

# DRM18S

2000W 18" Professional Powered Subwoofer

**OWNER'S MANUAL**



## Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Minimum distance (5 cm) around the apparatus for sufficient ventilation. The ventilation should not be impeded by covering the ventilation openings with items, such as newspapers, table-cloths, curtains, etc.
9. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
10. No naked flame sources, such as lighted candles, should be placed on the apparatus.
11. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
12. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
13. Only use attachments/accessories specified by the manufacturer.
14. Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
15. Unplug this apparatus during lightning storms or when unused for long periods of time.
16. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
17. This apparatus shall not be exposed to dripping or splashing, and no object filled with liquids, such as vases or beer glasses, shall be placed on the apparatus.
18. Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.



19. This apparatus has been designed with Class-I construction and must be connected to a mains socket outlet with a protective earthing connection (the third grounding prong).
20. This apparatus has been equipped with a rocker-style AC mains power switch. This switch is located on the rear panel and should remain readily accessible to the user.
21. The MAINS plug or an appliance coupler is used as the disconnect device, so the disconnect device shall remain readily operable.
22. The use of apparatus is in tropical and/or moderate climates.
23. **NOTE:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.  
**WARNING:** Operation of DRM18S in a residential environment could cause radio interference.  
**CAUTION:** Changes or modifications to this device not expressly approved by LOUD Audio, LLC could void the user's authority to operate the equipment under FCC rules.
24. This apparatus does not exceed the Class A/Class B (whichever is applicable) limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of the Canadian Department of Communications.  
**ATTENTION** — *Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de class A/de class B (selon le cas) prescrites dans le règlement sur le brouillage radioélectrique édicté par les ministere des communications du Canada.*
25. Exposure to extremely high noise levels may cause permanent hearing loss. Individuals vary considerably in susceptibility to noise-induced hearing loss, but nearly everyone will lose some hearing if exposed to sufficiently intense noise for a period of time. The U.S. Government's Occupational Safety and Health Administration (OSHA) has specified the permissible noise level exposures shown in the following chart.

According to OSHA, any exposure in excess of these permissible limits could result in some hearing loss. To ensure against potentially dangerous exposure to high sound pressure levels, it is recommended that all persons exposed to equipment capable of producing high sound pressure levels use hearing protectors while the equipment is in operation. Ear plugs or protectors in the ear canals or over the ears must be worn when operating the equipment in order to prevent permanent hearing loss if exposure is in excess of the limits set forth here:

| Duration, per day in hours | Sound Level dBA, Slow Response | Typical Example                        |
|----------------------------|--------------------------------|--|
| 8                          | 90                             | Duo in small club                      |
| 6                          | 92                             |  |
| 4                          | 95                             | Subway Train                           |
| 3                          | 97                             |  |
| 2                          | 100                            | Very loud classical music              |
| 1.5                        | 102                            |  |
| 1                          | 105                            | Matt screaming at Troy about deadlines |
| 0.5                        | 110                            |  |
| 0.25 or less               | 115                            | Loudest parts at a rock concert        |

**CAUTION**

RISK OF ELECTRIC SHOCK! DO NOT OPEN!

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.

The lightning flash with arrowhead symbol within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure, that may be of significant magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user of the presence of important operating and maintaining (servicing) instructions in the literature accompanying the appliance.

**WARNING** — To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

**CAUTION** — To prevent electric shock hazard, do not connect to mains power supply while grille is removed.

Laite on liitettävä suojakoskettimilla varustettuun pistorasiaan.

Apparatet må tilkoples jordet stikkontakt.

Apparaten skall anslutas till jordat uttag.



**Correct disposal of this product:** This symbol indicates that this product should not be disposed of with your household waste, according to the WEEE directive (2012/19/EU) and your national law. This product should be handed over to an authorized collection site for recycling waste electrical and electronic equipment (EEE). Improper handling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time, your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, waste authority, or your household waste disposal service.

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# Features

- High-efficiency 2000W Class-D amplifier offers ample headroom for professional applications
  - o Universal power supply (100-240 VAC) with Power Factor Correction technology ensures consistent performance even with unstable AC power
  - o Next-gen protection circuitry keeps transducers safe and ensures peak performance in all applications
  
- Advanced Impulse™ DSP module
  - o Precision acoustic correction delivers reference quality sound that is consistent even at high SPL
  
- DRM Control Dashboard™ features a high-resolution full color display for easy single-knob access to configuration, processing, and more
  - o View current crossover setting, high-resolution metering, and more from a single overview window
  - o User adjustable variable crossover point allows for matching to any speaker system plus a DRM specific mode tailors DRM18S for full-range DRM loudspeakers
  - o Save and recall up to 6 user presets for various applications and venues
  - o Cardioid mode allows for easy setup of a directional subwoofer array
  - o Screensaver plus dimmer and contrast control
  - o Polarity Invert
  - o Alignment Delay control for delay stacks
  - o System lock with 4-digit passcode
  
- Dual independent input channels with Full-Range Direct and High-Pass outputs
  
- Premium components
  - o Road-worthy 18mm plywood construction and internal bracing offers optimal acoustic performance with a touring-grade textured coating and powder-coated heavy gauge steel grille
  - o 18" high-excursion woofer offers increased bass response, low distortion, and professional reliability to withstand the most demanding applications
  
- Acoustic design with no compromises
  - o DRM18S is acoustically designed with ample internal volume and precision tuned ports to naturally deliver the bass you need with minimal distortion
  
- Versatile configuration options
  - o Flyable via optional FB100 Fly Bar and FKDRM18S Flyware Kit
  - o M20 threaded pole attachment for use with DRM Series loudspeakers and other pole mountable speakers
  
- Max SPL: 135 dB
  
- 90 lb / 40.8 kg



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## Introduction

The DRM18S 2000W 18" Professional Powered Subwoofer delivers class-leading power via an ultra-efficient Class-D amplifier with next-gen protection and Power Factor Correction technology provides peak low-end performance when you need it.

Advanced Impulse™ DSP provides acoustic correction via precision tuned FIR filters for accurate, punchy sound typically experienced only with massive touring systems.

The DRM Control Dashboard™ features a high-contrast, full-color display for quick access metering, crossover settings, and more.

Designed to match the rest of the DRM Series perfectly, the DRM18S is stackable, flyable, and is equipped with a pole cup for maximum versatility.

### How to Use This Manual:

After this introduction, a getting started guide will help you get things set up fast. The hookup diagrams show some typical DRM18S subwoofer setups.



This icon marks information that is critically important or unique! For your own good, read and remember them...it is a good idea to pay special attention to these areas in the Owner's Manual marked with the "VERY IMPORTANT" hand icon.



There's an illustration of a microscope, so, of course, you're going to get more detailed information when you see this little guy. There are explanations of features and practical tips listed here.



It's a good idea to pay attention to text displayed next to a note icon, as this icon draws attention to certain features and functions relating to the usage of the DRM18S.

**Please write the serial numbers here for future reference (i.e., insurance claims, tech support, return authorization, make dad proud, etc.)**

**Purchased at:**

**Date of purchase:**

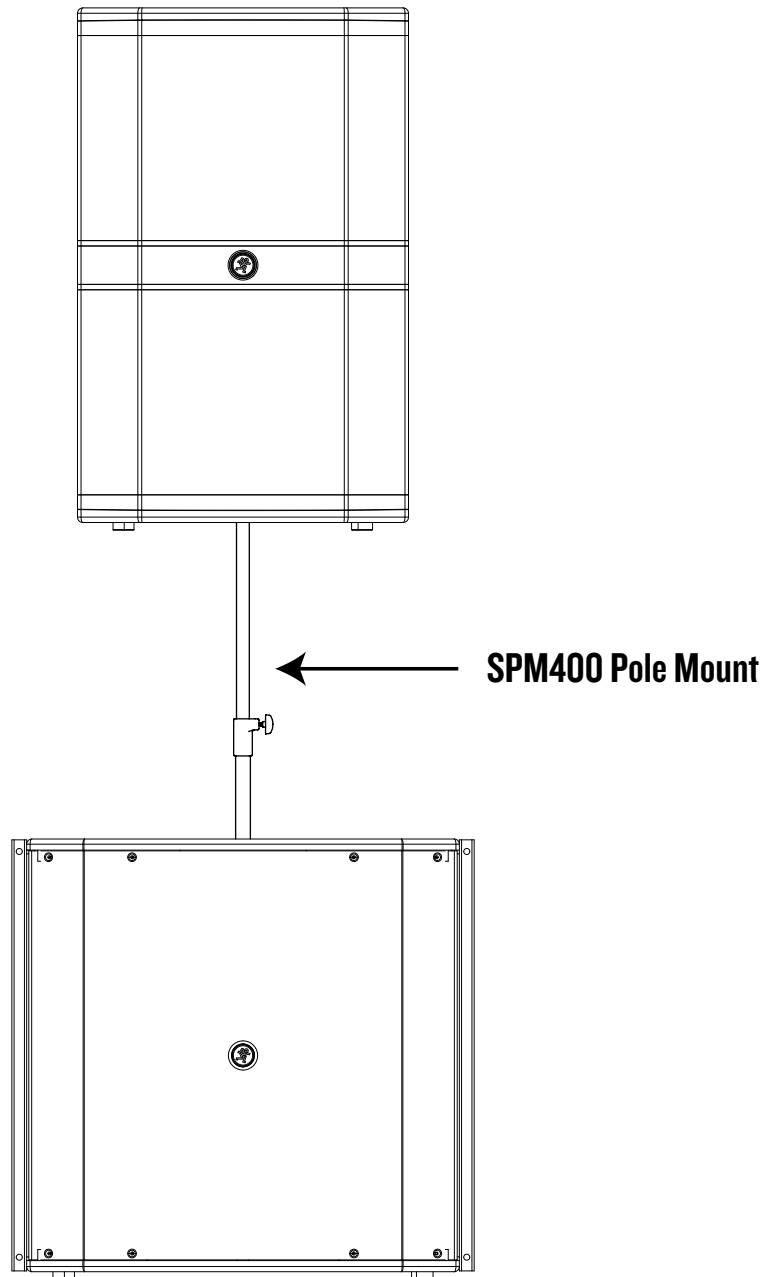
## Getting Started

The following steps will help you set up the DRM18S quickly.

1. Make all initial connections with the power switches OFF on all equipment. Make sure the master volume, level and gain controls are all the way down.
2. Connect the outputs from the mixing console (or other signal source) to the inputs on the DRM18S, then connect the high pass outputs from the subwoofer to the inputs of the loudspeakers.
3. Push the line cord securely into the subwoofer's / loudspeaker's IEC connectors and plug the other ends into grounded AC outlets. The subwoofer/loudspeaker may accept the appropriate voltage as indicated near the IEC connector.
4. Turn the mixer (or other signal source) on.
5. Turn the subwoofer on.
6. Turn the loudspeakers on.
7. Make sure the subwoofer's channel levels are set to (or near) 0 dB.
8. Make sure the loudspeaker's channel levels are set to (or near) 0 dB.
9. Start the signal source and raise the mixer's main L/R fader up to a comfortably loud listening level.

### Things to Remember:

- Never listen to loud music for prolonged periods. Please see the Safety Instructions on page 2 for information on hearing protection.
- As a general guide, the mixer (or other signal source) should be turned on first, DRM18S subwoofer next, and loudspeakers last. As such, the loudspeakers should also be turned off first, followed by the DRM18S, then the mixer. This will reduce the possibility of any turn-on or turn-off thumps and other noises generated by any upstream equipment from coming out of the speakers.
- Save the shipping boxes and packing materials! You may need them someday. Besides, the cats will love playing in them and jumping out at you unexpectedly. Remember to pretend like you are surprised!
- Save your sales receipt in a safe place.



