

Fussion Series

■ Mackie's FUSSION 3000 is a high-output, 3-way, medium-throw, active speaker system. It features high-precision transducers combined with application-specific amplifier technology that allows this integrated system to generate high output levels with very low distortion characteristics.

■ FUSSION 3000 transducers include a special, low inductance, double voice-coil 8-inch, horn-loaded (80° x 70°) midrange transducer designed to deliver the lowest possible distortion even at full power. It operates between 500Hz and 2,500Hz, eliminating the placement of a crossover point in the middle of critical voice frequencies. The result is super-smooth phase and power response that delivers extraordinary intelligibility at high output levels.

■ A 3-inch titanium diaphragm compression driver, mounted to an 80° x 70° horn with a 1.4-inch exit throat, reproduces frequencies above 2,500Hz. Mackie Designs has implemented a unique "Vacuum Tube" philosophy for amplifiers designed for mid and high-frequency reproduction. The FUSSION 3000 features two Trans-Fet amplifiers, one for the midrange driver and a modified version for the high-frequency compression driver. Our Trans-Fet technology combines a very simple Class AB design topology with special transformers fitted on the amplifier outputs, that assists in eliminating intermodulation distortion by-products. This type of design emulates the celebrated warmth and transparency of vacuum tube amps. The result is clear, and accurate reproduction.

■ The FUSSION 3000 delivers deep, quick bass through the use of four 12-inch high output woofers. Each 12-inch woofer handles 350 watts RMS long term. Placing four devices within the cabinet allows the FUSSION 3000 to produce very deep, precise reproduction of low frequencies. Using four 12-inch woofers allows low frequency reproduction to be extremely "quick" compared to other designs. The low frequency amplifier module is an excellent example of the efficiency of active designs. This amplifier uses a high-efficiency, high-current topology to produce 1500 watts of power from a module the size of a single sheet of paper.

■ Frequency response of the FUSSION 3000 is linear between 55Hz and 18KHz. The system processor provides complete system management of all electronic and acoustic functions including electronic active crossover, electronic phase alignment, electronic time correction, electronic equalization and complete amplifier and component protection. Because it is designed to

(continued on last page)

3-Way Active Speaker System



Features

- Active, high-output, wide dispersion 3-way system
- 80° x 70° coverage pattern
- High output, 133dB in High Pass Mode Operation
- Four 12" high-precision transducers
- Low distortion, horn-loaded 8" mid-range transducer
- 3" titanium diaphragm compression driver
- 18mm birch plywood construction
- 1500W high-efficiency, high-current amplifier for woofers
- 300W Trans-Fet amplifier for mid-range
- 150W Trans-Fet amplifier for compression driver
- On-board acoustic management control system
- Integrated ATM hanging and flying hardware

Applications

- Main PA
- Fills
- Night Clubs
- Corporate Events

FUSSION 3000 3-Way Active Speaker System

Specifications

System Acoustic

| | |
|-----------------------------------|---|
| Frequency Range (-10dB): | 45Hz-20kHz |
| Frequency Response (-3dB): | 55Hz-18kHz |
| Horizontal Coverage Angle (-6dB): | 80° averaged 2kHz to 10kHz |
| Vertical Coverage Angle (-6dB): | 70° averaged 2kHz to 10kHz |
| Directivity Factor; DI(Q): | 10.19 (10.46) averaged 2kHz to 10kHz |
| Rated Maximum SPL (long term): | 130dB @ 1m |
| Rated Maximum SPL (peak): | 133dB @ 1m |
| Rated Maximum SPL-High Pass On: | 85Hz-18kHz: 132dB (long term) |
| Rated Maximum SPL-High Pass On: | 85Hz-18kHz: 135dB (peak) |
| Crossover Points: | 500Hz, 2,500Hz |
| Dynamic Range: | >110dB |
| Phase Response: | ±35° from 500Hz to 10kHz |

Transducers

| | |
|--|--|
| Low Frequency (4 each wired series-parallel) | |
| Cone Diameter: | 12" (300mm) |
| Voice Coil Diameter: | 3" (75mm) |
| Power Handling: | 350 watts rms (long term) ¹ |
| Mid Frequency | |
| Cone Diameter: | 8" (200mm) |
| Voice Coil Diameter: | 2" (50mm) |
| Power Handling: | 150 watts rms (long term) ¹ |
| High Frequency | |
| Diaphragm Diameter: | 3" (75mm) |
| Throat Exit Diameter: | 1.4" (35.6mm) |
| Diaphragm Material: | Titanium |
| Power Handling: | 75 watts rms (long term) ¹ |

