



FLI

FREQUENCY SUBWOOFERS

INSTRUCTION & INSTALLATION MANUAL

www.fliaudio.co.uk

Model: FREQUENCY 10, 12 & 15 - F3



For best connections and performance use only FLI cabling and accessories

Thank you for purchasing this FLI subwoofer. It will provide you with a lifetimes trouble free usage providing you follow a few simple guidelines.

Introduction

This instruction manual is for your safety and must be adhered to at all times. Please read and ensure that you fully understand the installation and set up procedures as explained. If you are unclear on the installation or set up of your FLI FREQUENCY subwoofer please contact your nearest authorised FLI dealer.

WARNING

DO NOT EXPOSE THIS PRODUCT TO DAMP OR MOISTURE - doing so may result in fire, shock or damage to the product.
BEFORE WIRING, DISCONNECT THE CABLE FROM THE POSITIVE BATTERY TERMINAL - failure to do so may result in electric shock or injury.
ENSURE GOOD AND CORRECT CONNECTIONS - failure to make the correct connections may result in fire or damage to the product.
DO NOT USE ANY FUNCTIONS OF THIS EQUIPMENT THAT MAY TAKE YOUR CONCENTRATION AWAY FROM DRIVING YOUR VEHICLE - do not set up your amplifier whilst driving, doing so may result in an accident. For prolonged setting up, make sure that your vehicle is stationary and in a safe location.
KEEP THE VOLUME AT A LEVEL SO YOU CAN STILL HEAR OUTSIDE NOISE - failure to do this may result in an accident. FLI equipment is capable of producing sound levels that can permanently damage your hearing. FLI recommends caution when listening at high volume. For safe and enjoyable listening the sound should be comfortable and clear without distortion.

CAUTION

Never connect any speaker lead to the car chassis. This can cause severe damage to your speaker /car radio /amplifier.
Before drilling or cutting any holes, investigate the layout of your vehicle thoroughly.
Use caution when working near the fuel / hydraulic lines and electrical wiring.
Observe the correct polarity when wiring, improper phasing may cause a loss of bass response.
Ensure that no moving parts catch on the speaker or grill (e.g. window or door handles, or window glass inside the door)

Specification

Specifications*	FREQUENCY 10	FREQUENCY 12	FREQUENCY 15
Speaker Size	10" (274mm)	12" (323mm)	15" (392mm)
RMS Power	250w	300w	400w
Peak Power	800w	1000w	1200w
Min input RMS	125w	150w	200w
Sensitivity	86dB	89dB	90dB
Frequency Response	30 - 1500Hz	25 - 1200Hz	20 - 1000Hz
Impedance	4ohm	4ohm	4ohm
Mounting Diameter	235mm	285mm	350mm
Mounting Depth	114mm	125mm	148mm
Displacement	0.13Cu.Ft.	0.21Cu.Ft.	0.35Cu.Ft.
Recommended Amp	FL450s, FL900s FL1000m	FL450s, FL900s FL1000m	FL450s, FL900s FL1000m

Run in procedure

FLI recommends that you follow the run in procedure for the subwoofer detailed below.

When your Subwoofer is used for the first time naturally like most brand new items it is very stiff and rigid, it will take time for the moving parts of this Subwoofer to loosen up before the Subwoofer will be ready to deliver its full potential.

For the first 30 hours it is recommended that you play the Subwoofer initially at low to medium volumes, gradually increasing the volume level as time progresses.

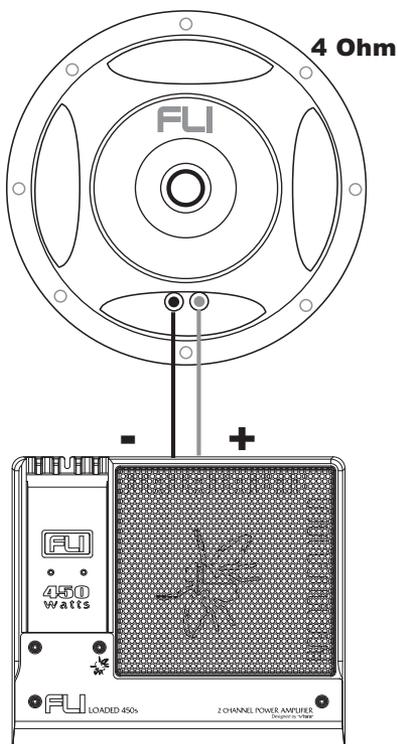
As a guide, if you listen to your Subwoofer for 1 hour every day it will take a month for the subwoofer to run in properly.

