SUBWOOFER SYSTEM
IN-CEILING 70.7V/100V OR 4 OHM

FASUB70

FASUB70

Installed without Grille

Installed with Grille

SPECIFICATIONS:

Woofer Size:	8" (203mm)
Woofer Impedance:	4 ohm (Nominal)
Transformer Taps at 70.7V:	1.9, 3.8, 7.5, 15, 30 and 60W
Power Handling (transformer limited):	200 Watts Peak, 100 Watts RMS
Sensitivity (1W/1M):	89dB Average
Frequency Response:	45Hz to 120Hz (±10dB), 55Hz to 100Hz (±6dB)
Dispersion:	Omni
Low Pass Filter:	Two Pole Design 12dB/Octave @ 120Hz
Magnet Weight:	Nominal, 20 oz. (580g)
VC Diameter:	1"
VC Material:	Copper
VC Former Material:	Kapton
Cut-out Diameter:	13 ¼" (337mm)
Dimensions:	12 $^{11}/_{16}$" (323mm) H 14" (356mm) Dia.
Weight:	14½ lbs. (6.57kg)

FEATURES

- Tuned & ported, long excursion 8" subwoofer system produces amazing extended low frequency response in any ceiling speaker system
- High efficiency, passive crossover network eliminates the need for dedicated amplifier and/or active crossover
- Low crossover point greatly reduces localization (ability of listener to identify the subwoofer location)
- Front mounted tap selector switch for easy system tuning adjustments includes transformer bypass setting for 4 ohm direct coupled operation
- Easy installation in drop tile or sheetrock ceilings via C-ring/V-rail tile bridge and “dog leg” mounting system (included)
- Uniquely designed, “easy access” input panel design allows for "thru" conduit runs using flexible or rigid conduit
- Detachable, Phoenix style, locking, four-pole connector provides for easy daisy chain wiring
- Attractive stud mount grille matches aesthetics of other Atlas Sound FA Series
- UL listing pending

APPLICATIONS

In recent years, there has been a shift in market demand for commercial sound systems to deliver higher fidelity sound. Retail, restaurant and hospitality settings are finding that their customers are expecting the quality of their shopping or dining experience to be enhanced by music reproduced at nearly the same level of sound quality they have come to expect in their home theaters and car stereos. Business owners now realize that the excitement caused by a quality audio system can turn into increased customer satisfaction. The FASUB70, when used in conjunction with other Atlas Sound full-range speakers, provides great sounding background/foreground music reproduction suitable to these applications.

GENERAL DESCRIPTION

The FASUB70 consists of a highly efficient 8", 4 ohm subwoofer designed and built by Atlas Sound to work optimality in the FASUB70 enclosure system. The woofer features an extended, vented pole piece for higher excursion and better heat dissipation and a Kapton® voice coil former for increased power handling.

A highly efficient, 2-pole filtering network eliminates unwanted high frequencies from the woofer, while the 933 cubic inch, tuned and ported, deep drawn steel enclosure provides bass response down to 45Hz (±10dB). A specially designed rippled speaker dust cap helps eliminate nearly all frequency artifacts emanating from the center of the woofer cone.

A special low saturation 70.7V/100V transformer is included with 1.9, 3.8, 7.5, 15, 30 and 60 watt primary taps (@70.7V) to match and balance the subwoofer with full range speakers without the need for separate amplification. A convenient front mounted selector switch allows tap selection without the need to remove the speaker from the ceiling.This tap selector switch also includes a transformer bypass setting for 4 ohm direct coupled applications.

Mounting is simplified with Strategy style “dog leg” tabs that allow easy installation into drop tile or drywall ceilings with the provided tile bridge assembly. The tile bridge consists of (2) triangular formed mounting rails and a C-ring assembly. The C-ring can be attached to the rails with the screws provided to extend support to the t-bar grid in suspended ceiling applications. Multiple hole locations are provided to allow the C-ring to be positioned to the outer edge the tile if necessary.

For existing dry-wall applications, the tile bridge C-ring and support rails can be inserted into the hole cut for the FASUB70. For easy positioning, the V shaped support rails match the shape of the C-ring tabs for easy maneuvering and location when working "blindly" above the deck.

For new construction drywall ceiling applications, the optional FA-TRSUB trim ring is available. This unit provides a marked location for drywall installers to cut around, essentially reserving the desired location in the ceiling until final installation of FASUB70. Mounting holes are provided to accommodate 16" or 24" OC stud/joist mounting.

A support ring is also provided on the top of the FASUB70 enclosure to facilitate an auxiliary support cable. NOTE: IT IS MANDATORY THAT THIS SECONDARY SUPPORT BE UTILIZED IN DROP CEILINGS FOR SAFETY AND SEISMIC CONSIDERATIONS.