A DRM18S subwoofer and DRM loudspeaker is the perfect tool for a standard PA setup, whether installed in a club, gymnasium, house of worship and more.

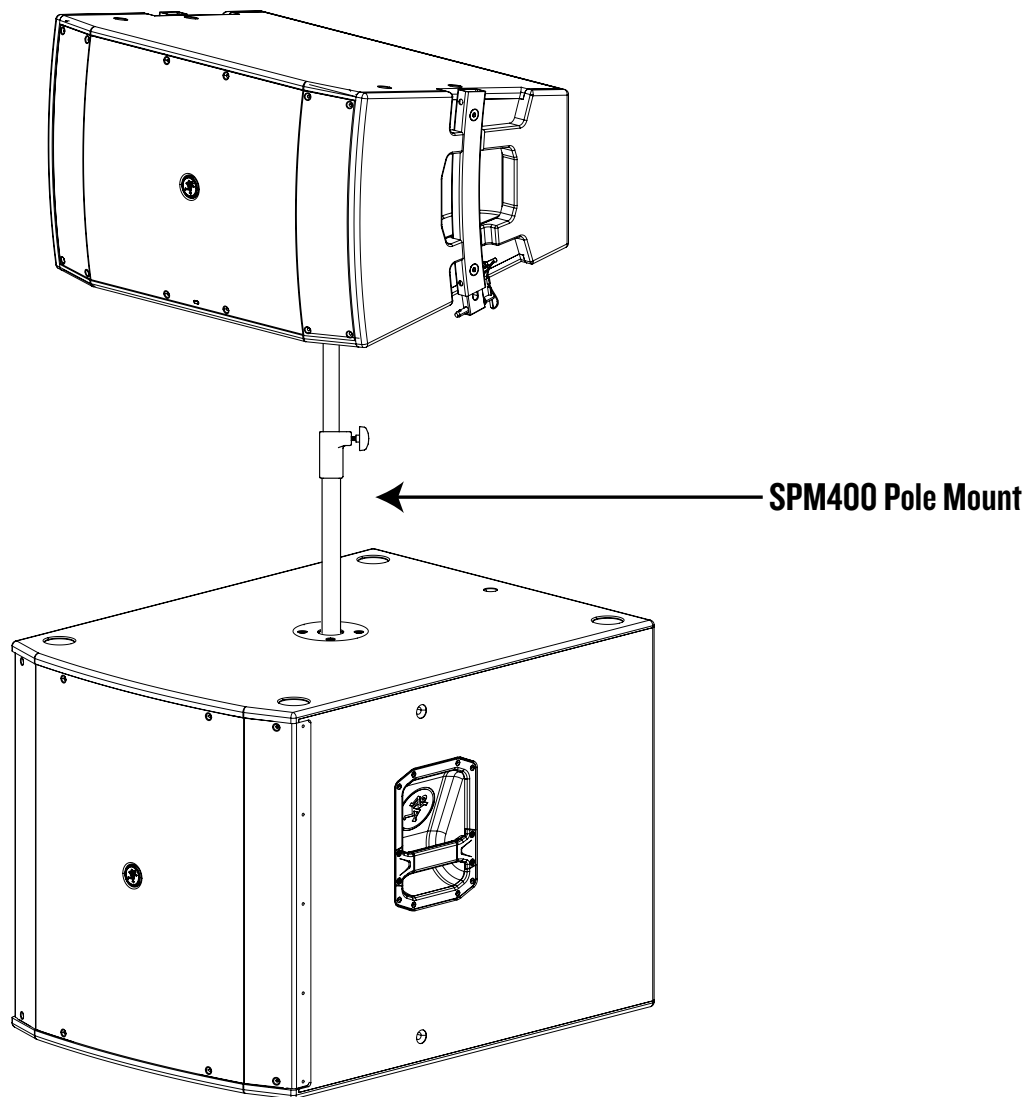
Here you will want to connect a cable from the mixer's left main output jack to the ch. 1 input jack of the DRM18S. The ch. 1 high-pass output of the DRM18S subwoofer is then connected to the ch. 1 input of the DRM loudspeaker [DRM212 in this example].

It is possible to reproduce this exact same hookup in stereo. Simply utilize the left and right main outputs from the mixer to feed the ch. 1 input of each DRM18S and mirror the rest of the system as described above.

You will want to set the crossover to DRM Top as described in detail on page 13. Or set it to Var if using a non-DRM loudspeaker.

### Simple PA Setup

Hookup Diagrams continued...



This type of setup will typically be found at small indoor or outdoor gigs, festivals, weddings, or parades where a high output PA with wide coverage and throw is necessary. This is a great setup for local DIY bands, too.

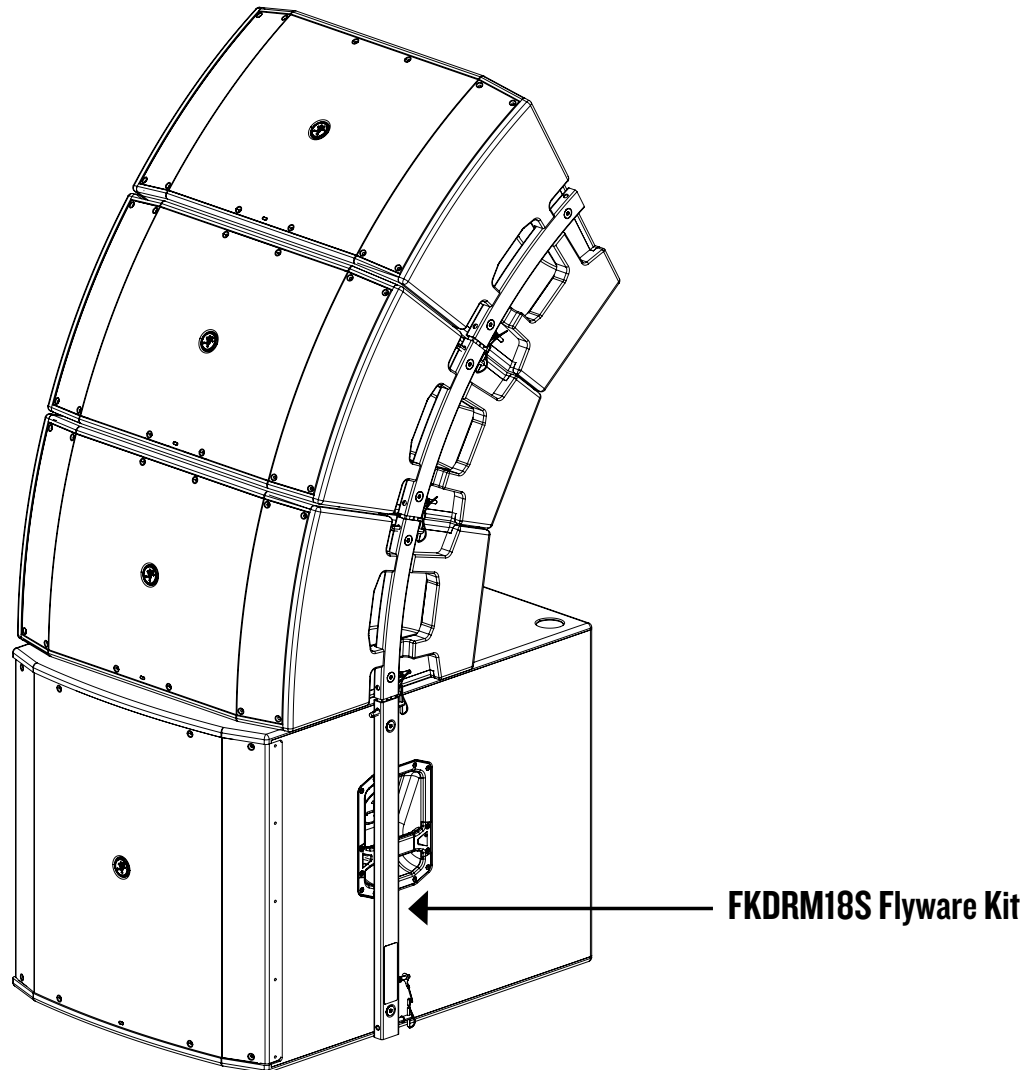
The left output from a mixer feeds the ch. 1 input of a Mackie DRM18S powered subwoofer. The ch. 1 direct output of the subwoofer feeds the input of a Mackie DRM12A powered arrayable loudspeaker. The DRM12A reproduces the mid-to-high frequencies in mono, and the sub provides the low frequencies in mono.

It is possible to reproduce this exact same hookup in stereo. Simply utilize the left and right main outputs from the mixer to feed the ch. 1 inputs of each subwoofer and mirror the rest of the system as identified above.

Another important aspect to keep in mind is the rigging setup. In this diagram, the DRM12As are pole-mounted on a DRM18S subwoofer, utilizing an SPM400 adjustable pole. Refer to pages 18 and 19 for more information about rigging.

You will want to set the crossover to DRM Top as described in detail on page 13. Or set it to Var if using a non-DRM loudspeaker.

Pole-mounted DRM12A arrayable loudspeaker with single DRM18S



This is the perfect setup for any venue where the audience is level with and sloping upward from the stage and PA. For example, a bowl, a shed or a gym with bleachers.

The left output from a mixer feeds the ch. 1 input of a single Mackie DRM18S powered subwoofer. The ch. 1 high-pass output of the subwoofer feeds the input of a Mackie DRM12A powered arrayable loudspeaker. The output of that Mackie DRM12A powered arrayable loudspeaker feeds the input of the next Mackie DRM12A powered arrayable loudspeaker. The DRM12As reproduce the mid-to-high frequencies in mono, and the sub provides the low frequencies in mono.

It is possible to reproduce this exact same hookup in stereo. Simply utilize the left and right main outputs from the mixer to feed the ch. 1 input of each DRM18S and mirror the rest of the system as described above.