Amplifiers

| | |
|--|--|
| Low Frequency: | |
| Rated Output per AES standard @ low frequency driver impedance: | 1000 watts Continuous Average Power 1500 watts peak |
| Type: | Class G High Efficiency, High Current |
| Cooling: | Convection Extrusion |
| Mid Frequency: | |
| Rated Output per AES standard @ mid frequency driver impedance: | 200 watts Continuous Average Power 300 watts peak |
| Type: | Mosfet Based Class AB |
| Cooling: | Convection Extrusion |
| High Frequency: | |
| Rated Output per AES standard @ high frequency driver impedance: | 100 watts Continuous Average Power 150 watts peak |
| Type: | Mosfet Based Class AB |
| Cooling: | Convection Extrusion |

Audio Input / Output / Controls

| | |
|--------------------------------|---|
| Main Input, Loop Out: | 50kΩ impedance, balanced |
| Sub-Out Signal: | 85Hz low pass output with protection and active monitoring for FUSSION 1800S/1800SA active subwoofer system |
| Fill Out Signal: | 85Hz high-pass signal |
| Fill Out Signal Level Control: | 0 dB to -30 dB |
| Fill Out Phase Control: | 0°-180° |
| High-Pass Switch: | Allows system to operate from 85Hz up only |

Line Input Power

| | |
|-------------------------------|----------------------------------|
| US: | 120VAC, 60Hz |
| Recommended Amperage Service: | 20A |
| AC Connector: | 3 pin Twistlock 250VAC, 20A male |
| Europe: | 230VAC, 50Hz |
| Recommended Amperage Service: | 16A |
| AC Connector: | 3 pin IEC 250VAC, 16A male |
| In-rush Current Protection: | Yes, transistor based |

Control System Functions

| |
|----------------------|
| Electronic Crossover |
| Phase Alignment |
| Time Correction |
| Equalization |

Safety Features

| | |
|---------------|---|
| RMS Limiting: | Monitoring and limiting of continuous RMS output of amplifiers |
| Thermal: | Monitoring of thermal condition of power supply and amplifiers. High temperature condition engages input stage shut down and auto reset function. |

Physical

| | |
|------------------|---|
| Enclosure: | Trapezoidal, 15° side angles, 18mm multi-layered birch |
| Hanging Inserts: | 4 points on top |
| Rigging Inserts: | 2 points, 1 each side ATM MEGS 1 pull back clip, bottom |
| Handles: | 4 ea. aluminum/rubber grips |
| Color: | Black, splatter paint |
| Grille: | Custom perforated oval steel grille with anti-corrosive treatment |

Dimensions:

| | |
|--------------|------------------|
| Height: | 41 in (104.1cm) |
| Front Width: | 25 in (63.5cm) |
| Rear Width: | 13.9 in (35.3cm) |
| Depth: | 23 in (58.4cm) |
| Net Weight: | 246 lbs. (112kg) |

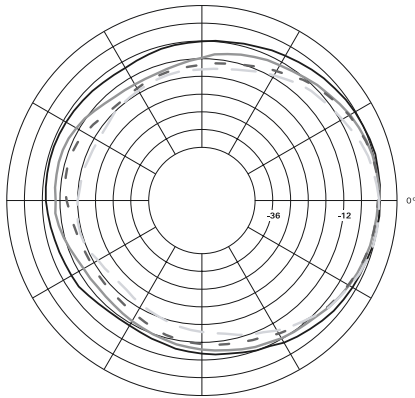
Options

| | |
|--------------------------|------------------------|
| Active Subwoofer System: | Fussion 1800SA / 1800S |
| Flyware: | ATM Megs Compatible |

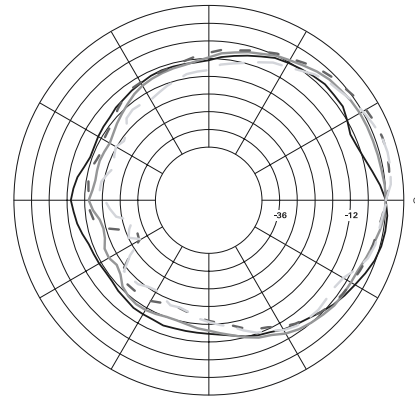
Footnote 1: Power handling for transducers is based on AES long term power testing standard conducted for 100 hours full power, free air.