Specifications subject to change without notice

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SYSTEM DESIGN CONSIDERATIONS

How many subwoofers to use, where to place them and at what wattage to tap them will be different in most every situation. Variables include:

Size of the Room
Speaker Mounting (Ceiling) Height
Ambient Noise Level
Type of Music
Available Speaker Locations

Generally speaking, separate electronic crossovers and amplification are not necessary for the FASUB70. However, in certain high SPL situations the increased efficiency gained by using an active crossover and dedicated amplifier is beneficial. Many amplifier manufacturers offer plug-in cards to provide this function on their products. A very cost effective in-line electronic crossover is also available from RDL Labs (Model ST-CX1W) for use with dedicated amplifiers.

For contemporary music reproduction, the minimum subwoofer level should be set to match the volume of the full range speakers however, for some high energy music applications the maximum level could be as much as 10dB louder than the full range speakers.

Like any speaker, use of the boundary effect will increase the output of the FASUB70. Placing the loudspeaker within 3' of a wall will increase the output by 3dB. Placement within 3' of a corner will increase the level another 3dB (6dB total).

Subwoofers and the Inverse Square Law

Even though low frequencies below 200Hz are relatively omni-directional, listeners can still “localize” the subwoofer from the volume produced. To avoid “hot spots” it may be necessary to use two or more subwoofers tapped at a lower setting spread through out the room instead of (1) subwoofer tapped at maximum wattage.

Ratio of Subwoofers to Full Range Speakers

Due to the many potential variables it is difficult to give accurate suggestions on system design. It is important for the system designer to look at the required SPL at ear level, ambient noise in the room, speaker/transformer efficiency and transformer insertion loss to determine the number of speakers and amplifier power required. In 70.7V/100V systems, care should be taken so the total speaker power taps do not exceed the amplifier’s 70.7V output capability. The following “rule of thumb” information and examples are offered to provide a starting point for system design.

For “good” low frequency augmentation in a full range system (all full range speakers and FASUB70’s on the same amplifier) (1) FASUB70 should be used for every (4) full range speakers.

For “excellent” low frequency augmentation in a full range system (all full range speakers and FASUB70’s on the same amplifier) (1) FASUB70 should be used for every (2) full range speakers.

Amplifier Limitations

Even with the extreme efficiency of the FASUB70 it will not serve as a “band aid” to an underpowered system. Be sure to allow sufficient headroom by using basic system design parameters in choosing an amplifier.

Example: Small Sports Bar

SQ FT:	1,500
Ceiling height:	9'
Peak ambient noise level:	75dB
Program:	Digital Music

Full Range Speakers

(8) Atlas Sound FAP134T87-720 tapped at 4 watts ea (32 watts total) will provide 90dB on axis at 3.5' ear height (15dB above ambient). 13.5' spacing between speakers provides minimum overlap coverage at 4kHz.

Subwoofers

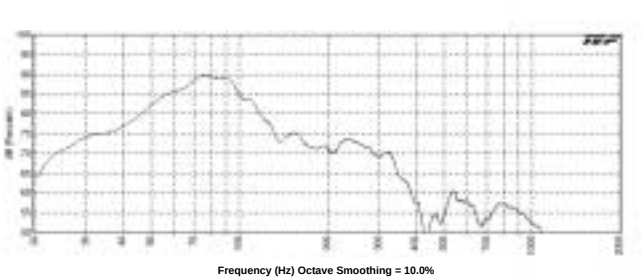
Two Atlas Sound FASUB70 subwoofers tapped at 30 watts each (60 watts total) will fill out the low frequencies at 8dB above the level of the full range speakers. If boundary loaded into one corner of the room the level will be increased another 6dB (14dB above the full range speakers).

Total Wattage Taps: 92 W x 1.3 Multiplier for headroom = 119.6 W
Amplifier Power Suggested: 120 W

Note On Amplifier Low Frequency Capability

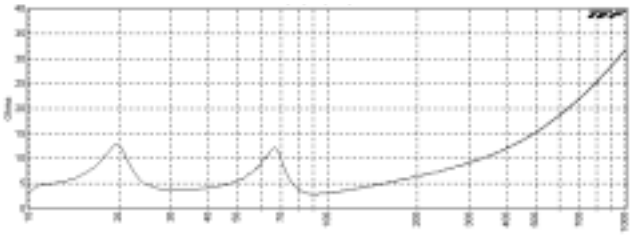
Many 70V/100V power amplifiers on the market today are from the era when business music systems extending only down to 100Hz were widely accepted. These less expensive amplifiers are not capable of driving today’s high fidelity systems that require sound below 100Hz. When specifying the Atlas Sound FASUB70, which operates well below 100Hz, it is VERY IMPORTANT to use a power amplifier capable of full output down to and below the lowest frequency going INTO the amp, which is often around 50Hz. An amplifier with low-frequency capability is absolutely crucial whenever the system includes a subwoofer and is very important for today’s high fidelity business music systems.

FASUB70 Frequency Response
Corrected to Full Space 1W/1M



Frequency (Hz) Octave Smoothing = 10.0%

FASUB70 IMPEDANCE



Frequency (Hz)

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ARCHITECT AND ENGINEER SPECIFICATIONS

The loudspeaker system shall be Atlas Sound FASUB70. System shall include a high performance 8" subwoofer loudspeaker, ported bass reflex enclosure and stud mount grille for conventional ceiling installation.