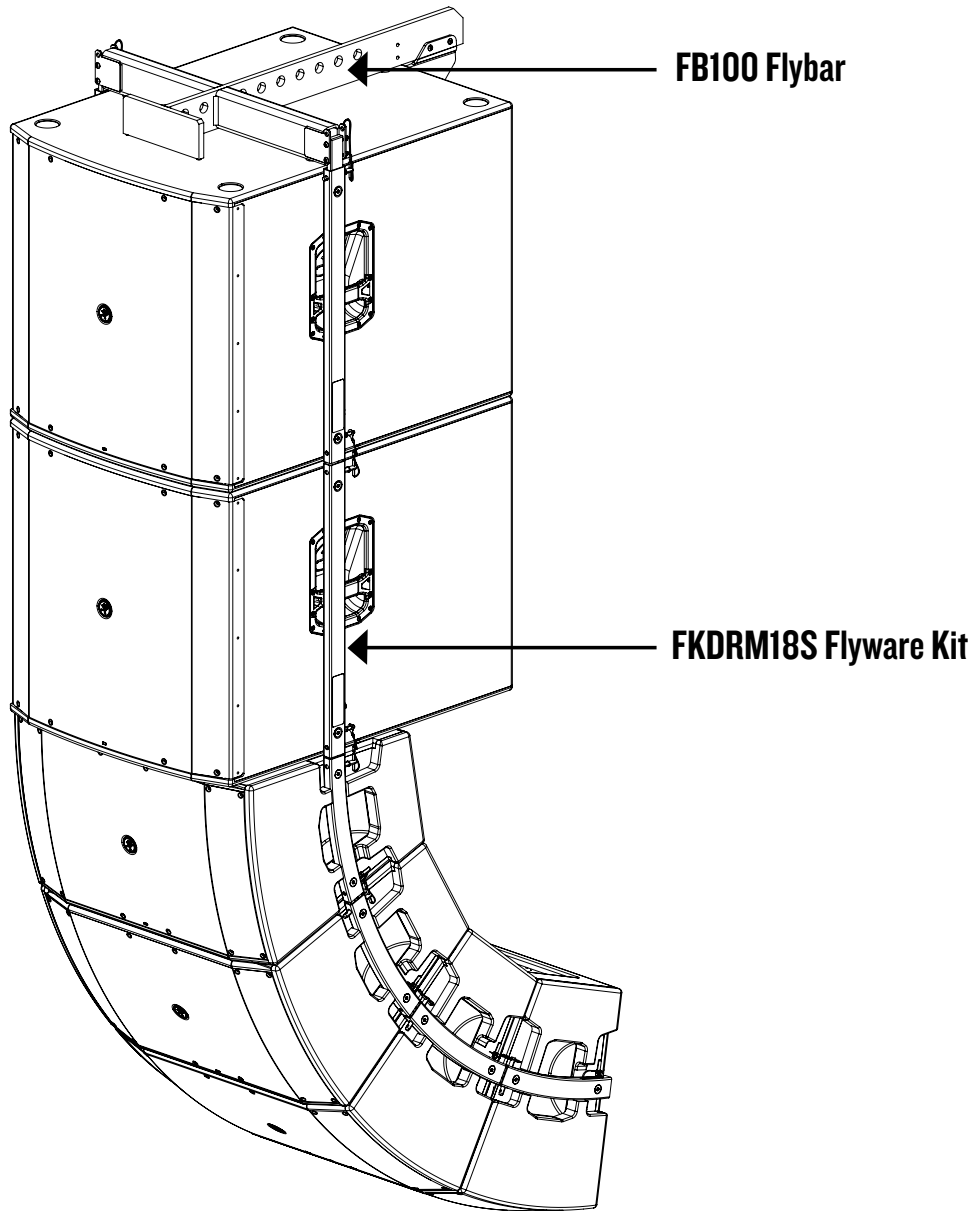
Another important aspect to keep in mind is the rigging setup. In this diagram, the DRM12As are ground stacked on a DRM18S utilizing the FKDRM18S Flyware Kit. This system may also be flown utilizing the FB100 Flybar, with the DRM18S powered subwoofer on top. See pages 18-19 for more information about rigging.

You will want to set the crossover to DRM Top as described in detail on page 13. Or set it to Var if using a non-DRM loudspeaker.

### Three ground-stacked DRM12A arrayable loudspeakers with single DRM18S



Hookup Diagrams continued...



This setup is perfect for installs, touring systems, festivals and/or small stages...any venue requiring a 75–100 foot throw. Two subwoofers are introduced to this setup, providing even low frequency coverage for the flown subs.

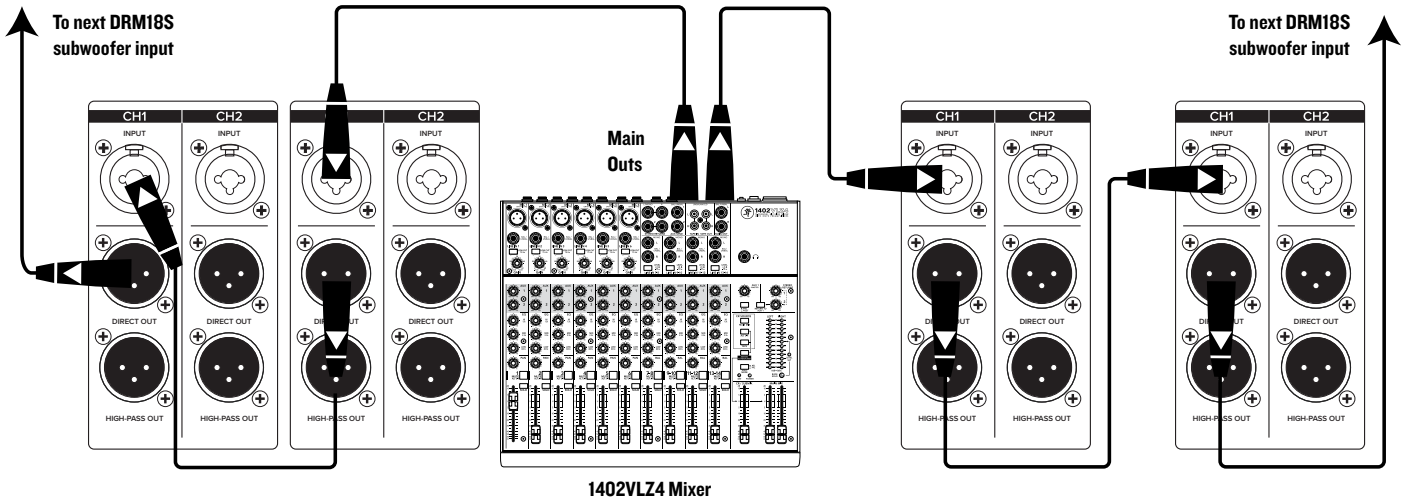
It is possible to reproduce this exact same hookup in stereo. Simply utilize the left and right main outputs from the mixer to feed the main inputs of the top subwoofers to mirror the rest of the system as identified here.

Another important aspect to keep in mind is the rigging setup of loudspeakers. In this diagram, the DRM18S subwoofers and DRM12A powered arrayable loudspeakers are flown utilizing an FB100 Flybar. Note that each subwoofer requires its own FKDRM18S Flyware Kit, as well. Refer to pages 18 and 19 for more information about rigging (and eyebolts).

You will want to set the crossover on both subwoofers to DRM Top as described in detail on page 13.

**Two flown DRM18S subwoofers with four DRM12A arrayable loudspeakers**

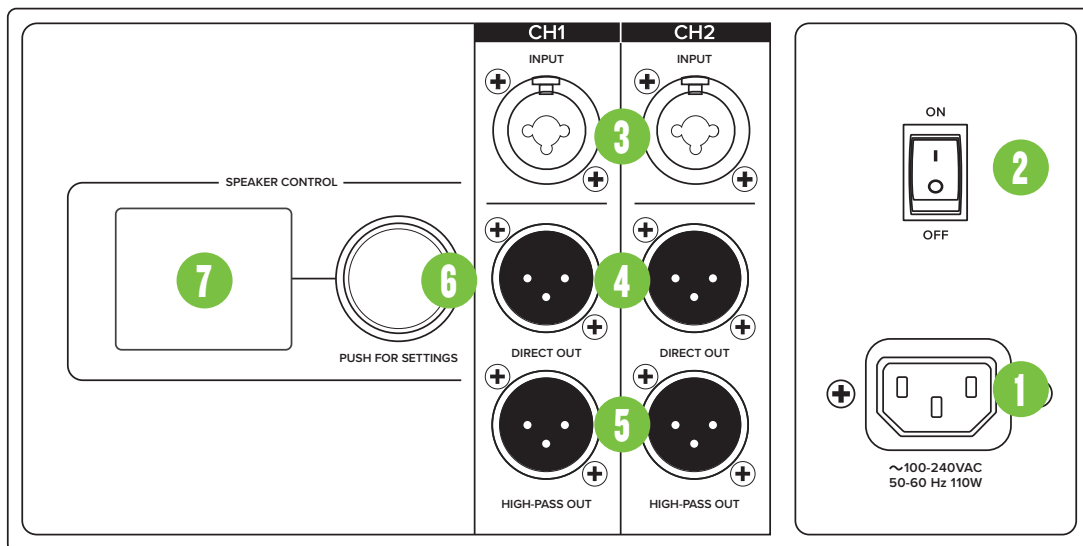




DRM18S subwoofers may be daisy-chained via the male XLR connector labeled “DIRECT OUT”. Simply plug the signal source (i.e., mixer output) into the ch. 1 input jack(s), and patch that subwoofer’s direct out jack to the next subwoofer’s input jack, and so on, daisy-chaining multiple DRM18S subwoofers. See above for visual representations of daisy-chaining.

## Daisy-Chaining Multiple DRM18S Subwoofers

## DRM18S Subwoofer: Rear Panel Features



### 1. Power Connection

This is a standard 3-prong IEC power connector. Connect the detachable power cord (included in the packaging with the subwoofer) to the power receptacle, and plug the other end of the power cord into an AC outlet.



Make sure that the AC power is matched to the AC power indicated on the rear panel (below the IEC receptacle).



Disconnecting the plug's ground pin is dangerous. Don't do it!

### 2. Power Switch

Press the top of this rocker switch inwards to turn on the subwoofer. Press the bottom of this rocker switch inwards to turn off the subwoofer.



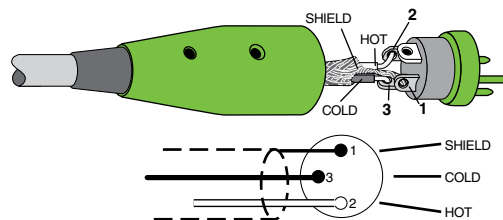
As a general guide, the mixer (or other signal source) should be turned on first, subwoofers next, and loudspeakers last. As such, the loudspeakers should be turned off first, followed by the subwoofers, then the mixer. This will reduce the possibility of any turn-on or turn-off thumps and other noises generated by any upstream equipment from coming out of the speakers.

### 3. XLR and 1/4" Combo Inputs

The input channels may accept a balanced mic signal using an XLR connector. They are wired as follows, according to standards specified by the AES (Audio Engineering Society).

#### XLR Balanced Wiring:

- Pin 1 = Shield (ground)
- Pin 2 = Positive (+ or hot)
- Pin 3 = Negative (- or cold)

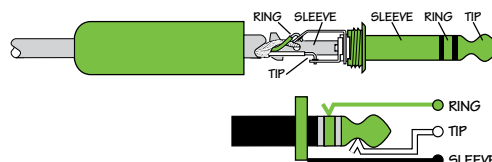


In addition to accepting a balanced mic signal using an XLR connector, these input channels may also accept 1/4" line-level signals driven by balanced or unbalanced sources.

To connect balanced lines to these inputs, use a 1/4" Tip-Ring-Sleeve (TRS) plug. "TRS" stands for Tip-Ring-Sleeve, the three connection points available on a stereo 1/4" or balanced phone jack or plug. TRS jacks and plugs are used for balanced signals and are wired as follows:

#### 1/4" TRS Balanced Mono Wiring:

- Sleeve = Shield
- Tip = Hot (+)
- Ring = Cold (-)



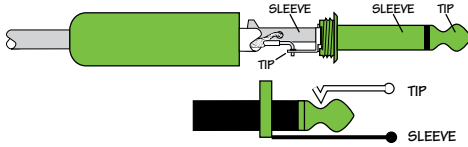
## DRM18S Subwoofer: Rear Panel Features continued...

