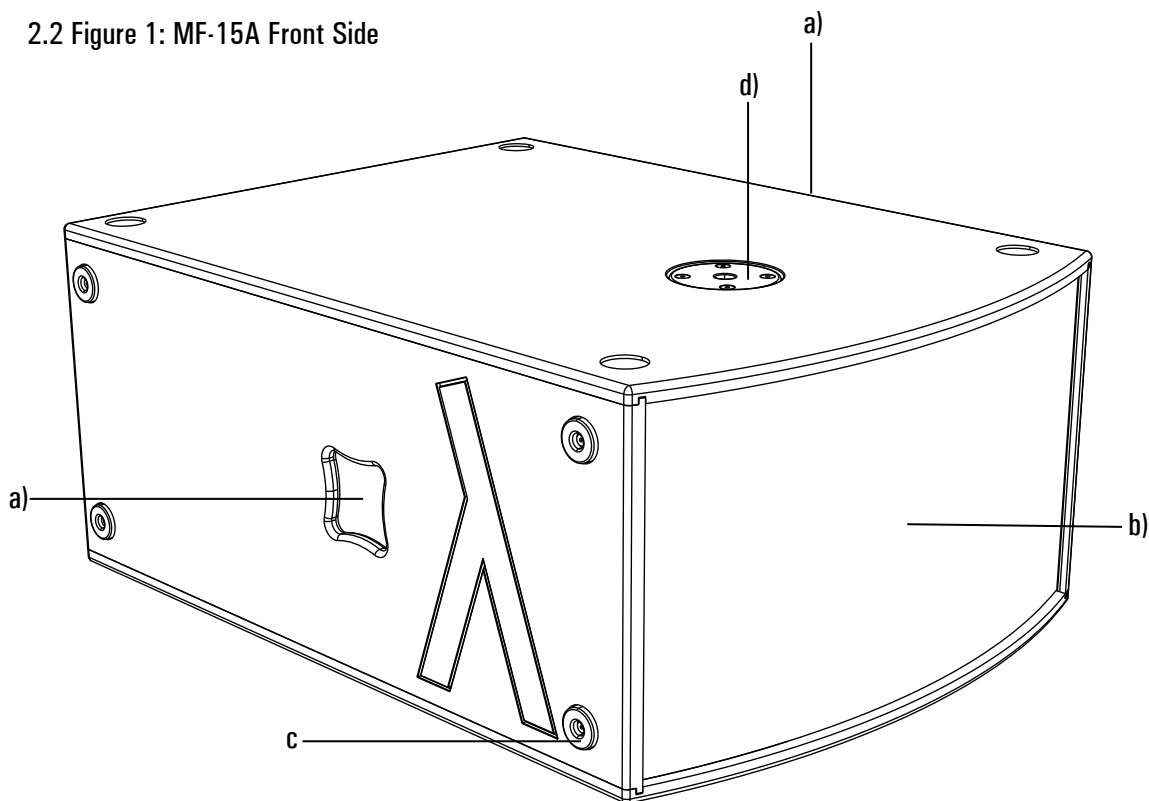
2.1. Technical data overview

System	High power subbass in Manifold technology
Configuration	1 x 15" ultra long excursion driver with 4"VC and hardened cone Aluminium demodulation rings
Electronics	1600W RMS amplifier power
Signal Processor	24bit ADC/DAC, 48kHz sample rate
Frequency Response	35 – 200Hz (+/- 3dB)
Sensitivity	98dB / 1W / 1m 104 / 1W / 1m - stack of 4
Connection	XLR in / out, Powercon in / out
Enclosure	Rigid, braced construction of special 15mm lightweight-plywood
Finish	High density black polyurethane-coating (Other colours on request)
Front Cover	Weather-resistant front fabric on coated 1.5mm perforated steel
Width	25.9" (657 mm)
Height	14.8" (377 mm)
Depth	34.3" (872 mm)
Weight	67.5 lbs (30.6 kg)



2.2. General Components

2.2 Figure 1: MF-15A Front Side



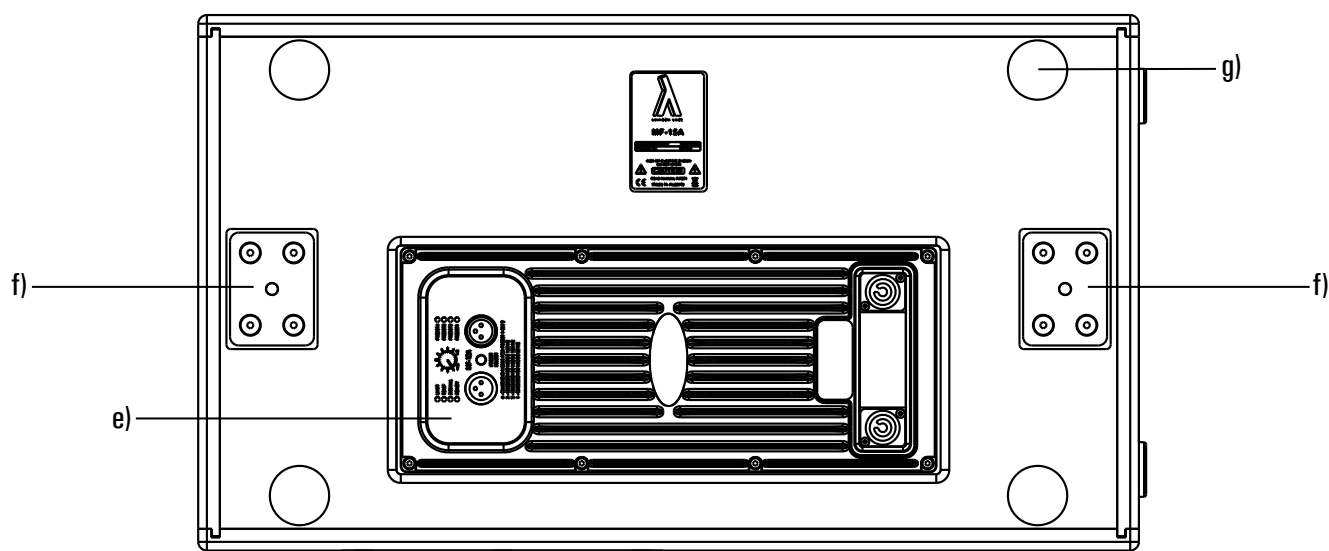
PART	DESCRIPTION of 2.2 Figure 1	REFERENCE
a)	Handle A recessed handle is located on the side plates of the cabinet to carry and move the loudspeaker.	—
b)	Front Cover The drivers are protected by a perforated steel grill. Additionally, a weather resistant fabric on the grill protects the drivers from dust and rain. The fabric is acoustically transparent.	—
c)	Rubber Feets 8 rubber feets, attached to the loudspeaker`s bottom and side plate, make the loudspeaker stand safely in both horizontal and vertical position.	—
d)	Mounting Flange A Mounting Flange with M20 Thread is located on the loudspeakers top side to install a distance rod. (Distance rod / distance rod with hand crank). Lambda Labs recommends to use products with the „Ring Lock“ system.	Chapter 2.2.2