Frequency response for the system shall be 45Hz to 120Hz (±10dB) and the sensitivity shall be 89dB (SPL at 1W/1M).

Loudspeaker shall be comprised of an 8" low frequency cone type driver. Magnet shall be a minimum of 20 oz. (580g) and the voice coil diameter shall be 1". Transformer shall be 70.7 volts with 1.9, 3.8, 7.5, 15, 30 and 60 watt primary taps. A front mount tap selector switch shall be included. This switch shall have a transformer bypass setting for 4 ohm direct coupled operation.

Enclosure shall be a deep drawn, 933 cubic inch, steel enclosure design acoustically treated with fiberglass lining. To facilitate connection in conduit systems, enclosure shall be equipped with an access panel covering a recessed terminal cup. This cover shall provide a combination ¾" (19mm inside diameter) / 1" (25mm inside diameter) knock-out on the side access and a top access compression fitting/strain relief to facilitate flexible conduit up to 22mm outside diameter or 1" (25mm inside diameter) conduit when the compression fitting is removed.

External wiring shall be accomplished via a removable lockable wiring connector with screw-down terminals to provide both secure wire termination and prewiring capability before loudspeaker installation.

The 4 pole locking connector shall facilitate in/out connections and shall be located in the recessed area behind the conduit access panel.

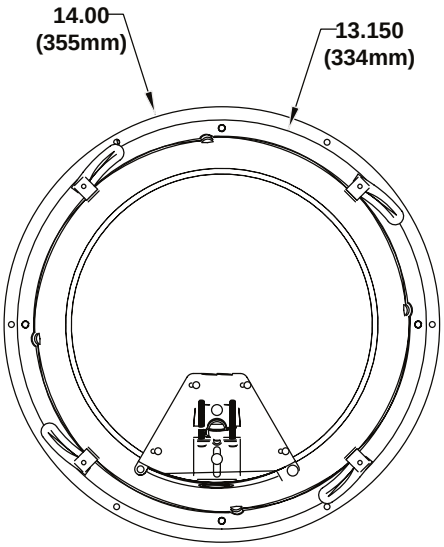
Seismic support eye shall be provided on top of enclosure for additional suspension point when used in drop tile ceilings. Construction of enclosure shall be a minimum of 18 gauge deep drawn galvanized metal.

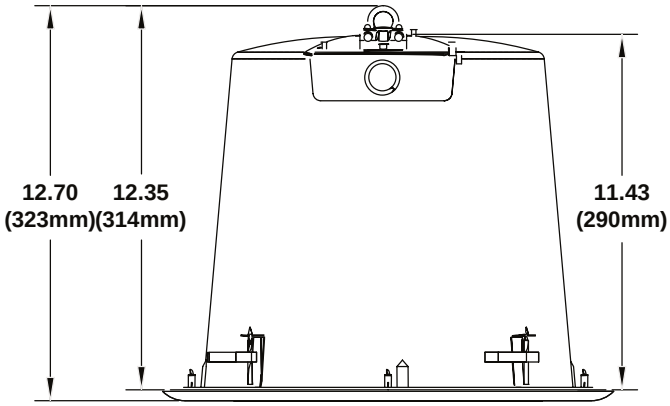
The system shall include a support backing plate to reinforce the ceiling material and tile support rails for use on either 2' x 4' (609mm x 1219mm) or 2' x 2' (609 x 609mm) suspended ceiling tiles. This assembly can all be installed from beneath the ceiling tile.

Overall front face diameter shall not exceed 14" (355mm); overall depth from the bottom of the ceiling shall not exceed 12⅜" (314mm). Grilles shall be a stud-mount installation, manufactured from 22 gauge CRS (Ring), 24 gauge (perforated mesh) and finished in white epoxy. Round grille shall be 14½" (368mm) Diameter.

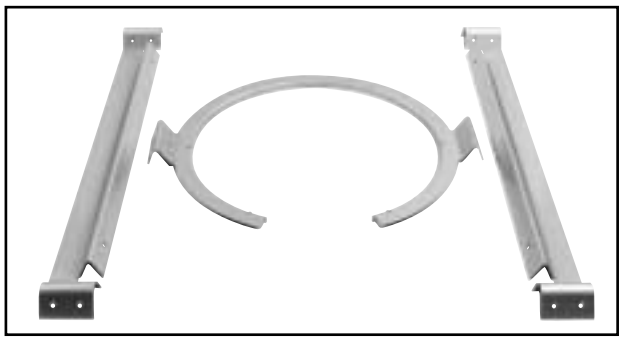
The loudspeaker shall weigh no more than 14.5 lbs (6.57kg).

The loudspeaker shall be the Atlas Sound FASUB70.





Easy Access Input Panel



C-ring & V-rails

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