To connect unbalanced lines to these inputs, use a 1/4" mono (TS) phone plug, wired as follows:

### 1/4" TS Unbalanced Mono Wiring:

Sleeve = Shield

Tip = Hot (+)



**NEVER** connect the output of an amplifier directly to a DRM's input jack. This could damage the input circuitry!

### 4. Direct Out

This is a male XLR-type connector that produces exactly the same signal that is connected to the input jack located above it. Use it to daisy-chain several DRM subwoofers together off the same signal source(s).

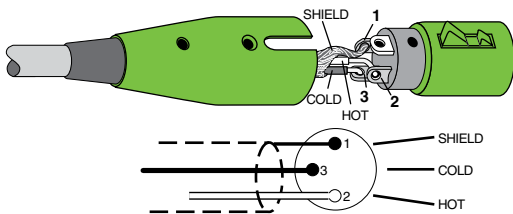
They are wired as follows, according to standards specified by the AES (Audio Engineering Society):

#### Balanced XLR Output Connector

Pin 1 – Shield (ground)

Pin 2 – Positive (+ or hot)

Pin 3 – Negative (- or cold)



See page 9 to learn more about daisy-chaining DRM18S subwoofers.

### 5. High-Pass Out

Typically, full-range loudspeakers are connected to the high pass outputs to "split" the work with the DRM18S subwoofer. The subwoofer handles all of the low frequencies and the loudspeakers handle the rest. As a result, it is more efficient and a bit louder.

Balanced XLR male connectors are provided for the line-level Ch. 1 and 2 high pass outputs. The subwoofer's crossover splits the input signals into two frequency bands. The low frequency range below 90 Hz goes to the internal amplifier that powers the subwoofer. The frequency range above 90 Hz is sent to these line-level output jacks.

The level control and polarity setting have no effect on the high pass outputs. The outputs are separate and maintain the stereo separation of the input signals.

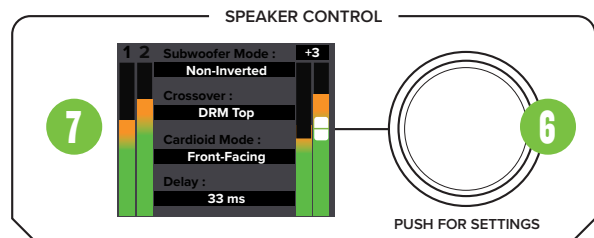
It is wired the same as the direct outputs as seen to the left.

### 6. LCD Display

This modern, high-resolution, all-color TFT LCD Display is one of the most vital features of the DRM18S subwoofer. It displays subwoofer information including (but not limited to) levels, subwoofer mode, crossover, cardioid mode, delay setting, lock / unlock status and other parameters.



The brightness is controllable, but an overall screen brightness is required for certain aspects of the set-up options.



### 7. Speaker Control Knob

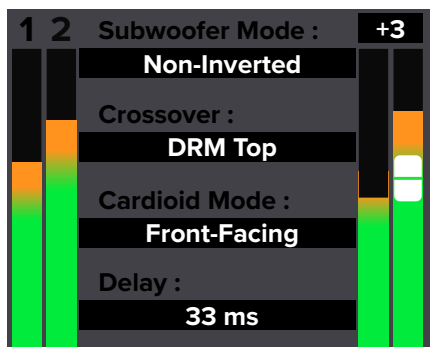
This push-button rotary encoder allows you to access functions such as master level control and metering, polarity / inversion setting, crossover, setup functions, product information and much more!

## DRM Control Dashboard™

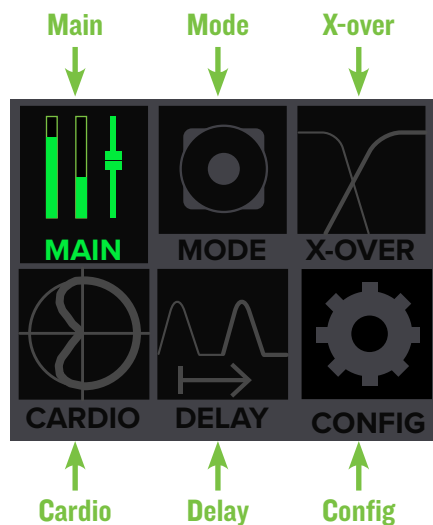
The following list provides the high level navigation items, in order, on the user interface and their subsequent user controlled parameters.

The default screen is the main view, as seen below:

**Main** – This displays the I/O metering, subwoofer mode, crossover, cardio and delay settings and more. The only thing that may be changed here is the main output level.



**Menu** – The menu provides icon selectors for all user-controllable functions with most of these containing an array of sub-menus.



We will go through each, how to get there and how to change settings.

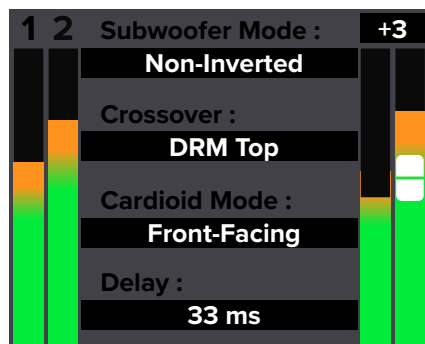
After a selection is made, the LCD screen will revert back to the Main screen after 5 seconds of (speaker control) inactivity. You yourself may continue to be as active (or inactive) as you want.

Rotate the speaker control knob to navigate between the selections and push the button to open and edit the parameters.

### Main

Push the speaker control knob to open the menu. From here, rotate the speaker control knob to scroll between the six selections. The current selection will illuminate in a can't-miss DayGlo green.

The first choice here is main. Push the button when main is illuminated to open it.



As you can see here, this is the same exact look as the default main screen. Like the default main screen, here you can only update the main output level. Do so by turning the speaker control knob clockwise (louder) and counter-clockwise (quieter). Once the level you desire has been dialed in, press the speaker control knob again to return to the main screen.

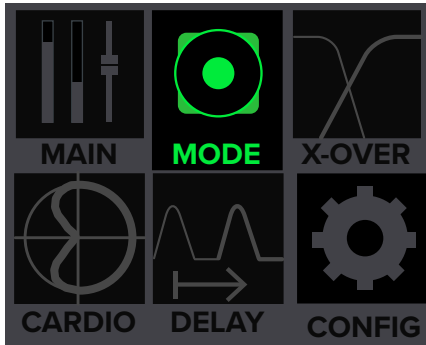
Let's expand on the meters for a moment. The peak holder meter peaks at +16 dBu and a 4:1 compressor engages at approximately +8 dBu. This means that the loudspeaker is compressing when the peak/hold indicator is hitting the top of the meter scale. It also signifies that you are nearing the end of available headroom. As you continue to raise the volume, you're continuing to compress the signal, as well. This is reflected in compression of the metering – which will remain at or near the top of the meter strip – and reflected in the acoustic output.

The main level control range is as follows:

- Main Output: -10 (off) to unity (max)

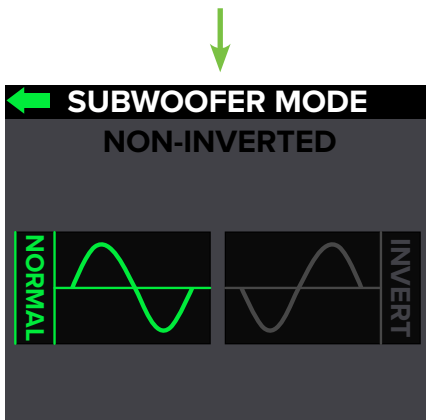
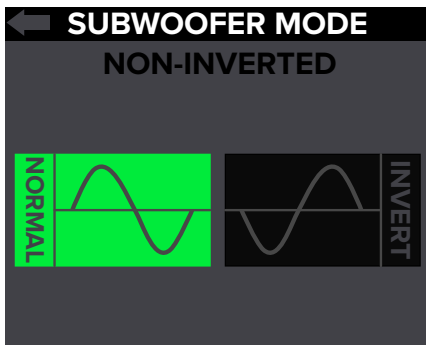
### Subwoofer Mode

Subwoofer mode allows you to change the subwoofer's polarity.



What does polarity mean, though? A subwoofer works by literally pumping air as the woofer cone moves in and out with respect to the cabinet in which it is housed. It does so according to the low-frequency portion of the signal it receives from the sound source.

The woofer cone is simply following the waveform as seen in the sine wave below-left (Normal). As the sine wave rises, the woofer cone pushes out. Likewise, as the sine wave falls, the woofer cone pulls into the cabinet. A musical signal is much more complex, of course, but the same principle applies. Movement of the woofer cone causes air pressure changes that we perceive as sound.



When invert is selected, the original waveform is simply reversed 180° [See above-right]. Again, the subwoofer cone follows the waveform. However, this time the woofer cone starts by pulling into the cabinet followed by the woofer cone pushing out. If you have ever experimented with a subwoofer's polarity, you may not have noticed any changes to the sound regardless of its position, especially if you are listening to just the subwoofer. This is normal, as our ears perceive them both at the same time.

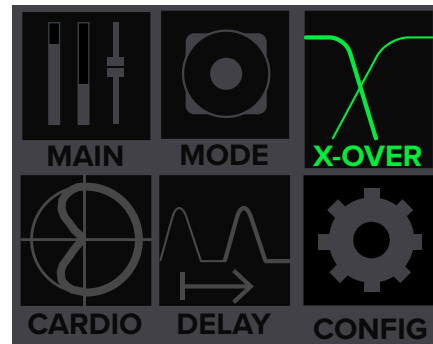
Polarity comes into play when the DRM18S subwoofer is paired with a loudspeaker. Ideally, the woofer cones of the subwoofer and full range loudspeaker would work together by pushing and pulling in unison. DRM18S subwoofers are designed to be used in a broad range of applications. The flexibility provided by the subwoofer mode (i.e. polarity) is necessary to ensure that you are receiving the best possible sound from your system, regardless of your setup.

Rotate the speaker control knob until the subwoofer mode you desire – Normal or Invert – is illuminated, then push to select it. As seen to the left, we're going with Normal.

There's also a left-facing arrow. Illuminating and selecting this simply returns you to the menu.

### X-Over

DRM18S subwoofers allow you to choose a crossover frequency for loudspeakers.

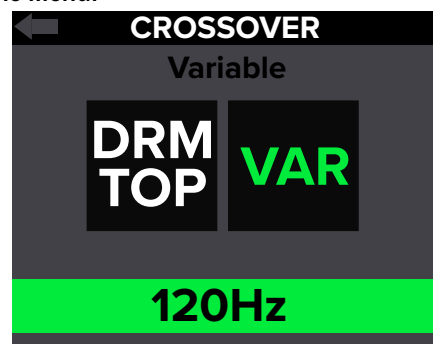


There are two choices:

- **DRM Top** – Choose this if a Mackie DRM loudspeaker is connected to the system. The crossover point is set to 90 Hz to work in perfect harmony with the Mackie DRM loudspeakers. This is what we hope you choose, thank you for your support!
- **Var** – Choose this if a non-Mackie DRM loudspeaker is connected to the system. Here you can select the crossover, ranging from 40 Hz – 160 Hz.

Rotate the speaker control knob until the crossover you desire – DRM Top or Var – is illuminated, then push to select it. If var is selected (as seen below), the frequency is illuminated and may be changed by rotating the speaker control knob clockwise (raise the frequency) and counter-clockwise (lower the frequency).