Danger: When using a distance rod mounted on subwoofer/s, the loudspeaker should never be heavier than the subwoofer/s itself. The longer the distance rod is extended, the greater the counterweight should be. Secure the subwoofers to each other with straps and/or to the ground/ suitable platforms! Check the stability in every case!



2.2 Figure 2: MF-15A Back Side



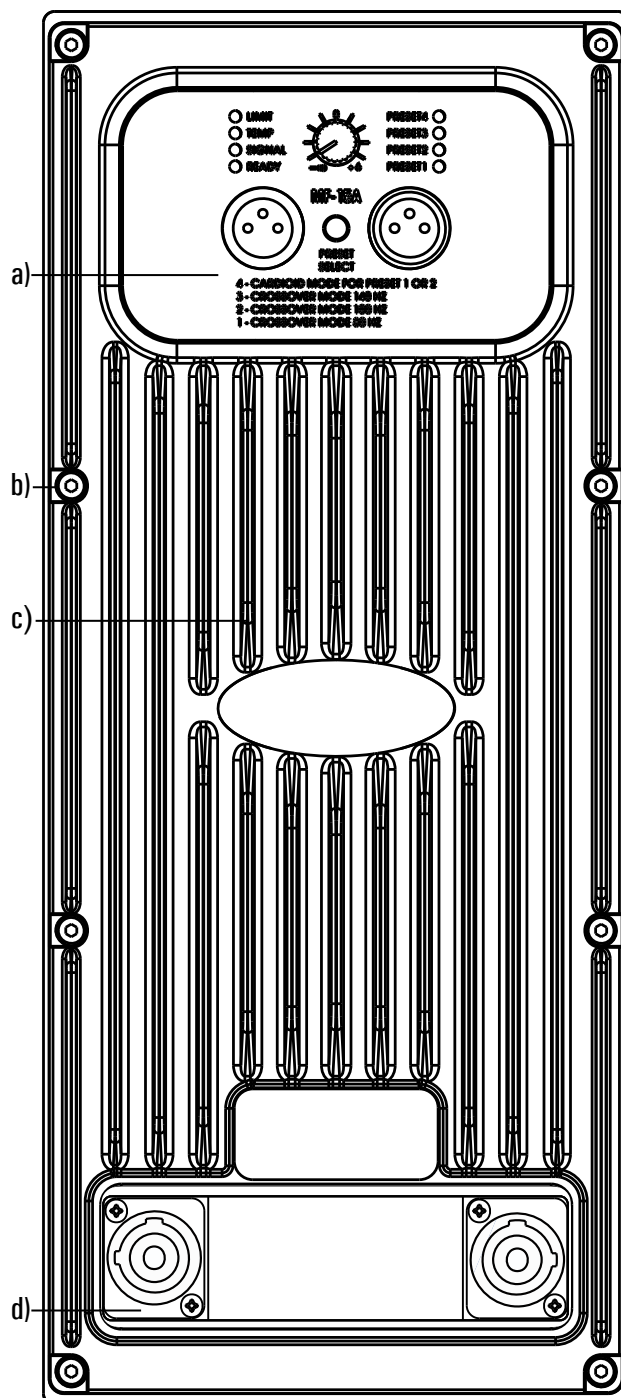
PART	DESCRIPTION of 2.2 Figure 2	REFERENCE
e)	Amplifier Module The built in amp module delivers 1600W RMS power. It comes with 4 ready to use presets to match the various loudspeaker setups and its use with further products like high/mid frequency range loudspeakers.	Chapter 2.2.1
f)	Wheelboard „Single" Fixture The MF-15A wheelboard „Single" is equipped with 2 Combi Pins. By connecting the 2 Combi Pins to the Wheelboard Fixture, the wheelboard can be attached to the subwoofer`s back side. Alternatively, use the MF-15A with the wheelboard „Stack" to transport up to 6 MF-15As. For further details, refer to Chapter 2.2.3 as well.	Chapter 2.2.3
g)	Wheelboard Recesses 4 recesses at the backside of the MF-15A help to attach the wheelboard more easily. They match the wheelboard`s rubber feets with the recesses.	Chapter 2.2.3




