

Infinity®

reference series

1030w, 1032w
1230w, 1232w

instructions

Thank you for choosing an Infinity Reference Series subwoofer. Reference Series subwoofers are designed to suit a broad range of mobile-audio applications and can be used in a wide variety of enclosure types to produce extended, powerful bass in a limited amount of vehicle space. To ensure maximum subwoofer performance, we strongly recommend that installation be left to a qualified professional. Although these instructions explain how to install a Reference Series subwoofer in a general sense, they do not show box-construction details or exact installation methods for your particular vehicle. If you do not feel you have the necessary experience, do not attempt the installation yourself, but instead ask your authorized Infinity dealer about professional installation options.

Remember to keep your sales receipt with this manual in a safe place so both are available for future reference.

WARNING: Playing loud music in an automobile can permanently damage your hearing, as well as hinder your ability to hear traffic. The maximum volume levels achievable with Infinity speakers, combined with high power amplification, may exceed safe levels for extended listening. We recommend using low volume levels when driving. Infinity accepts no liability for hearing loss, bodily injury or property damage as a result of use or misuse of this product.

Your Car and Bass Reproduction

Depending on the size of the vehicle's interior listening space, reproduced bass frequencies below 80Hz are boosted by nearly 12dB per octave as frequency decreases in the car. NOTE: This effect, known as the vehicle's transfer function, plays an important part in shaping the overall in-car response and is displayed graphically along with freespace response on the enclosed data sheet for your Reference subwoofer.

Choosing an Enclosure

Reference Series subwoofers are optimized to perform best in small sealed, vented and prefabricated bandpass enclosures. While infinite-baffle mounting of Reference Series subs is possible, power handling will be greatly compromised because there's no enclosed volume of air to prevent the speaker's cone from moving past its limit. For this reason, we do not recommend infinite-baffle mounting for Reference Series subwoofers.

You should choose the enclosure you will use based on the type of music you listen to, how much amplifier power you will use for the subwoofer and how much space inside the vehicle you can devote to a subwoofer enclosure.

Because a sealed enclosure provides the most control over the woofer's movement, a woofer mounted in a sealed enclosure will handle more power than a woofer mounted in another enclosure type. Sealed enclosures provide more accurate sonic reproduction than other enclosure types, so they are well suited to all types of music. Sealed-enclosure construction is straightforward and there are many prefabricated sealed enclosures available. Optimum sealed enclosures are always smaller than other types of enclosures optimized for a particular speaker, so they require the smallest amount of space inside the vehicle.

Vented enclosures provide better efficiency in the 40Hz–50Hz range but this efficiency comes at the expense of sound in the lowest octave (below 40Hz) and at the expense of some control and power handling. If you are using a small amplifier, a vented box will provide more bass output from less power. Vented enclosures are also well suited to a variety of music types.

Because vented enclosures require the volume of the enclosure and the size of the port to have a specific relationship with the characteristics of the woofer, the enclosure must be built exactly to the specifications provided. While there are some prefabricated vented boxes available, matching a prefabricated box to a particular woofer is difficult. If you wish to use a vented enclosure, we strongly recommend having your authorized Infinity dealer build it or verify that your design is correct if you wish to build it yourself. An optimum vented enclosure is always larger than the optimum sealed box for the same woofer and will require more space inside the vehicle.

Bandpass enclosures often provide the most output available from any amplifier and subwoofer combination at the expense of sonic accuracy. If sheer SPL (sound-pressure level) is what you desire most, choose a bandpass enclosure. Bandpass-enclosure design is very tricky and the aid of a computer and enclosure design software is necessary. If you are an experienced installer or have some woodworking experience, you may wish to build the enclosure described in the enclosure design sheet included with this woofer. Fortunately, there are many prefabricated bandpass boxes available and they are all optimized to extract the most output possible from any woofer. Bandpass enclosures can be quite large and may require a lot of space inside your vehicle.

Power Handling Limitations

The power handling capability of any woofer is related to both its ability to dissipate heat and the maximum excursion limits of its cone. Once the speaker's voice coil moves outside the magnetic gap, power can no longer be converted into motion and all the amplifier's power is converted into heat in the voice coil. This voice coil heating is the largest detriment to speaker longevity, so overexcursion should be avoided. Since speaker-cone excursion is different for each type of enclosure, power handling is different for each enclosure.