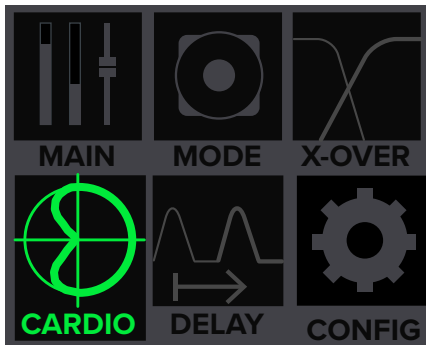
In addition to the two crossover selections, there's a third and final selection: the left-facing arrow. Illuminating and selecting this simply returns you to the menu.



### Cardio

Everyone's busy these days with little-to-no time for exercise. Fear no more, we've got you covered... at least with cardio. Once selected, you will be presented with a choice of great cardio exercises, including:

- Jump Rope
- Squats
- Jogging
- Kickboxing
- Suicide Sprints
- Jumping Jacks

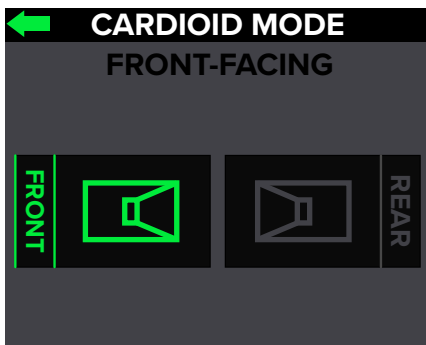


Wouldn't that be awesome? I need exercise, I'll go turn on my DRM18S subwoofer and set the cardio I want... if only...

No, no, cardio is an "id" shy of cardioid, a way to "aim" the low-end rumble to have great coverage where you want it (and away from where you don't). This allows you to set up the PA in the most venue-friendly way.

Typically, subwoofers are omnidirectional, but with cardioid mode you can aim the DLM18S subwoofer's null point (aka "dead spot") where you don't want the deep bass blasted.

In order to change the cardioid mode, first push the speaker control knob when the cardioid mode icon is illuminated (see image above). This opens the cardioid view:

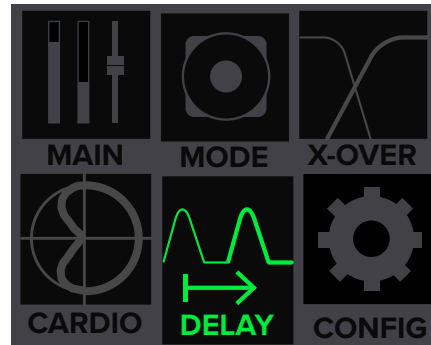


Rotate the speaker control knob until the cardioid mode you desire – Front or Rear – is illuminated, then push to select it. As seen above, we're going with Front.

Like the previous sub-menus, the cardioid mode also has a left-facing arrow. Illuminating and selecting this simply returns you to the menu.

### Delay

This parameter controls the delay. In other words, you are going to want to time-align the speakers throughout the venue so the sound hits everywhere simultaneously. This is the place.



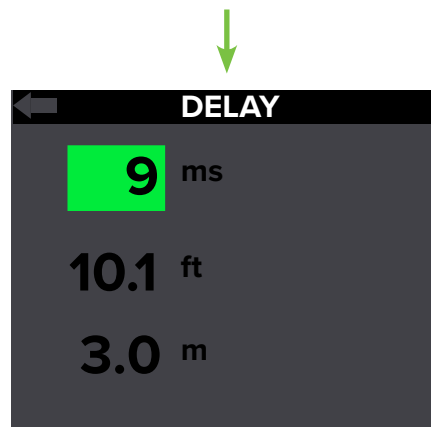
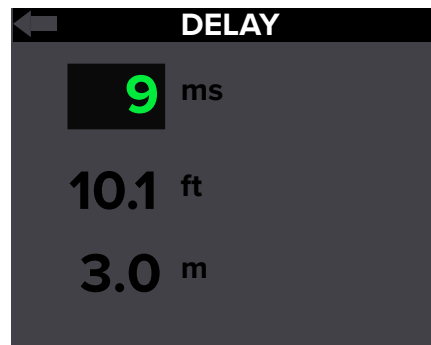
The delay time ranges from a low of 0.0 ms (ft, m) to a maximum of 100 ms (112.5 ft, 34.2 m).

In order to change the delay, first push the speaker control knob when the delay icon is illuminated (see image above). This opens the delay view.

From here, rotate the speaker control knob clockwise until the ms parameter is highlighted.

**NOTE** This is the only parameter that can be changed here; the ft and m delay time ranges update automatically dependent on where ms is set.

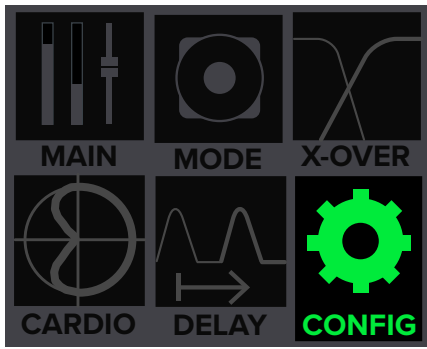
Push the speaker control knob in to select the ms parameter followed by rotating the speaker control knob clockwise (raise the delay time) and counter-clockwise (lower the delay time).



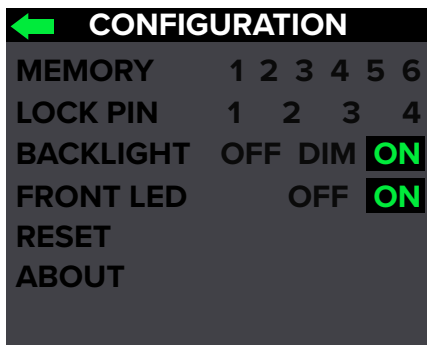
Like the previous sub-menus, the delay also has a left-facing arrow. Illuminating and selecting this simply returns you to the menu.

## Configuration

This is where to recall / store settings to memory, lock access to the settings, select LED screen brightness and more.



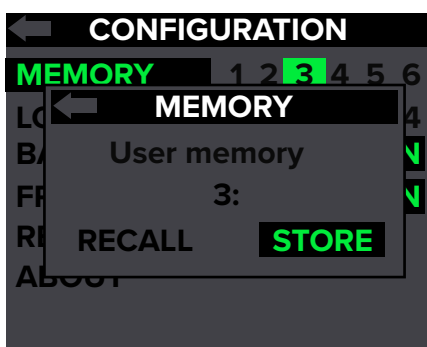
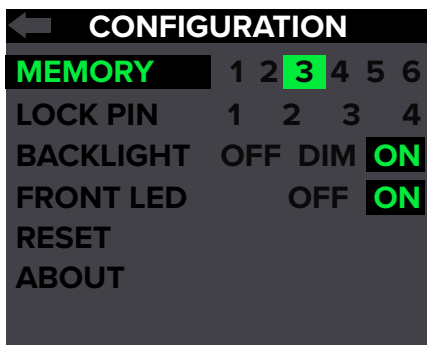
This is similar to what you will see after first entering the configuration screen. The backlight and front LED settings will be illuminated.



To change a setting, just rotate the speaker control knob until the configuration you desire to change is illuminated, then push to select it.

These are the choices from top to bottom:

**Memory** – When memory is selected, settings may be saved to memory and recalled at a later time. No more having to reset levels, EQ, voicing, etc. upon every power-up.



There are six user memory snapshots which should be more than enough.

**Store** – Tap this to store the current settings to the corresponding memory snapshot.



Please be aware that the new settings will replace the currently saved settings.

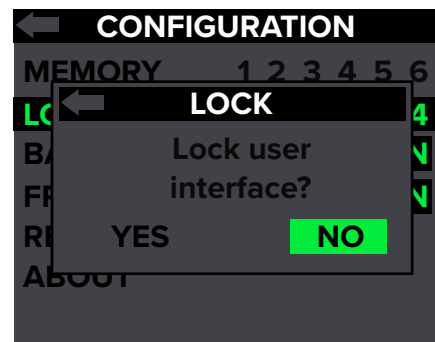
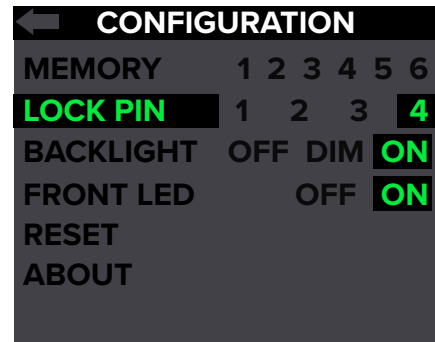
**Recall** – Tap this to recall the settings of the selected memory snapshot.

Illuminating and selecting the left-facing arrow returns you to the previous screen.

**Lock Pin** – This is where to lock and unlock the interface with a secret 4-digit numeric password.

Rotate the speaker control knob until lock pin is illuminated, then push in to enter lock mode. From here, rotate the speaker control knob until the first number you desire is illuminated and press to select. Follow the same procedure for the next three numbers.

As seen below, we decided to go with 1-2-3-4 because that's (a "5" shy of) the same code that was used on Spaceballs. A confirmation dialog helps prevent accidents. No further changes may be made until the control access is unlocked.



**Unlocking** – If you try to make any changes or select anything, you will be asked to enter the pin. Here you will need to re-enter the 4-digit code and push the speaker control knob to unlock.

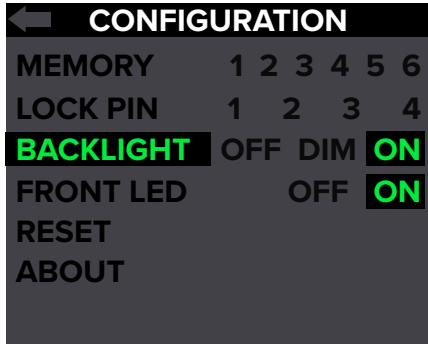
**Secret Squirrel Unlock** – If you – or worse, someone else! – set up a 4-digit lock code and you don't know the passcode, there is a quick fix. Simply press and hold down the speaker control knob down for a few seconds and it will automatically unlock.



Illuminating and selecting the left-facing arrow returns you to the previous screen.

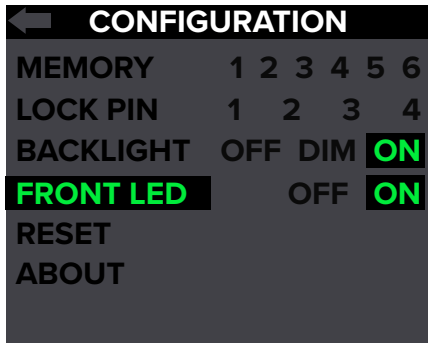
**Backlight** – The third configuration setting that may be changed is the brightness – or lack thereof – of the LCD screen.

There are three choices: off, dim and on.