2.2.1. Amplifier Module & DSP


2.2.1 Figure 1: Front View Amplifier Module

PART	DESCRIPTION of 2.2.1 Figure 1	REFERENCE
a)	DSP Control Panel The DSP Control Panel contains the XLR input and output to apply a signal, the gain control and the dial button to select the provided factory presets. LED displays gives you further information about a certain status of the amplifier module.	Chapter 2.2.1.1 Chapter 2.2.1.3 Chapter 2.2.1.4 Chapter 2.2.1.5 Chapter 2.2.1.6
b)	DIN 912 M4 Screws To protect the control panel from unauthorized access, an optional module cover can be installed. To do this, the 4 upper M4 screws of the module must be removed.	Chapter 2.2.1.7
c)	Cooling Fins The integrated amplifier module can develop excessive heat, which will be dissipated by the cooling fins. DANGER: The outside of the amplifier module and the cooling fins can be very hot! Do not touch its surface during the operation of the speaker. Allow the unit to cool down before packing the speaker.	—
d)	Powercon Mains In&Out Mains connection to power the amplifier module and to power further loudspeakers. DANGER: Risk of electric shock! Use grounded mains only!	Chapter 2.2.1.1





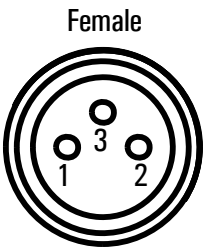
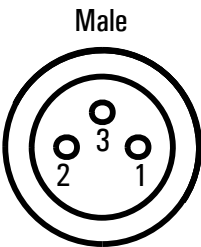
Danger: The amplifier module can develop excessive heat! Do NOT touch the surface of the amplifier module during and right after its operation! Allow the unit to cool down before packing the loudspeaker.




Danger: RISK OF ELECTRIC SHOCK! Use grounded mains only! Use undamaged cables and connectors only! Do NOT insert anything other into the Powercon connectors than Powercon plugs! Keep the connectors away from water and excessive humidity!

2.2.1.1. Amplifier Modul & DSP: XLR Connectors


The amplifier module provides 2 pieces of balanced XLR connectors wired in parallel (linked) to apply a signal to the loudspeaker and to link the signal to further loudspeakers. The male XLR connector is located on the left side. The female XLR connector on the right side. The pin assignment of balanced XLR connectors can be seen here:



PIN	Assignment (Balanced)
1	Ground
2	Signal +
3	Signal -



Caution: Pull by the plug rather than by the cord when disconnecting the XLR plugs!





Caution: At the signal input of the active module, a maximum voltage of +/- 15Vpeak (~ + 22dbu) may be applied!

2.2.1.2. Amplifier Module & DSP: Powercon Mains

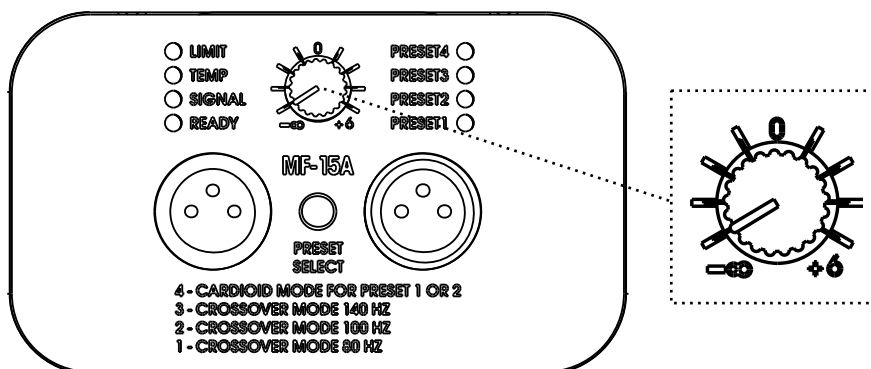
Mains connectors to power the amplifier module and to power further loudspeaker`s amplifier modules. The blue connector at the left side provides the mains supply. The grey Powercon connector at the right side provides the power supply link.




	<p>Danger: RISK OF ELECTRIC SHOCK! Use grounded mains only! Use undamaged cables and connectors only! Do NOT insert anything other into the Powercon connectors than Powercon plugs! Keep the connectors away from water and excessive humidity!</p>
	<p>Caution: The mains POWERCON connectors are not suitable for powering up or down the system and so should not be plugged or unplugged while under voltage! Always connect the POWERCON plug FIRST, THEN connect the Schuko plug (or other Standard 3 Pin Power Plug) to the AC power socket. Follow these steps in a reverse order to power down the system!</p>

2.2.1.3. Amplifier Module & DSP: Gain Control

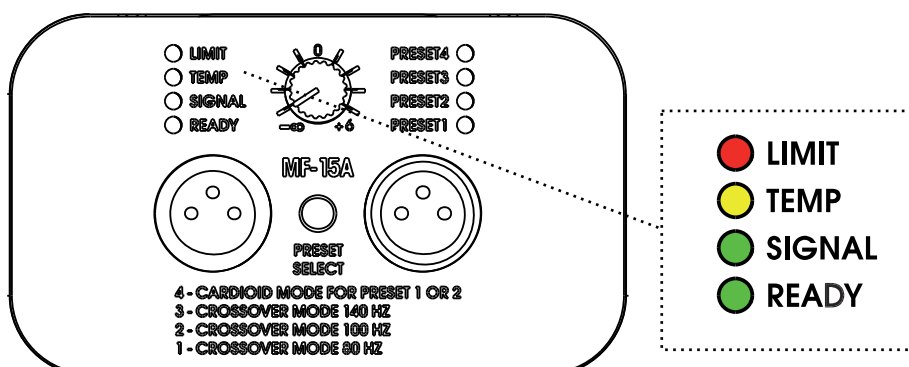
When the gain control is at its maximum position, the maximum input voltage before clipping is 5Vrms (+/- 7V peak). This value increases proportionally by turning back the gain control. In the 12 o'clock position, the input signal is reduced by 6dB. Therefore the maximum input voltage before clipping increases to 10Vrms (+/- 14V peak) accordingly. The Gain Control is located in the upper middle of the DSP Control Panel:



	<p>Caution: +/-15Vpeak (~ +22dBu) at the input shouldn't to be exceeded under any circumstances!</p>
---	---

2.2.1.4. Amplifier Module & DSP: Status Indicators

In the upper left corner of the Control Panel you will find 4 coloured signal LED displays as status indicators of the amplifier module. Their meanings are:



● LIMIT

If the red **LED flashes**, one of the integrated limiters for the lowmid driver (distortion limiter, continuous output limiter, continuous current limiter, peak current limiter) is triggered. Together they serve to ensure sound quality and safe operation. Short flashing at high SPL output conditions is a completely normal and usual operational status.