Sealed enclosures exert the most control over the motion of a subwoofer because the air inside the box acts like a spring against the motion of the woofer cone. Larger boxes allow for more excursion, thus providing more low-frequency output for the amount of power used. When placed in a sealed box much larger than the Vas of the subwoofer, it will perform as if it were in an infinite-baffle installation.

Vented and bandpass enclosures have the lowest amount of excursion for the amount of sound output. This is a result of port output reinforcing the sound output from the woofer. The mass of the air contained in the port provides an acoustic load on the woofer's cone at the tuning frequency, and this added mass decreases woofer-cone excursion. Vented boxes do not provide adequate woofer control when driven below the tuned frequency (Fb), so proper design is important. A vented bandpass box will have the lowest overall cone excursion, provided a subsonic filter is used.

- Voice coil overheating and burning due to overexcursion are often caused by overdriving an amplifier into "clipping." A severely clipped signal, or square wave, contains nearly twice the power of a clean sine wave at the same level. Bass that sounds broken up and distorted at higher volumes is usually indicative of an amplifier that is clipping and being asked to deliver power beyond its ability.

- Infinite-baffle or "free air" mounting applications allow for greater cone excursion than subwoofers mounted in an enclosure. In order to compensate, the power handling of the subwoofer will likely be half its rated power in this application.

- Study the excursion curves on the enclosed Reference Series data sheet and note the differences for different enclosure applications. The type and size of box used will produce different excursion demands on the enclosed subwoofer and, consequently, different levels of power handling. As long as the recommended enclosure parameters are used, the subwoofer will perform properly in its enclosed environment. However, any design deviation may result in less than optimum performance, and may also subject the subwoofer to overexcursion (i.e., where the voice coil leaves the gap) that can eventually damage the speaker. For additional help with this issue, please contact your authorized Infinity dealer.

SPECIFICATIONS

	1030w	1032w	1230w	1232w
Diameter:	10" (250mm)	10" (250mm)	12" (300mm)	12" (300mm)
Sensitivity @ 2.83V/1m:	88dB	91dB	90dB	93dB
Power Handling:	250W RMS, 1000W Peak	250W RMS, 1000W Peak	300W RMS, 1200W Peak	300W RMS, 1200W Peak
Frequency Response:	25Hz – 400Hz	25Hz – 400Hz	23Hz – 400Hz	23Hz – 400Hz
Impedance per Voice Coil:	4 ohms	2 or 8 ohms	4 ohms	2 or 8 ohms
Voice Coil Diameter:	2" (51mm)	Dual 2" (51mm)	2" (51mm)	Dual 2" (51mm)
Mounting Depth:	5-1/2" (140mm)	5-11/16" (145mm)	6-1/4" (159mm)	6-7/16" (164mm)
Overall Diameter:	10-3/8" (264mm)	10-3/8" (264mm)	12-3/8" (315mm)	12-3/8" (315mm)
Cut-Out Diameter:	9-1/4" (235mm)	9-1/4" (235mm)	11-1/4" (286mm)	11-1/4" (286mm)
Basket Displacement:	0.08 ft^3	0.08 ft^3	0.11 ft^3	0.11 ft^3

A valid serial number is required for warranty coverage.

Features, specifications and appearance are subject to change without notice.

Declaration of Conformity

CE

We, Harman Consumer International
2, route de Tours
72500 Chateau-du-Loir
France

declare in own responsibility, that the products described in this owneris manual are in compliance with technical standards:

EN 50081-1:1992

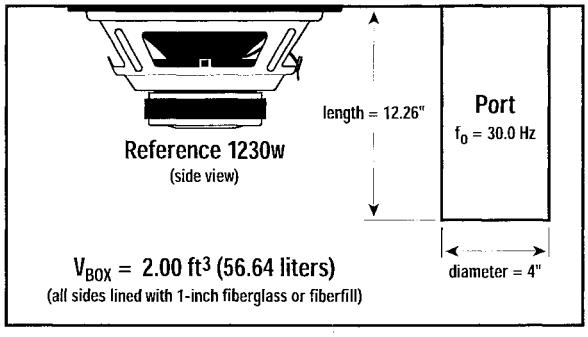
EN 50082-1:1997

Emmanual Millot
Harman Consumer International
Chateau-du-Loir, France. 3/03

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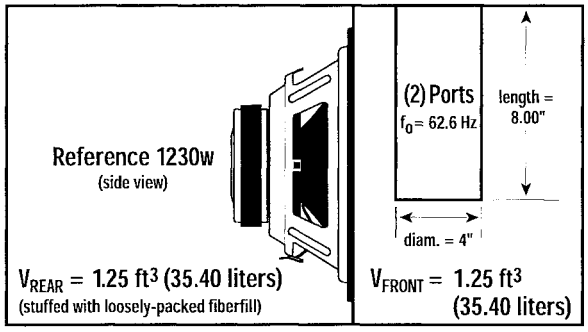
Infinity CAR AUDIO *Reference 1230w 12" Woofer – Technical Data*