You will notice a big change in the sound of the Subwoofer over this period, as the spider and surround begin to run in, the sound will get deeper and harder, also the output of the Subwoofer will increase as the suspension loosens up.

The Subwoofer is like your cars engine, it needs a few thousand miles before you can drive it to it's full potential, driving it into the redline from the first day will mean engine damage is certain and this kind of damage will not be covered by warranty.

Failure to follow this simple procedure is the most common reason for a Subwoofer to fail after a very short period of time.

wiring configuration



Installation

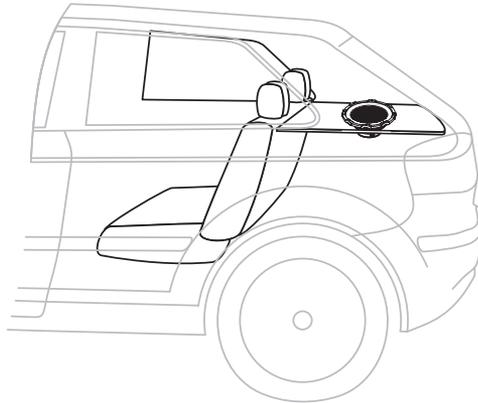
The FLI FREQUENCY subwoofer can be installed in a variety of different ways, the most suitable will depend upon your application.

Free-air installation

The FLI FREQUENCY Subwoofer can be mounted free-air, this does not mean that the woofer can work without any form of enclosure, what it does mean is that the enclosure can be very large and therefore the subwoofer can utilise the vehicles boot as an enclosure. The Subwoofer needs to be mounted to a rigid panel as excess vibration will result in poor sound quality, the panel or baffle, should also seal the output from the front of the Subwoofer from the output from the rear otherwise poor sound quality known as phase error will occur. This simply means that the output from the rear of the woofer will cancel out the output from the front resulting in a loss of bass.

As such an enclosure in free-air applications is so large it is worth noting that the power handling of the Subwoofer is reduced to half that of the same woofer in a measured enclosure, please take this into account when choosing your amplifier.

The sound quality of a free-air mounted subwoofer will not match that of the same subwoofer mounted in a measured enclosure however in applications where building a traditional enclosure is impossible free-air mounting will add increased bass response to your system.

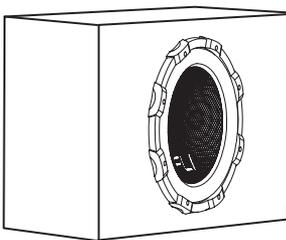


Sealed enclosure installation

The most basic and simple of all speaker enclosures is the sealed enclosure otherwise referred to as an acoustic suspension design. They are called acoustic suspension enclosures because the air inside the box acts like a brake to control the woofer.

The sealed enclosure is the easiest design to build and tune, as long as you work within the minimum and maximum recommended volumes you cannot get it wrong, the smaller enclosures produce a tighter punchy bass, the larger enclosures produce a deeper bass. Sealed enclosures offer high power handling, tight response and smooth low end roll off and Cone motion is better controlled at all frequencies because of the constant pressure on the back of the woofer.

Sealed enclosures are ideally suited to rock, jazz and live music



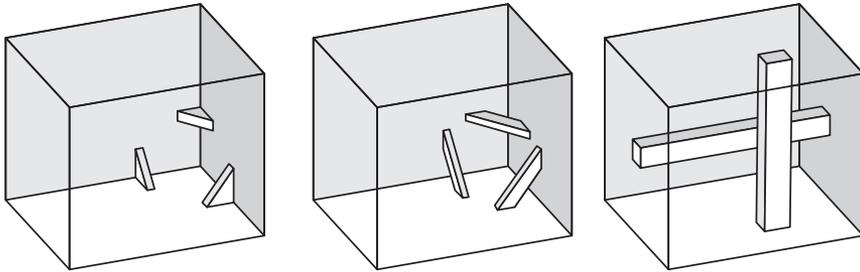
PRODUCT	TIGHT BASS	DEEP BASS
FREQUENCY 10	1.0 cu.ft	1.5 cu.ft
FREQUENCY 12	1.5 cu.ft	2.0 cu.ft
FREQUENCY 15	1.75 cu.ft	2.5 cu.ft

For twin enclosures simply double the volume. E.G. 2 x FREQUENCY 10 in deep bass enclosure will be 3.00cuft