Heavily flashing or even **continous light** means an overdriven signal chain which affects the sound quality. Extreme or permanet overdrive is hazardous for the low frequency driver, especially on high ambient temperature or with stationary use of sine signals with frequencies in the range of the loudspeakers minimal electrical impedance.

● TEMP

The yellow LED is a temperature monitoring for the amplifier module and lite up under extreme conditions only.

A **slow flash** is an indicator for high temperature. This status is just for your information.

A **rapid flashing** will follow if the temperature rising further, and causes a reduction of the output level to lower the temperature to an uncritical level again. When playing music, this protective mechanism should only appear if the ambient temperature is very high and/or the equipment is exposed to direct sunlight.

A **continuous light** means a temporary muting of the output.

● SIGNAL

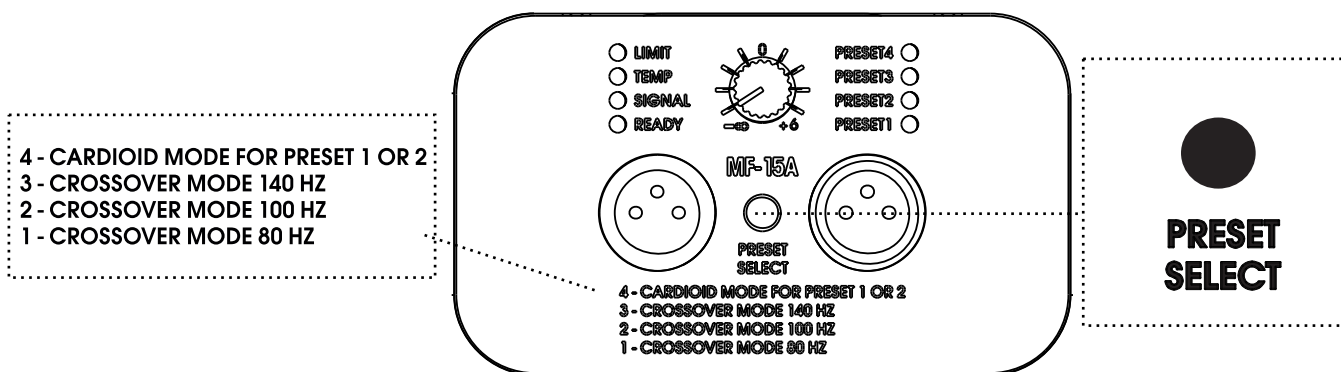
The green signal LED illuminates permanently as soon as an input signal is detected. If it does not light up despite the connection to the output device, check the XLR cables and all peripheral connections. Make sure that the READY LED is also permanently lit.

● READY

The green READY LED lights up permanently as soon as a stable power supply has been applied and the DSP Unit has been booted up completely.

2.2.1.5. Amplifier Module & DSP: Selecting Presets

The amplifier module has 4 pre-programmed factory-set presets. These are optimized for the particular speaker type and its possible applications. The presets can be selected by pushing the Preset Select button. After the preset has been loaded, the LED of the selected preset is illuminated permanently. The Preset Select button is located in the middle of the Control Panel. To make sure that the desired preset will be selected, the preset assignment list is printed on the lower part of the Control Panel:



2.2.1.6. Amplifier Module & DSP: Preset Assignment

Due to the complexity of the signal structure, a programming of the presets by the customer is not supported by Lambda Labs. The integrated setups already fulfill the demands of the most common applications. To allow for settings of EQ or delay, a controller can be inserted in the signal path to adapt the active speaker to every acoustical situation. For any questions about the presets, please contact the Lambda Labs support.

PRESET 1: Subbass Crossover Mode 80Hz

PRESET 2: Subbass Crossover Mode 100Hz

PRESET 3: Subbass Crossover Mode 140Hz

The subbass crossover modes has a 24dB/oct. Linkwitz-Riley low pass filter at 80/100/140Hz. Accordingly, the loudspeaker for the high-mid frequency range should have a 24dB/oct. Linkwitz-Riley high pass characteristic at 80/100/140Hz. The delay has to be adjusted in a way that both systems have matching phase responses in the crossover region. Especially in case of subwoofer systems which exhibits larger propagation delay (especially horn loaded systems) larger delay values have to be set.