VENTED BOX VOLUME (INCLUDES DRIVER/PORT DISPLACEMENTS)



V_{BOX} = 2.00 ft³ (56.64 liters)
(all sides lined with 1-inch fiberglass or fiberfill)

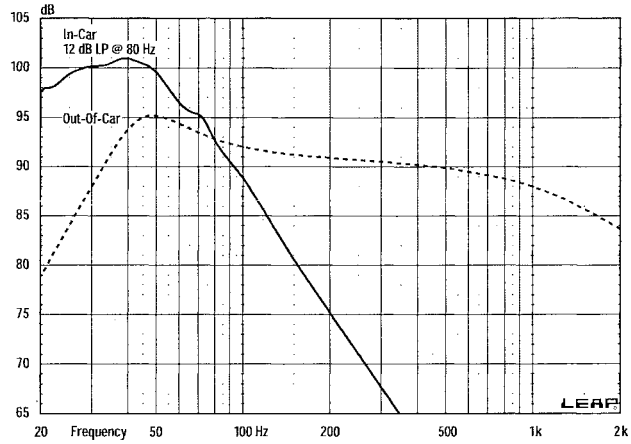
SEALED BANDPASS BOX VOLUME (INCLUDES DRIVER/PORT DISPLACEMENTS)



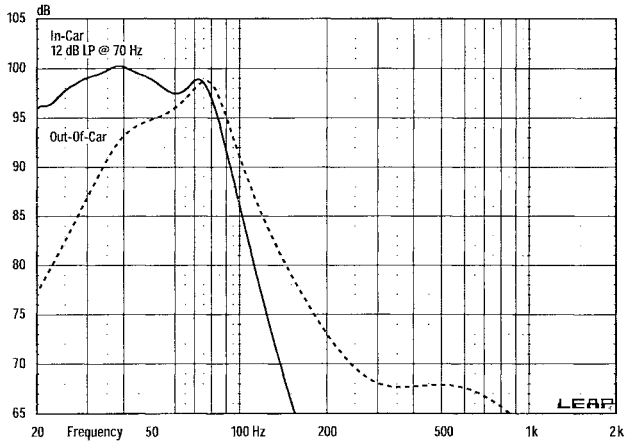
V_{REAR} = 1.25 ft³ (35.40 liters)
(stuffed with loosely-packed fiberfill)

V_{FRONT} = 1.25 ft³ (35.40 liters)

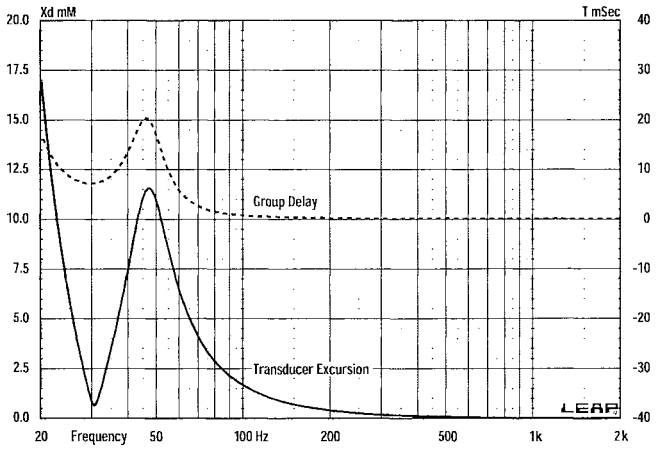
VENTED FREQUENCY RESPONSE @ 2.83 V



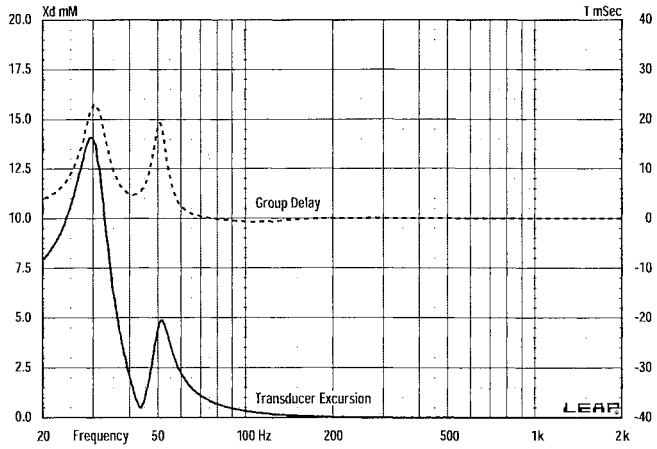
SEALED BANDPASS FREQUENCY RESPONSE @ 2.83 V