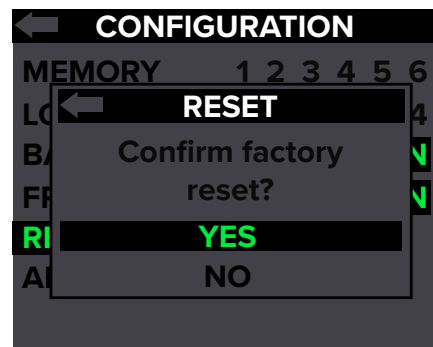
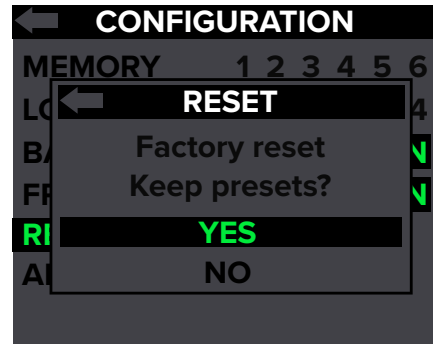
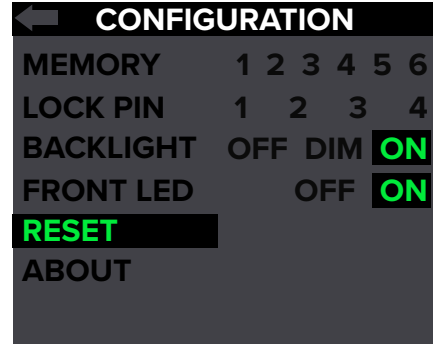
Illuminating and selecting the left-facing arrow returns you to the previous screen.

**Front LED** – Decide if you want the front LED on or off. When illuminated, push the speaker control knob to select between on or off.



Like the previous sub-menus, configuration also has a left-facing arrow. Illuminating and selecting this simply returns you to the menu.

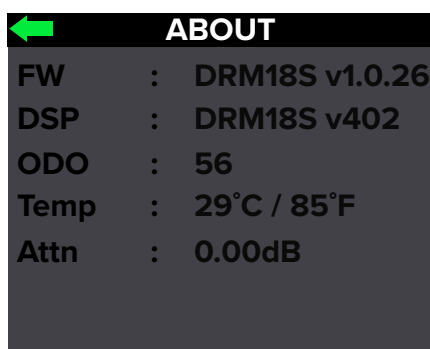
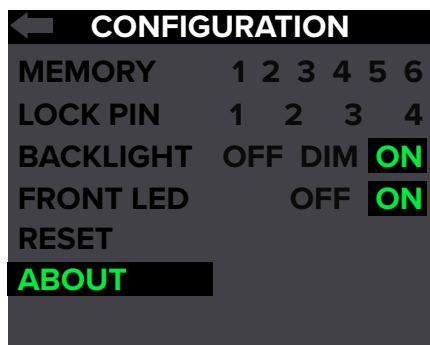
**Reset** – Resets all parameters back to their factory default. This is a permanent reset with no undo, so a confirmation dialog helps prevent accidents.



The middle screen displayed above may be of particular interest. Yes, it's true – you CAN do a factory reset and either choose to save your user presets or not!

Illuminating and selecting the left-facing arrow returns you to the previous screen.

**About** – Displays the current information about your subwoofer, including the model, firmware and DSP versions, temperature, favorite animal and more. There is really only one reason to go here and that is if you've been directed so by Technical Support.



## Protection Circuitry

The DRM18S subwoofer employs a built-in limiter for less distortion at peak levels. Additional protection includes automatic thermal shutdown should the amp overheat. However, with Class-D amp technology, which is highly-efficient, this should never be a problem.



The protection circuits are designed to protect the subwoofers under reasonable and sensible conditions. Should you choose to ignore the warning signs [e.g. excessive distortion], you can still damage the speaker in the subwoofer by overdriving it past the point of amplifier clipping. Such damage is beyond the scope of the warranty.

### Limiting

The driver has its own compression circuit which helps protect it from damaging transient peaks. The compressor is designed to be transparent and is not noticeable under normal operating conditions.

### Overexcursion Protection

A subsonic filter circuit just prior to the power amplifier prevents ultra-low frequencies from being amplified. Excessive low-frequency energy can damage the woofer by causing it to “bottom out,” also known as overexcursion, which is equivalent to a mechanical form of clipping.

## Thermal Protection

All amplifiers produce heat. DRM loudspeakers are designed to be efficient both electrically and thermally. In the unlikely event of the amplifier overheating, a built-in thermal switch will activate, muting the signal.

When the amplifier has cooled down to a safe operating temperature, the thermal switch resets itself, and the DRM18S subwoofer resumes normal operation.

If the thermal switch activates, try turning down the level control a notch or two on the mixing console (or via the Speaker Control knob) to avoid overheating the amplifier. Be aware that direct sunlight and/or hot stage lights may be the culprit of an amplifier overheating.

## AC Power

Be sure the DRM18S subwoofer is plugged into an outlet that is able to supply the correct voltage specified for your model. It will continue to operate at lower voltages, but will not reach full power. Be sure the electrical service can supply enough amperage for all the components connected to it.

We recommend that a stiff (robust) supply of AC power be used because the amplifiers place high current demands on the AC line. The more power that is available on the line, the louder the speakers will play and the more peak output power will be available for a cleaner, punchier bass. A suspected problem of “poor bass performance” is often caused by a weak AC supply to the amplifiers.



Never remove the ground pin on the power cord or any other component of the DRM18S subwoofer. This is very dangerous.

## Care and Maintenance

Your DRM18S subwoofer will provide many years of reliable service if you follow these guidelines:

- Avoid exposing the subwoofers to moisture. If they are set up outdoors, be sure they are under cover if rain is expected.
- Avoid exposure to extreme cold (below freezing temperatures). If you must operate the subwoofers in a cold environment, warm up the voice coils slowly by sending a low-level signal through them for about 15 minutes prior to high-power operation.
- Use a dry cloth to clean the cabinets. Only do this when the power is turned off. Avoid getting moisture into any of the openings of the cabinet, particularly where the drivers are located.

## Placement



**WARNING:** Installation should only be done by an experienced technician. Improper installation may result in damage to the equipment, injury or death. Make sure that the DRM18S is installed in a stable and secure way in order to avoid any conditions that may be dangerous for persons or structures.

DRM18S subwoofers are designed to sit on the floor or stage as the main PA. A socket is provided on top of the DRM18S for mounting DRM loudspeakers. The SPM400 is a great pole-mount option. See the hookup diagrams starting on page 5.

The DRM18S subwoofer may also be flown via its integrated fly points as detailed on the following pages. Be sure to read the PA-A2 Eyebolt Installation Instructions, as well.



**NEVER** attempt to suspend a DRM18S subwoofer by its handles.

Check to make sure that the support surface (e.g. floor, etc.) has the necessary mechanical characteristics to support the weight of the subwoofer(s).

When pole-mounting loudspeakers, be sure that they are stabilized and secured from falling over or being accidentally pushed over. For stacked scenarios, it is highly suggested that straps are utilized. Failure to follow these precautions may result in damage to the equipment, personal injury, or death.

As with any powered components, protect them from moisture. Avoid installing a DRM18S in places exposed to harsh weather conditions. If you are setting them up outdoors, make sure they are under cover if you expect rain.

## Rigging



**WARNING:** Installation should only be done by an experienced technician. Improper installation may result in damage to the equipment, injury or death. Make sure that the DRM18S is installed in a stable and secure way in order to avoid any conditions that may be dangerous for persons or structures.



**WARNING:** The cabinet is suitable for rigging via its fly points. **NEVER** attempt to suspend a DRM18S by its handles.

The fly points of the DRM18S are shown below while examples of a flown DRM18S are displayed on the following page.

### Rigging Design Practices

Rigging a DRM18S requires determining:

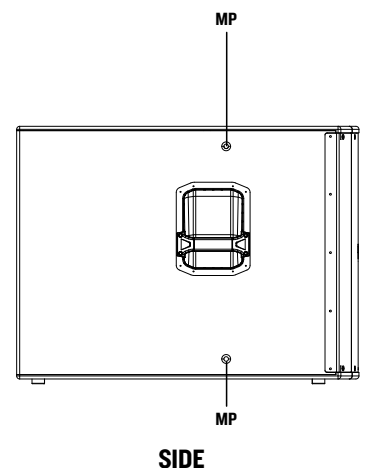
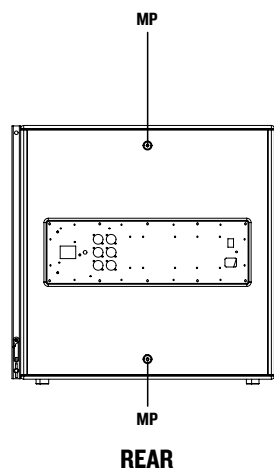
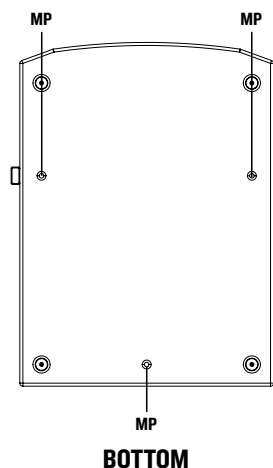
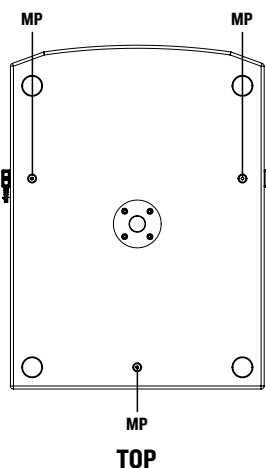
1. The rigging methods and hardware that meet static, shock, dynamic, and any other load requirements for supporting the subwoofer from structure.
2. The design factor and required WLL (Working Load Limit) for this support.

We strongly recommend the following rigging practices:

1. **Documentation:** Thoroughly document the design with detailed drawings and parts lists.
2. **Analysis:** Have a qualified professional, such as a licensed Professional Engineer, review and approve the design before its implementation.
3. **Installation:** Have a qualified professional rigger do the installation and inspection.
4. **Safety:** Use adequate safety precautions and back-up systems.

### DRM18S Fly Points

MP = Mounting Point



### Rigging Hardware and Accessories

Rigging a DRM18S will invariably require hardware not supplied by us. Various types of load-rated hardware are available from a variety of third-party sources. There are a number of such companies specializing in manufacturing hardware for designing and installing rigging systems. Each one of these tasks is a discipline in its own right. Because of the hazardous nature of rigging work and the potential liability, engage companies that specialize in these disciplines to do the work required.

We do offer certain accessory rigging items and some of them may be used with a variety of products. While these accessories are intended to facilitate installation, the wide variety of possible installation conditions and array configurations do not permit us to determine their suitability or load rating for any particular application.