Enclosure construction

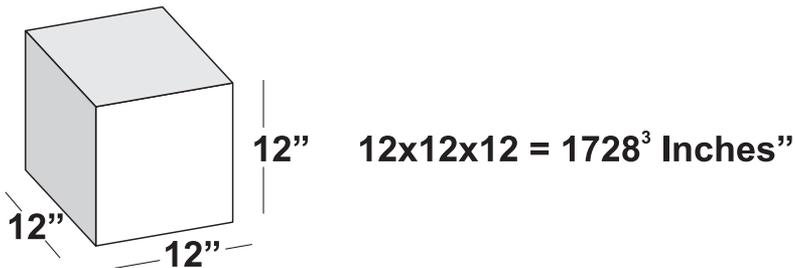
Use at least 3/4 inch MDF (medium density fibreboard) or Birch ply to construct your enclosure and at least 3/4 inch is recommended for the baffle. It is recommended that the panels are glued, screwed and braced with sections of the same material you have used to build the enclosure. The FREQUENCY woofer is capable of producing internal pressures that can literally blow apart badly made enclosures, great care needs to be taken with the construction and bracing of your enclosure it is also worth sealing the joints with a Silicone sealer once the glue has dried to make a perfect airtight seal.

NOTE- Do not screw the subwoofer into the enclosure within 24 hours of applying silicone sealer to the joints, the gasses given off as the silicone cures can perish the surround of the Subwoofer causing a non warranty failure.



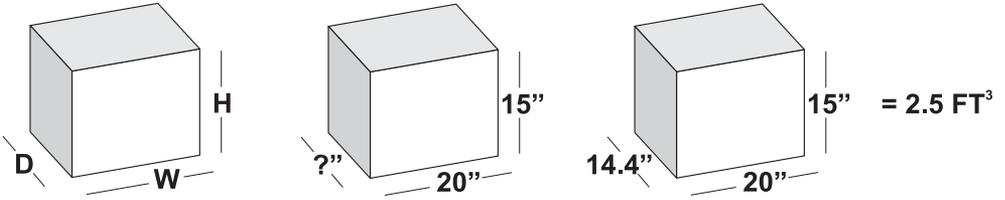
Enclosure Volume

To work out the volume required for your enclosure please refer to recommended enclosure volumes specified for your subwoofer, these are listed in cubic feet, to convert cubic feet to litres multiply the cubic feet by 28.3 If you use this formula calculating your enclosure size will be easy 1 cubic foot is expressed as $12'' \times 12'' \times 12'' = 1728$ cubic inches



If we require a volume of 2.5ft³ then we multiply this by 1728 2.5 x 1728= 4320 cubic inches

We now take 2 known enclosure dimensions that we will use E.G. height and width and divide this figure by them which will give us the depth, for example our height is 15", our width is 20"



So our depth is 14.4" for this enclosure

Note : this formula is for the INTERNAL dimensions, please add the thickness of the material used to construct the enclosure to the formula to give you the outside dimensions.

So assuming we are using 1 inch material we need to add 2 thicknesses to each internal dimension to allow for material top and bottom so the external dimensions for this enclosure would be 17 x 22 x 16.4 inches

Specifications	FF10-F3	FF12-F3	FF15-F3
RMS	250 watts	300 watts	400 watts
Peak	800 watts	1000 watts	1200 watts
Min input RMS	125 watts	150 watts	200 watts
Mounting Depth	114 mm	125 mm	148mm
Mounting Diameter	235 mm	285 mm	350 mm
T/S Parameters			
Revc	3.6 Ohm	3.6 Ohm	3.6 Ohm
Fo	39.498 Hz	37.094 Hz	31.819 Hz
Sd	34.600 sqM	53.00 sqM	85.00 M
BL	7.665 T	11.920 T	12.506 T
Qms	1.774	5.186	6.340
Qes	0.999	0.719	0.622
Qts	0.639	0.547	0.507
No	0.369%	0.481%	0.600 %
SPLo	85.684 dB	88.838 dB	89.844 dB
Vas	26.336 ltr	52.925 ltr	103.709 m M
Cms	154.923 u M/N	132.761 u M/N	127.403 u M/N
Krm	24.118 m Ohm	20.812 m Ohm	25.672 m Ohm
Erm	0.598	0.705	0.686
Mms	59.336 g	112.983 g	196.373 g
Mmd	55.635 m KG	105.967 m KG	182.123 Kg
Kxm	47.796 m H	79.109m H	80.424 m H
Exm	0.520	0.603	0.601