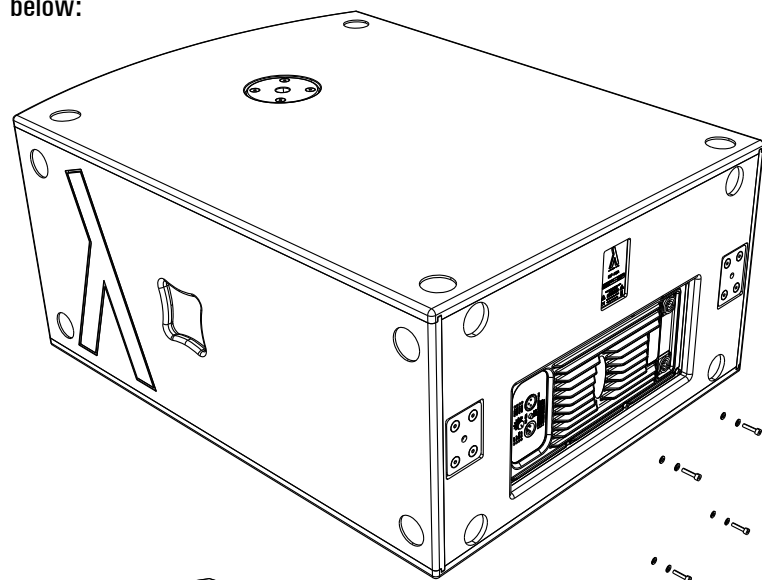
PRESET 4: Cardioid Mode for Preset 1 or 2

In this mode of operation the bass array forms a cardioid-shaped polar characteristic with maximized rearside damping. For the cardioid mode there is at least one MF-15A operated with the Preset 1-3 together with at least one MF-15A driven in the Preset 4 and turned backwards. Is the maximum rear-side damping planed to take effect at a higher distance, it is advisable to put one Manifold forwards (Preset 1-3) and one backwards (Preset 4). Is the maximum rear-side damping needed directly behind the bass array, the output level of the back-facing Manifold has to be reduced. Alternatively and for larger SPL capability in the front, the use of 1 backward and two - three forward oriented Manifolds is recommended.



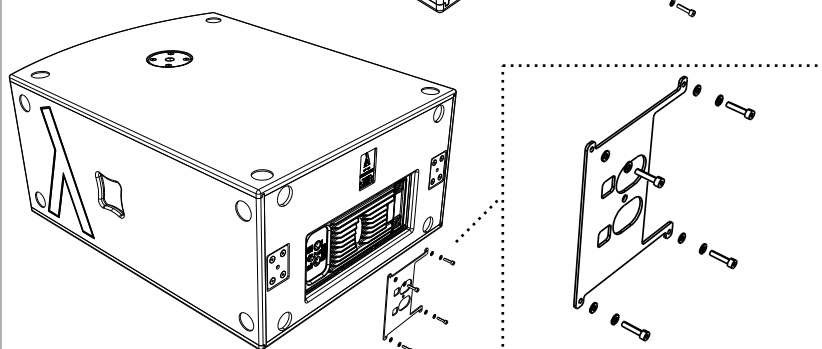
2.2.1.7. Amplifier Module & DSP: Module Cover „L” Mounting

To protect the Control Panel from unauthorized access, a module cover can be installed. To do this, follow the instructions below:



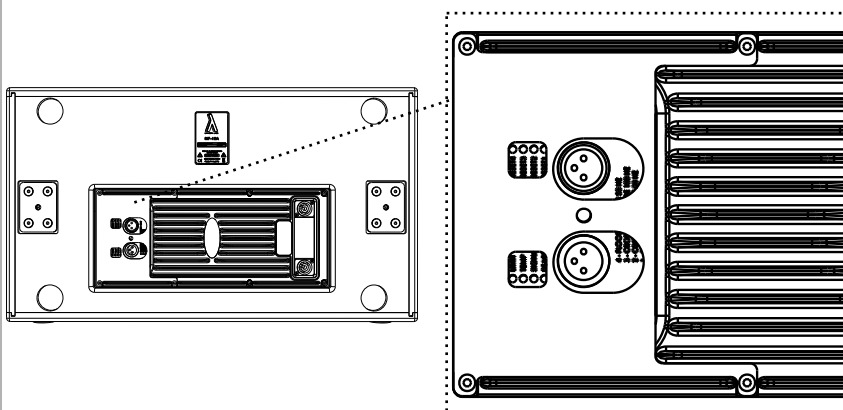
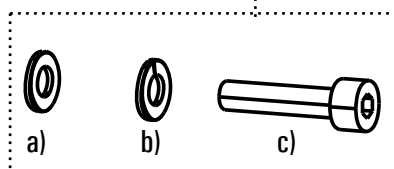
1. Remove the 4 x M4 DIN 912 screws with a ratchet or an electric screwdriver. Keep the screws and the M4 washers and M4 snap rings at a safe place. Always start removing the M4 Screws in the corners and follow an X order to unmount the other screws to avoid excessive stress in the Amplifier Module's heatsink!

	<ul style="list-style-type: none"> • Ratchet or electric screwdriver • HEX BIT Number 3 (Wrench Size 3mm)
--	---



2. Put the Module Cover „L” over the Control Panel area and reinsert the removed parts from step 1. To properly install the module cover, follow the order of the parts as shown in the drawing:

- a) M4 washer
- b) M4 snap ring
- c) M4 DIN 912 screw



3. Fix the screws with a torque of **2 Nm** and follow an X order to mount them. Do not start the order with a corner screw to prevent any damage to the amplifier module.