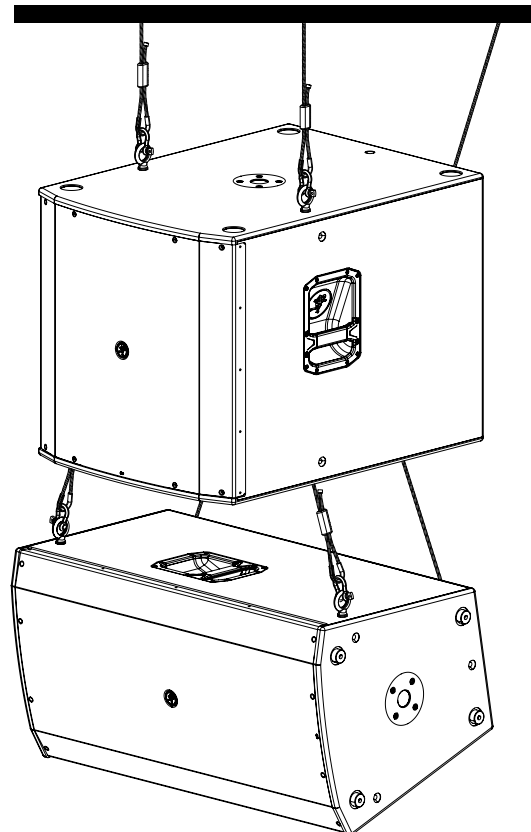
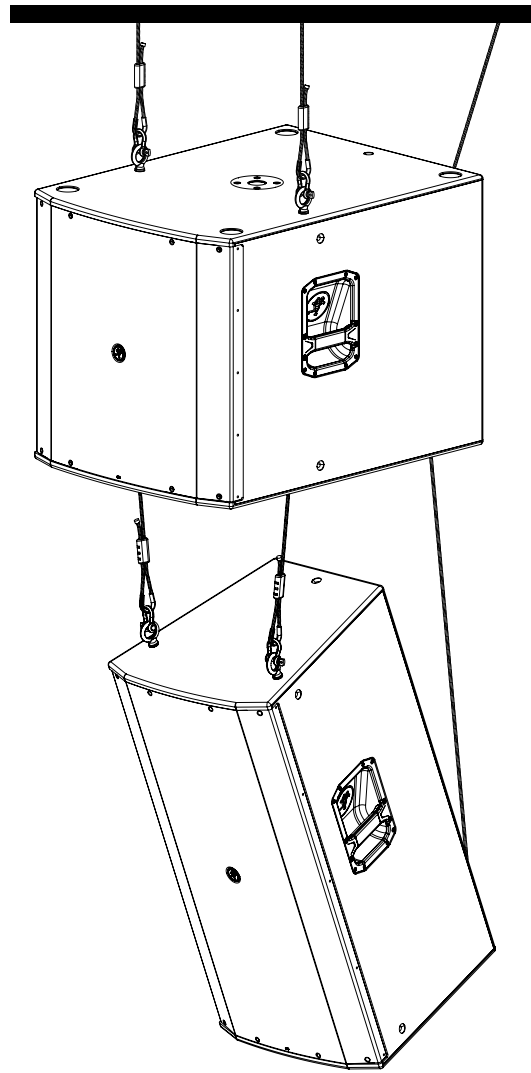
We are not in the business of providing complete rigging systems, either as designers, manufacturers, or installers. It is the responsibility of the installer to provide a properly engineered, load-certified rigging system for supporting the loudspeaker from structure.



DRM18S subwoofers may be individually flown using a PA-A2 Eyebolt Kit, part number 2051054.



At least three rigging points must be used to hang each DRM18S subwoofer.



## A Note About Cardioid Operation

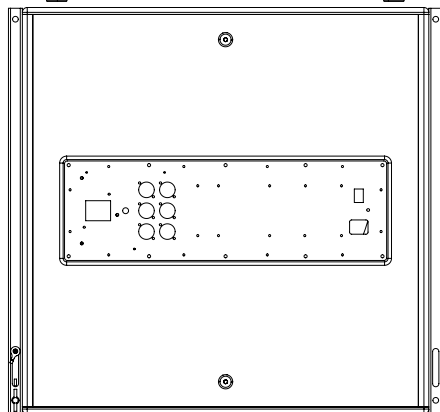
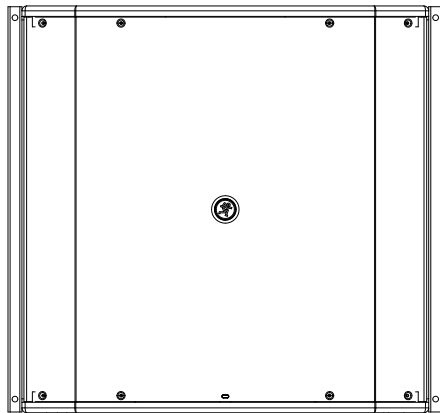
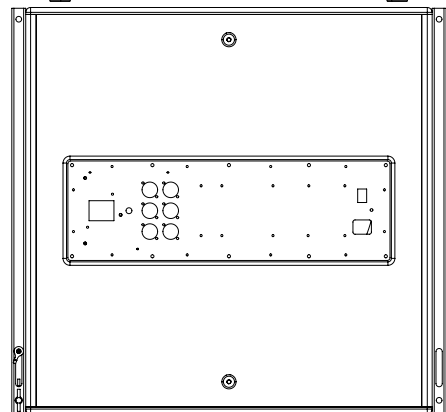
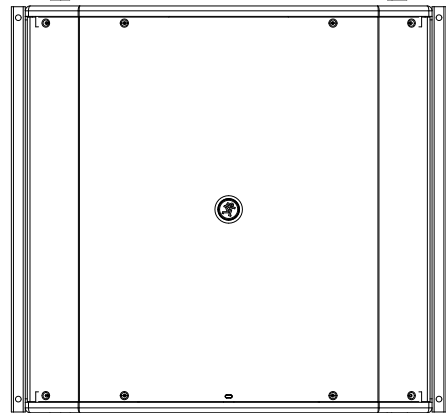
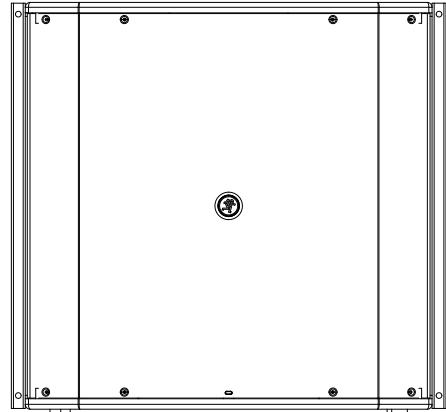
DRM18S subwoofers allow for three variants of cardioid operation:

**Double-Stack** – Two subs stacked with the bottom facing away from the audience and the top facing towards the audience.

**Triple-Stack** – Three subs stacked with the bottom facing away from the audience and the top two facing towards the audience.

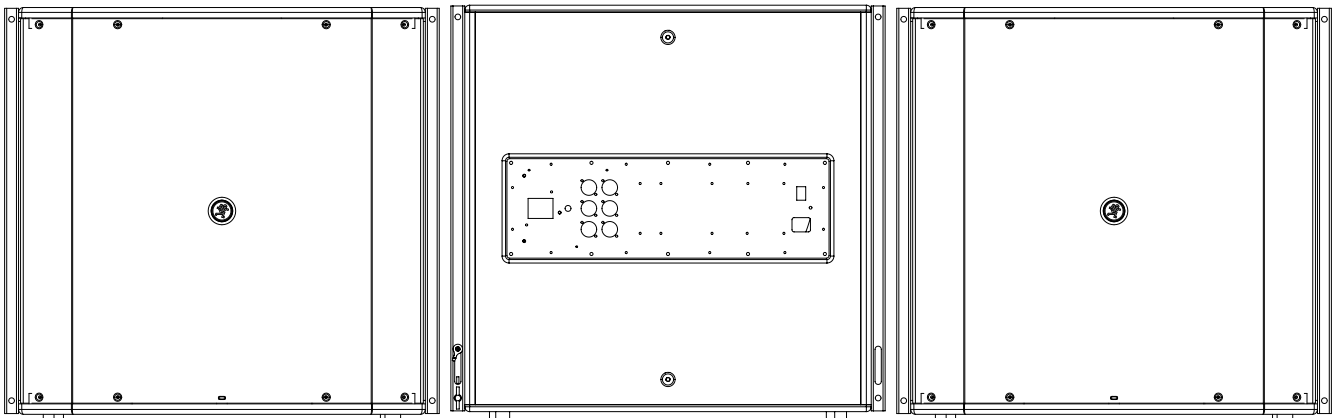
**Triple Horizontal** – Three subs oriented horizontally with the left and right subs facing the audience and the center sub facing away from the audience.

Be sure to set the cardioid aiming as outlined on page 14.



Double-Stack

Triple-Stack



Triple Horizontal

# Appendix A: Service Information

If you think your DRM18S subwoofer has a problem, please check out the following troubleshooting tips and do your best to confirm the problem. Visit the Support section of our website ([www.mackie.com/support](http://www.mackie.com/support)) where you will find lots of useful information such as FAQs and other documentation. You may find the answer to the problem without having to part with your subwoofer.

## Troubleshooting

### No power

- Our favorite question: Is it plugged in? Make sure the AC outlet is live [check with a tester or lamp].
- Our next favorite question: Is the power switch on? If not, try turning it on.
- Make sure the line cord is securely seated in the line cord socket and plugged all the way into the AC outlet.
- Is the power LED on the front panel illuminated? If not, make sure the AC outlet is live. If so, refer to “No sound” below.
- The internal AC line fuse may be blown. This is not a user serviceable part. If you suspect the AC line fuse is blown, please see the “Repair” section next.

### No sound

- Is the level knob for the input source turned all the way down? Verify that all the volume controls in the system are properly adjusted. Look at the level meter to ensure that the mixer is receiving a signal.
- Is the signal source working? Make sure the connecting cables are in good repair and securely connected at both ends. Make sure the output level control on the mixing console is turned up sufficiently to drive the inputs of the speaker.
- Make sure the mixer does not have a mute on or a processor loop engaged. If you find something like this, make sure the level is turned down before disengaging the offending switch.
- Has it shut down? Make sure there is at least six inches of free space behind each DRM18S subwoofer.

### Poor sound

- Is it loud and distorted? Make sure that you're not overdriving a stage in the signal chain. Verify that all level controls are set properly.
- Is the input connector plugged completely into the jack? Be sure all connections are secure.

### Poor bass performance

- Check the polarity of the connections between the mixer and the subwoofers. You may have your positive and negative connections reversed at one end of one cable, causing one subwoofer to be out-of-phase with the other.
- Poor bass performance may be the result of bad AC power. See the section titled ‘AC Power’ on page 17 for further details.

### Noise

- Make sure all connections to the loudspeakers are good and sound.
- Make sure none of the signal cables are routed near AC cables, power transformers, or other EMI-inducing devices.
- Is there a light dimmer or other SCR-based device on the same AC circuit as the DRM loudspeaker? Use an AC line filter or plug the loudspeaker into a different AC circuit.

### Hum

- Try disconnecting the cable connected to the input jack. If the noise disappears, it could be a “ground loop,” rather than a problem with the DRM loudspeaker. Try some of the following troubleshooting ideas:
  - Use balanced connections throughout your system for the best noise rejection.
  - Whenever possible, plug all the audio equipment's line cords into outlets which share a common ground. The distance between the outlets and the common ground should be as short as possible.

### Other Issues

- Please email or call Technical Support if you are having any other issue not listed here:
  - o [mackie.com/support-contact](http://mackie.com/support-contact)
  - o 1-800-898-3211

## Repair

For warranty service, refer to the warranty information on page 25.

Non-warranty service is available at a factory-authorized service center. To locate the nearest service center, visit [www.mackie.com/support/service-locator](http://www.mackie.com/support/service-locator). Service for DRM18S subwoofers living outside the United States may be obtained through local dealers or distributors.

If you do not have access to our website, please call our Tech Support department at 1-800-898-3211 (normal business hours, Pacific Time), to explain the problem. They will tell you where the nearest factory-authorized service center is located in your area.