VENTED EXCURSION/GROUP DELAY @ 350 W



SEALED BANDPASS EXCURSION/GROUP DELAY @ 300 W

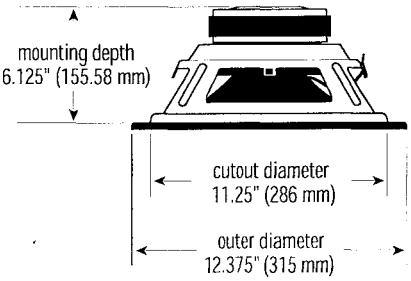


Infinity CAR AUDIO Reference 1230w 12" Woofer – Technical Data

SPECIFICATIONS

Diameter:	12" (304.8 mm)
Sensitivity (2.83 V @ 1 m):	90 dB
Power Handling:	300 W_{RMS} 1200 W_{PEAK}
Frequency Response:	23 ~ 400 Hz
Nominal Impedance:	4 ohms
Voice-Coil Diameter:	2.0" (50.0 mm)

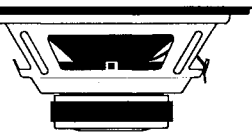
Dimensions:



THIELE-SMALL PARAMETERS

Voice Coil Dc Resistance:	R_{EVC} (ohms)	3.40
Voice Coil Inductance @ 1 kHz:	L_{EVC} (mH)	2.54
Driver Radiating Area:	S_D (in^2)	82.48
	S_D (m^2)	532.00
Motor Force Factor:	B_L (Tm)	14.63
Compliance Volume:	V_{AS} (ft^3)	2.78
	V_{AS} (liters)	78.50
Suspension Compliance:	C_{MS} (μm/N)	195.40
Moving Mass, Air Load:	M_{MS} (grams)	174.21
Moving Mass, Diaphragm:	M_{MD} (grams)	167.15
Free-Air Resonance:	F_S (Hz)	27.27
Mechanical Q:	Q_{MS}	6.14
Electrical Q:	Q_{ES}	0.47
Total Q:	Q_{TS}	0.44
Magnetic-Gap Height:	H_{AG} (in)	32.50
	H_{AG} (mm)	8.00
Voice-Coil Height:	H_{VC} (in)	1.27
	H_{VC} (mm)	32.50
Maximum Excursion:	X_{MAX} (in)	0.49
	X_{MAX} (mm)	12.25

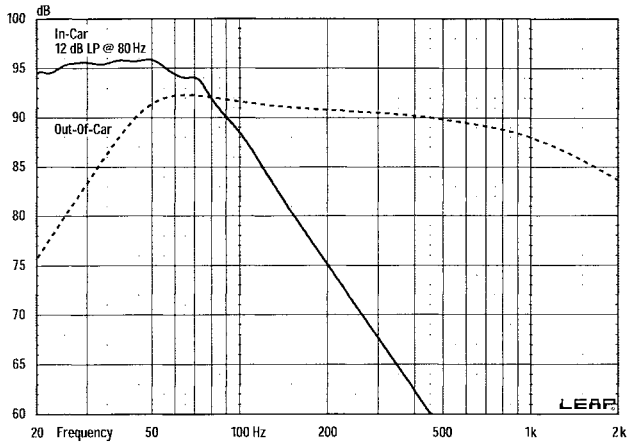
SEALED BOX VOLUME (INCLUDES DRIVER DISPLACEMENT)



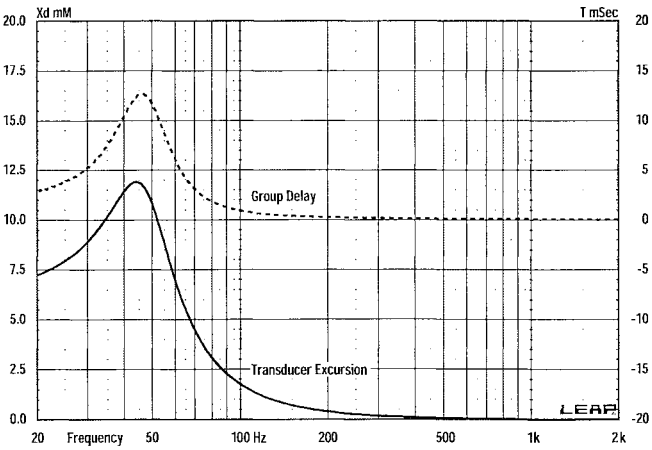
Reference 1230w
(side view)