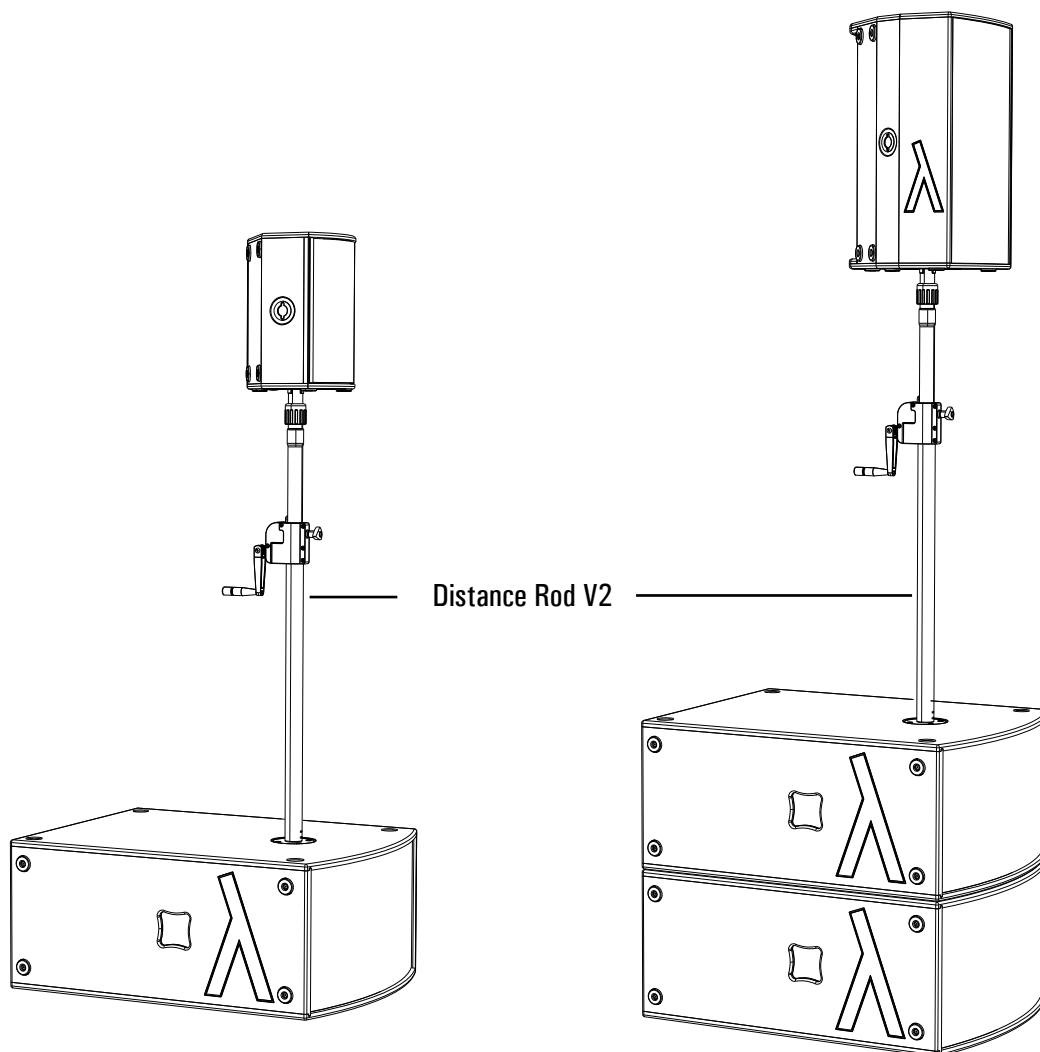




Caution: Fix the screws with a torque of **2 Nm**! Follow an X order to unmount/mount the screws and do not start with a corner screw! Use the screw parts in the right order to prevent any damage to the Module Cover!

2.2.2. Distance Rod

With the use of the built in Mounting Flange, a Distance Rod with M20 thread can be mounted on the MF-15A.



Note: The items described above can be purchased as:
 Distance Rod V1: Distance Rod with splints (Ring Lock)
 Distance Rod V2: Distance Rod with hand crank and splints (Ring Lock)



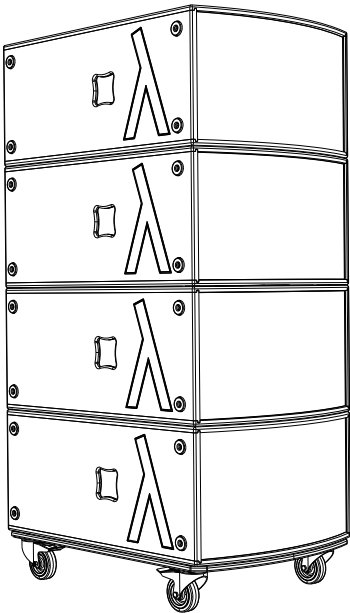
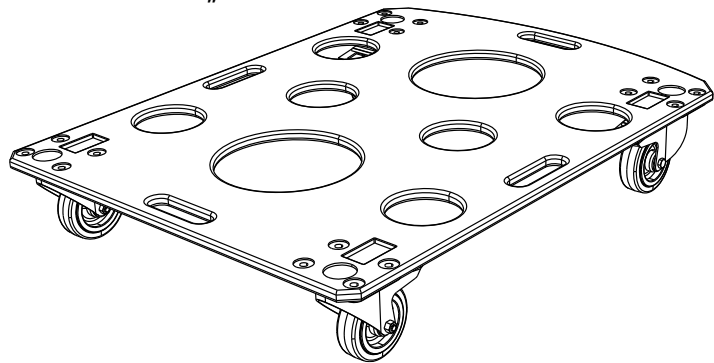
Danger: When using a distance rod mounted on a subwoofer/s, the loudspeaker should never be heavier than the subwoofer/s itself. The longer the distance rod is extended, the greater the counterweight should be. Secure the subwoofers to each other with straps and/or to the ground/suitable platforms! Check the stability in every case! For further details, refer to the individual loudspeaker manuals as well.