In order to protect your purchase and aid your warranty please fill in the following form and keep it safe for your future reference:

www.fliaudio.co.uk

Model Number:

Serial Number:

Purchased From:

Date of Purchase:

KEEP IT SAFE
Staple your receipt here:



Limited Warranty

All FLI goods are covered by a full 12 months manufacturers warranty. Valid from the date of the original receipt and proof of purchase. In order to validate this warranty, the warranty card should be returned to FLI within seven days of the original purchase date. The original receipt and packaging should also be kept for this 12 month period.

If at any stage during the warranty period you have a problem with the product then it should be returned to the point of purchase in its original packaging, complete and with no items missing.

If the store is unable to fix the product it may have to be returned to FLI this process takes around 7 working days.

A full description of FLI's warranty information can be found on our website:

www.fliaudio.co.uk/warranty

A written version can also be obtained from
FLI warranty department
PO Box 11000
B75 7WG

Copyright

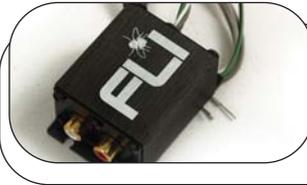
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We reserve the right to make needed changes or improvements to the product and this manual, without informing the customer about this in advance.



FLI Line Level Converter

If your current head unit has no amplifier pre outputs this FLI Line Level Converter can be connected directly to your rear speaker wires to provide a stereo set of RCA connectors which can be connected directly to an amplifier.



FLI Loaded in dash remote control

Allows 18db gain adjustment of the bass boost feature which is present on all FLI Loaded amplifiers. Comes complete with 5m cable. Control can be mounted in-dash or anywhere suitable.
dimensions: H:20mm
W:40mm D:45mm



FIREFLI 5/1 metre LED RCA interconnect

High quality 2 Channel RCA interconnect featuring FIREFLI mega brite LED RCA end plugs available in 1 metre and 5metre lengths



FLI RCA-Y interconnect

High quality RCA Y-lead interconnect
Converts stereo RCA output to 4channel output
2 female RCA plugs to 4 male RCA plugs



FLEECE

Black pull over fleece with front zip and arm pocket features white FLI embroidery logos on front and back



FLI Tshirts

Our heavy weight FLI T-shirts are a must have! Featuring small FLI logo on front and big logo on back. All sizes available



FLI Stickers

FLI stickers available in white or silver 5" 10" 15"



STUFF shop stop

Accessories can be ordered separately from the FLI website www.fliaudio.co.uk

Only available in the UK If out side uk please contact your dealer or distributor from the FLI website



FLI Power Capacitor

The FLI powercap, a 1 farad, high specification power capacitor is another great addition to our range. This is an essential item for maximum power delivery.

Stores added power for when your system really needs it



10 Gauge FLI Wiring Kit

For use with Car audio systems up to 1000 watts. Kit contents:
5 metre 10 AWG power cable
1 metre 10AWG ground cable
5 metre RCA interconnect
5 metre remote turn on cable
8 metre speaker cable
Inline ATC fuse holder, 30 amp ATC blade fuse, Fitment pack,

For use with Stereo amplifier systems



AK8 - 8 AWG amplifier wiring kit

For use with Car audio systems up to 1500 watts Kit contents:
5 metre 8 AWG power cable
1 metre 8AWG ground cable
5 metre FIREFLI LED RCA interconnect
5 metre remote turn on cable
8 metre speaker cable
AGU glass fuse holder, 60 amp AGU glass fuse, Fitment pack

For use with high power stereo amplifier systems



AK4 - 4 AWG amplifier wiring kit

For use with Car audio systems up to 2000 watts Kit contents:
5 metre 4 AWG power cable
1 metre 4AWG ground cable
5 metre FIREFLI LED RCA interconnect
5 metre remote turn on cable
8 metre speaker cable
AGU glass fuse holder, 80 amp AGU glass fuse
Fitment pack

For use with Bass amplifier systems



FLI GRILLS FG10, FG12 & FG15

For use with the FLI subwoofers the FLI Sub Grill is a visually appealing way to protect your subwoofer from accidental damage. The FLI shaped grill protects the cone and rubber surround from other items in your boot.

For use with all FLI subwoofers and enclosures

Order online or call sales on 0870 765 8423 . All items above come with free next day delivery.