V_{BOX} = 1.25 ft^3 (35.40 liters)
(all sides lined with 1-inch fiberglass or fiberfill)

SEALED FREQUENCY RESPONSE @ 2.83 V



SEALED EXCURSION/GROUP DELAY @ 300 W



We need to hear from you!

- Warranty Service
- Confirmation of Ownership

In the world of high fidelity,

technology is all too often viewed as the end product. At Infinity, we have a different viewpoint: technology is only the means to an end. The end result must be enjoyment of the programs and music you hear.



Register your purchase via the Internet at:
http://www.infinitysystems.com
Click on "Product Support"
Click on "Owner's Registration"

Thanks for choosing Infinity

LIMITED ONE-YEAR WARRANTY
Infinity Reference and Mobile Electronics

(Applies to USA only)

WHO IS PROTECTED BY THIS WARRANTY?
Your Infinity warranty protects the original owner and all subsequent owners for a period of one (1) year (parts and labor) for all loudspeaker and/or electronic components from any failure as a result of an original manufacturing defect so long as: (1) your Infinity product was originally purchased within the fifty United States or by military personnel from an authorized military outlet, (2) the dealer from whom the product was purchased was authorized by Infinity to sell such products at the time of original purchase and (3) the original, dated Bill of Sale is presented whenever service is required during the warranty period. This warranty is only valid for service within the United States and does not apply to products purchased elsewhere; other purchasers should contact their local Infinity distributor for warranty information.

WHAT DOES THE INFINITY WARRANTY COVER?
Except as specified below, this warranty covers all defects in original materials and workmanship. The following are not covered: damage caused by accident, misuse, abuse, neglect, product modification; damage occurring during shipment; damage caused by failure to follow instructions in the owner's guide, including failure to perform recommended periodic or routine maintenance; damage resulting from repairs by someone not authorized by Infinity; units used for other than car use; units not used for their intended purpose; claims based upon any misrepresentations by the seller; and any Infinity product on which the serial number has been altered, defaced or removed.

WHO PAYS FOR WHAT?
During the period of this warranty, subject to the above conditions, Infinity will pay all of the labor and material expenses to repair a warrantable defect.

HOW CAN WARRANTY SERVICE BE OBTAINED?
In the event that your Infinity product(s) should require service, you should first contact either the Infinity dealer from whom the product was purchased or an authorized service center. For the name of an Infinity service center, visit our Web site at www.infinitysystems.com, write us directly at Infinity (ATTN: Customer Service), 250 Crossways Park Drive, Woodbury, NY 11797, or call (800) 553-3332.

We may direct you to an authorized service center for Infinity products or ask you to send the product to us for repair. In either case, you will have to present your original Bill of Sale to establish warranty coverage. Do not send your product to us without prior authorization from our Customer Service Department. You are responsible for transporting your product to either Infinity or an authorized service center and for payment of all shipping charges; however, Infinity will pay the return shipping charges (in the event you return the product to us) if the repairs are covered by warranty. If you experience difficulty in transporting your product or are in need of packing materials, please advise us and we may be able to suggest alternative procedures and/or provide adequate packing materials.

LIMITATION OF IMPLIED WARRANTIES: All implied warranties, including fitness for a particular purpose and merchantability, are limited in duration and length to the warranty period for your product.

LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES: Infinity is not responsible for incidental or consequential damage of any kind. Our liability is limited to the repair or replacement, at our option, of a defective product.

Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights, which vary, from state to state.

NOTE: In the event that there is a difference between this warranty and the provisions in any advertisements, product brochure or packaging cartons, the terms of this warranty will prevail.

Infinity continually strives to update and improve existing products, as well as create new ones. The specifications and construction details in this and related Infinity publications are, therefore, subject to change without notice.

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PLEASE MAKE NOTE OF THE FOLLOWING INFORMATION AND RETAIN FOR YOUR RECORDS

Product Name: _____ Model Number: _____

Store Name: _____ Date of Purchase: _____