# Appendix B: Technical Information

## DRM18S Subwoofer Specifications

### Acoustic Performance

|                           |                |
|---------------------------|----------------|
| Frequency Range (-10 dB): | 30 Hz – 120 Hz |
| Frequency Range (-3 dB):  | 35 Hz – 160 Hz |
| Maximum SPL Peak:         | 135 dB         |

### Transducers

|                |                                    |
|----------------|------------------------------------|
| Low Frequency: | 18 in / 457 mm woofer with ferrite |
|----------------|------------------------------------|

### Power Amplifiers

|                               |                 |
|-------------------------------|-----------------|
| System Power Amplification    |                 |
| Rated Power                   | 2000 watts peak |
| Low Frequency Power Amplifier |                 |
| Rated Power:                  | 2000 watts peak |
| Rated THD                     | < 1%            |
| Cooling                       | Convection      |
| Design:                       | Class D         |

### System Processing

|                |                 |
|----------------|-----------------|
| Subwoofer Mode | Normal / Invert |
| X-Over         | DRM Top / Var   |
| Cardioid       | Front / Rear    |
| Delay          | 0 – 100 ms      |

### Input/Output

|                               |  |
|-------------------------------|--|
| Input Type:                   | 2x Female XLR Balanced and 1/4" Balanced |
| Mic-Line Impedance:           | 8 kΩ balanced                            |
| Direct Out and High-Pass Out: | Male XLR Balanced                        |
| Mix Out Impedance:            | 600 Ω balanced                           |
| Main Control:                 | Rotating knob                            |

### Line Input Power

|                      |  |
|----------------------|--|
| Detachable line cord | ~100 – 240 VAC, 50 – 60 Hz, 110W<br>~220 – 240 VAC, 50 – 60 Hz, 110W |
| AC Connector         | 3-pin IEC 250 VAC, 10 A male   |
| Power Supply Type    | Switchmode   |

### Safety Features

|                  |   |
|------------------|---|
| Input Protection | Peak and RMS limiting, power supply and amplifier thermal protection                |
| Display LEDs     | Defeatable front power, Speaker Control   |
| Status Info      | Input and output levels, subwoofer mode, crossover, cardioid mode and delay setting |

### Construction Features

|                        |                              |
|------------------------|------------------------------|
| Basic Design:          | Rectangular                  |
| Enclosure Material:    | 18mm plywood                 |
| Enclosure Finish:      | Black Polyurea               |
| Grille Material:       | 16-18 gauge perforated steel |
| Grille Finish:         | Powder-coated black          |
| Handles:               | One on each side             |
| Display LEDs           |                              |
| Front:                 | Power ON                     |
| Rear:                  | Speaker Control              |
| Operating Temperature: | 0 – 40 °C<br>32 – 104 °F     |

### Physical Properties

|         |                   |
|---------|-------------------|
| Height: | 31.1 in / 790 mm  |
| Width:  | 23.0 in / 584 mm  |
| Depth:  | 23.3 in / 592 mm  |
| Weight: | 90.0 lb / 40.8 kg |

### Mounting Methods:

Floor mount or fly via the integrated M10 mounting points (using M10 x 1.5 x 20 mm forged shoulder eyebolts).

See page 23 for more information.

### Options

|   |                |
|---|----------------|
| DRM18S Cover  | P/N 2036809-51 |
| FKDRM18S Flyware Kit                                      | P/N 2051056    |
| FB100 Flybar Kit  | P/N 2050041    |
| CK100 Caster Kit  | P/N 2035618-01 |
| SPM400 Loudspeaker Pole Mount                             | P/N 2051055    |
| PA-A2 Forged Shoulder Eyebolt Kit (3 x M10 x 1.5 x 20 mm) | P/N 2051054    |

### Disclaimer

Since we are always striving to make our products better by incorporating new and improved materials, components, and manufacturing methods, we reserve the right to change these specifications at any time without notice.

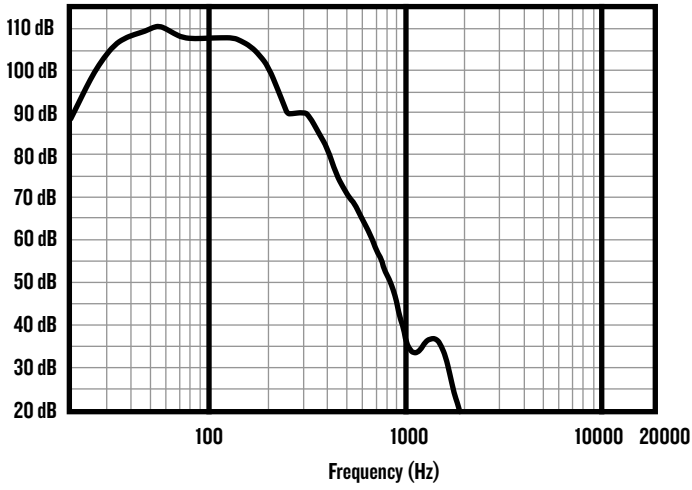
The "Running Man" figure is a registered trademark of LOUD Audio, LLC.

All other brand names mentioned are trademarks or registered trademarks of their respective holders, and are hereby acknowledged.

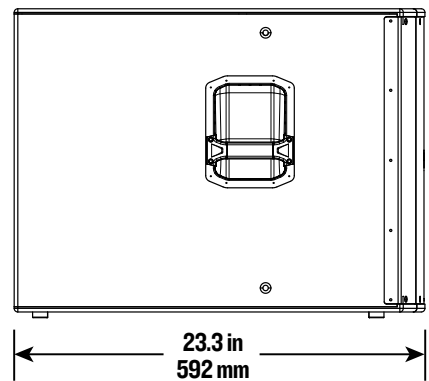
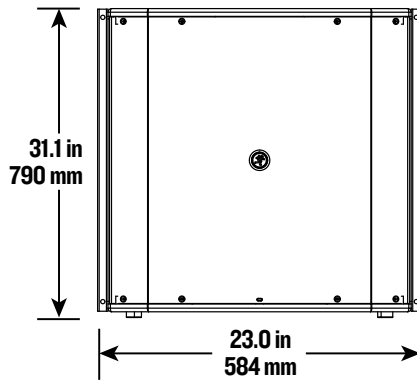
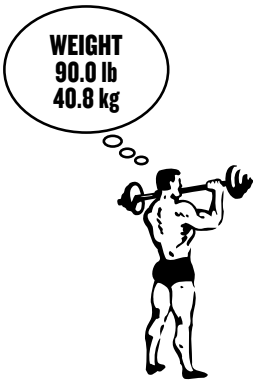
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## DRM18S Frequency Graph

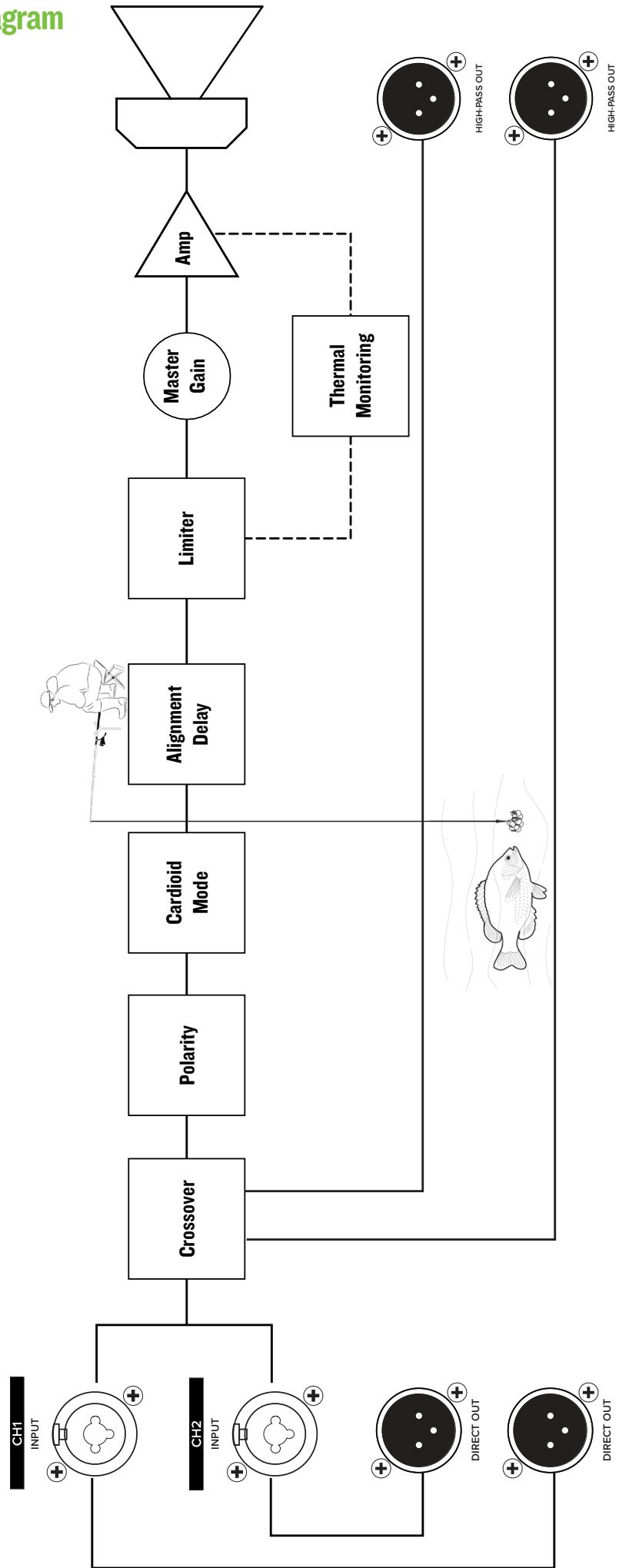


## DRM18S Subwoofer Dimensions



# DRM18S 2000W 18" Professional Powered Subwoofer

## DRM18S Subwoofer Block Diagram



### **Please keep your sales receipt in a safe place.**

This Limited Product Warranty ("Product Warranty") is provided by LOUD Audio, LLC ("LOUD") and is applicable to products purchased in the United States or Canada through a LOUD-authorized reseller or dealer. The Product Warranty will not extend to anyone other than the original purchaser of the product (hereinafter, "Customer," "you" or "your").

For products purchased outside the U.S. or Canada, please visit [www.mackie.com](http://www.mackie.com) to find contact information for your local distributor, and information on any warranty coverage provided by the distributor in your local market.

LOUD warrants to Customer that the product will be free from defects in materials and workmanship under normal use during the Warranty Period. If the product fails to conform to the warranty then LOUD or its authorized service representative will at its option, either repair or replace any such nonconforming product, provided that Customer gives notice of the noncompliance within the Warranty Period to the Company at: [www.mackie.com](http://www.mackie.com) or by calling LOUD technical support at 1.800.898.3211 (toll-free in the U.S. and Canada) during normal business hours Pacific Time, excluding weekends or LOUD holidays. Please retain the original dated sales receipt as evidence of the date of purchase. You will need it to obtain any warranty service.

For full terms and conditions, as well as the specific duration of the Warranty for this product, please visit [www.mackie.com](http://www.mackie.com).

The Product Warranty, together with your invoice or receipt, and the terms and conditions located at [www.mackie.com](http://www.mackie.com) constitutes the entire agreement, and supersedes any and all prior agreements between LOUD and Customer related to the subject matter hereof. No amendment, modification or waiver of any of the provisions of this Product Warranty will be valid unless set forth in a written instrument signed by the party to be bound thereby.

### **Need help with the DRM18S subwoofer?**

- Visit [www.mackie.com/support](http://www.mackie.com/support) to find: FAQs, manuals, addendums, and other documents.
- Email us at: [www.mackie.com/support-contact](http://www.mackie.com/support-contact)
- Telephone 1-800-898-3211 to speak with one of our splendid technical support chaps (Monday through Friday, normal business hours, Pacific Time).



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