2.2.3. Wheelboard Options & Mounting

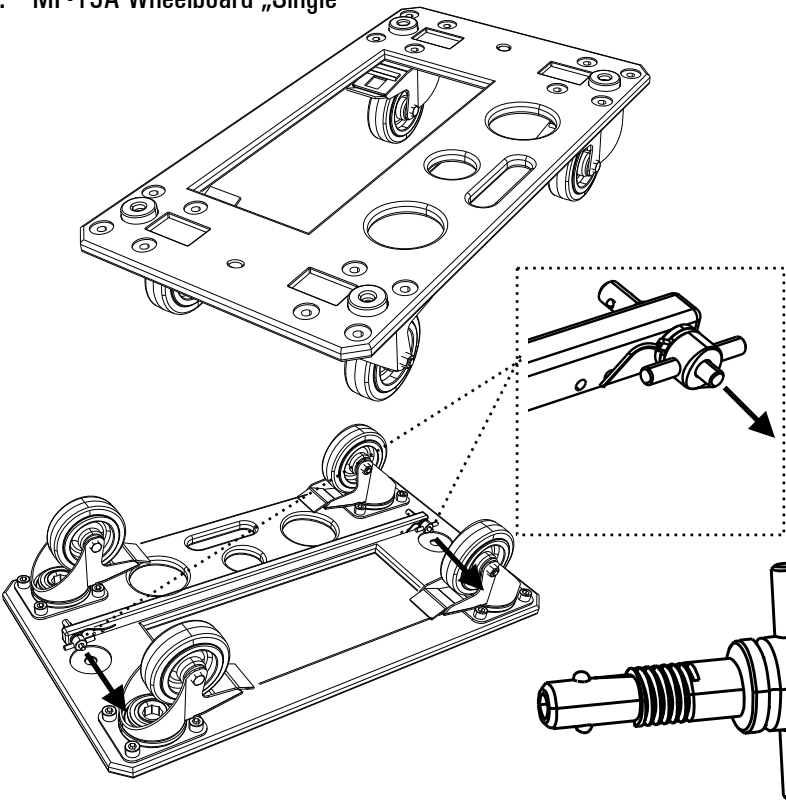
The MF-15A subwoofer is available with 2 different wheelboard options:

1. MF-15A Wheelboard „Stack“

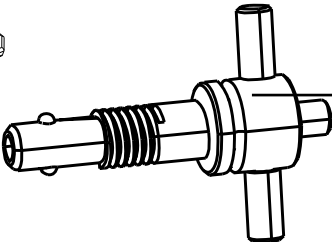


Danger: Do not stack more than 6 subwoofers on the wheelboard! Secure the stack with a strap!

2. MF-15A Wheelboard „Single“

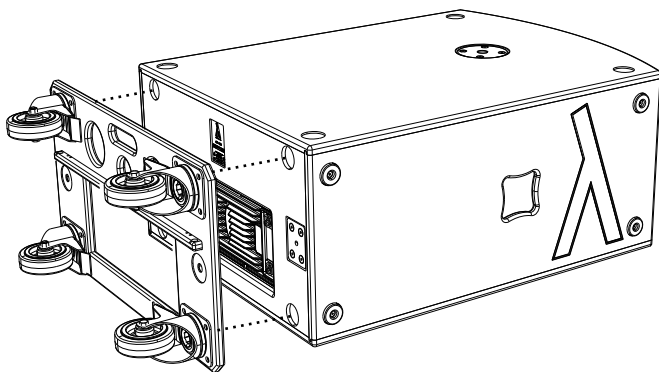


1. Remove the 2 x Combi Pins from their storage position. To do this, push the release button of the Combi-Pin and pull out the pin. Just let the Combi-Pin connected to the wire rope hanging at the outside.

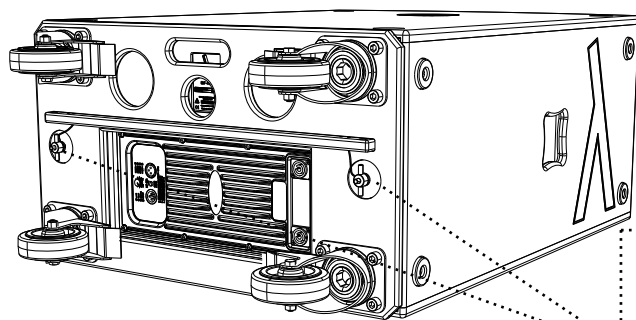
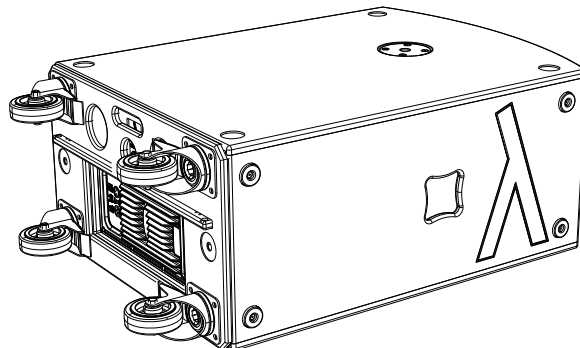


2.2.3 Figure 1: Combi Pin
Size: 57x40x10mm

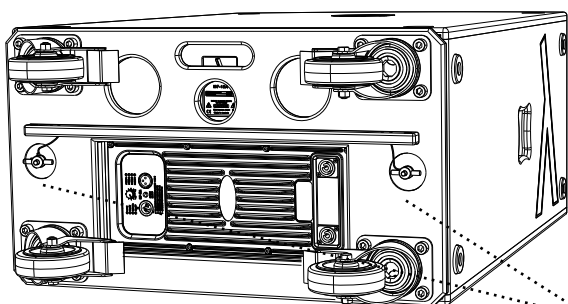
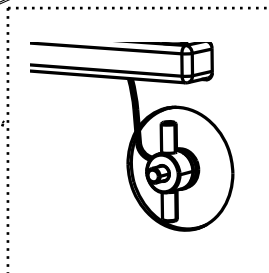
PART	DESCRIPTION of 2.2.3 Figure 1	REFERENCE
a)	Combi Pin The Combi Cluster Pin is a Ball Lock Pin with an additional M10 thread.	Chapter 2.2.3



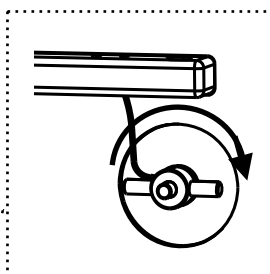
2. Match the wheelboard's rubber feet with the recesses of the backplate of the MF-15A and push the wheelboard as close as possible against the MF-15A enclosure.



3. To attach the wheelboard to the MF-15A enclosure, push the release button of the Combi Pins and insert them into the Wheelboard „Single“ Fixtures at the backside. After inserting them completely, release the release button.



4. To provide a vibration free connection, turn the Combi-Pin **clockwise** until the wheelboard is tightly fixed.

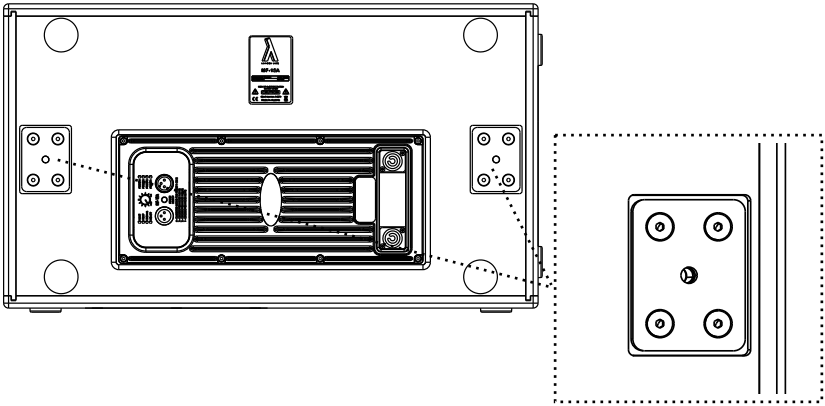


Caution: Always ensure the correct and safe mounting of the wheelboard! Make sure, the Combi Pin has been inserted completely!



2.3. Maintenance

In order to keep the Wheelboard „Single“ Fixture in a good condition and to keep its deep black colour, follow the description below from time to time or after long and intense use. Repeat these steps more often when installed in a salty environment like sea shores:

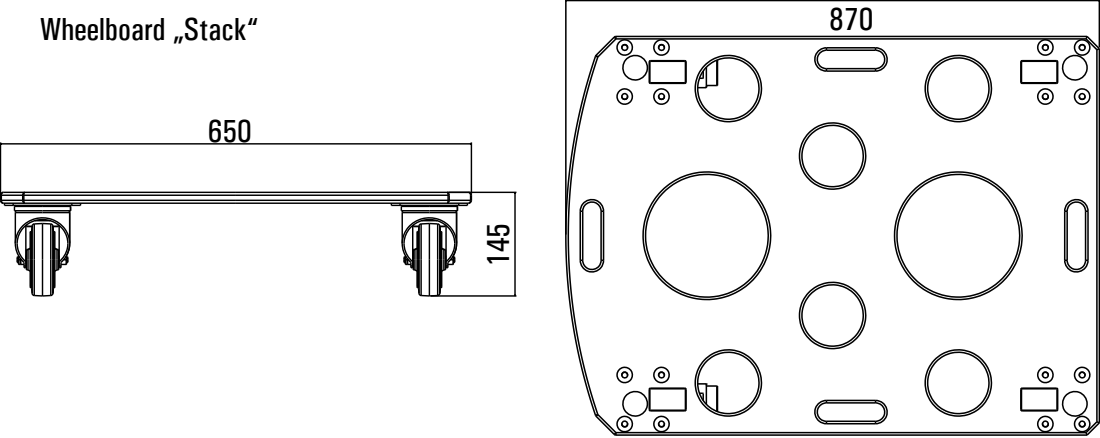


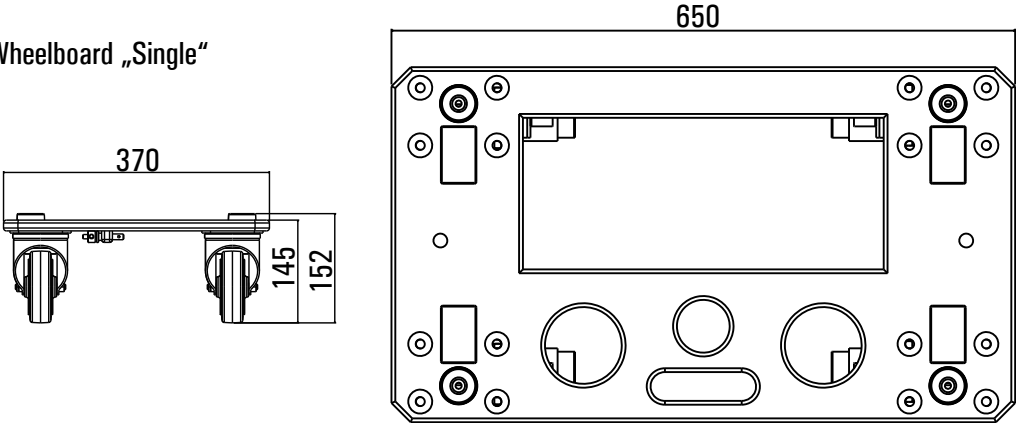
- Clean and protect the Wheelboard „Single“ Fixture with WD 40 and/or Rolimeco 1. For salty environments, Rolimeco 5. is recommended. **Do not use ANY other cleaning supplies on these areas!**
- We advice against the use of pressure water cleaning the Lambda Labs loudspeakers and mounting parts in general! **High pressure cleaning is at your own risk!**

2.4.Dimensions

Dimensions (mm)	Weight
<div><p>872</p><p>372</p><p>377</p></div> <div><p>657</p><p>652</p></div>	<div><p>30,6 kg</p><p>/</p><p>67,5 lbs</p></div>



Dimensions (mm)		Weight
<div>Wheelboard „Stack”</div> 		8,5 kg / 18,7 lbs

Dimensions (mm)		Weight
<div>Wheelboard „Single”</div> 		5,9 kg / 13,0 lbs

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