FUSSION 3000 3-Way Active Speaker System

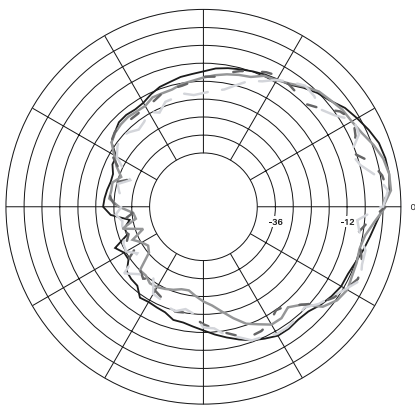
FUSSION 3000 Vertical Polars



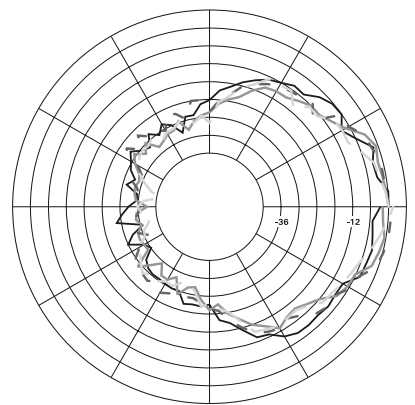
- 200Hz
- 250Hz
- ... 315Hz
- - 400Hz



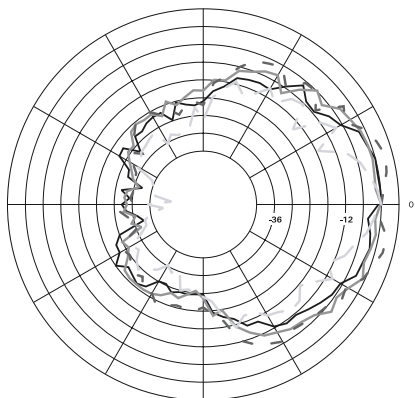
- 500Hz
- 630Hz
- ... 800Hz
- - 1kHz



- 1.25kHz
- 1.6kHz
- ... 2kHz
- - 2.5kHz

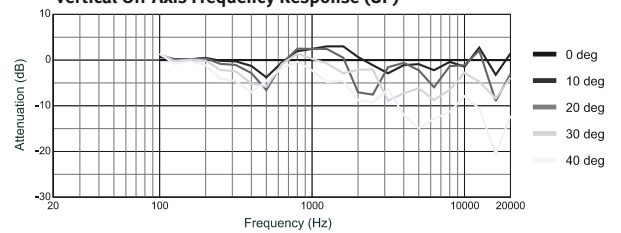


- 3.15kHz
- 4kHz
- ... 5kHz
- - 6.3kHz

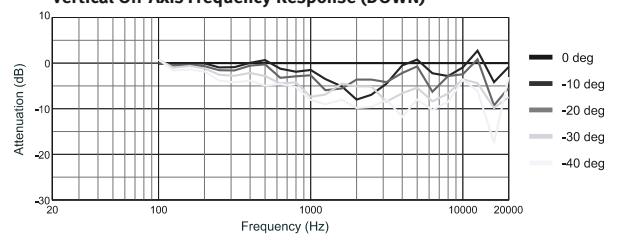


- 8kHz
- 10kHz
- ... 12.5kHz
- - 16kHz

Vertical Off-Axis Frequency Response (UP)

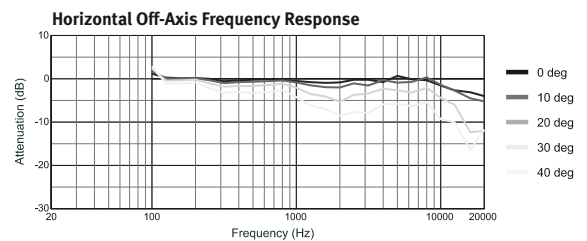
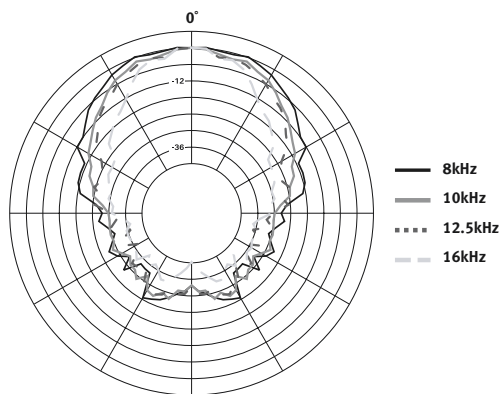
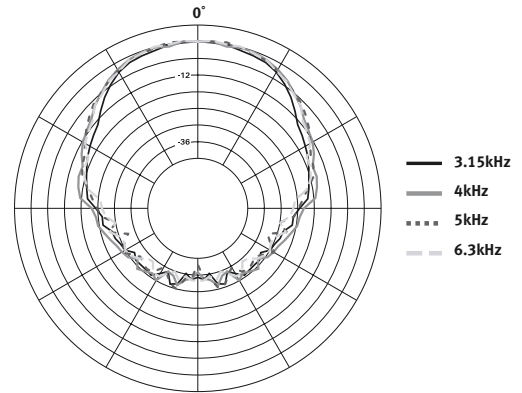
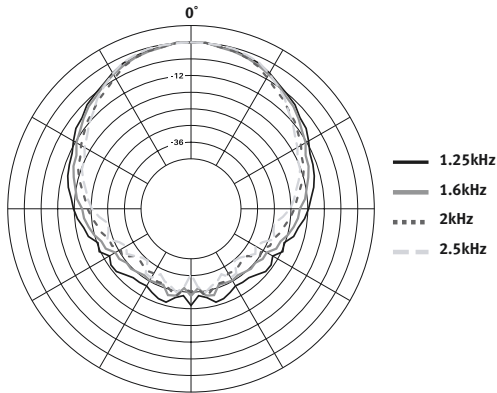
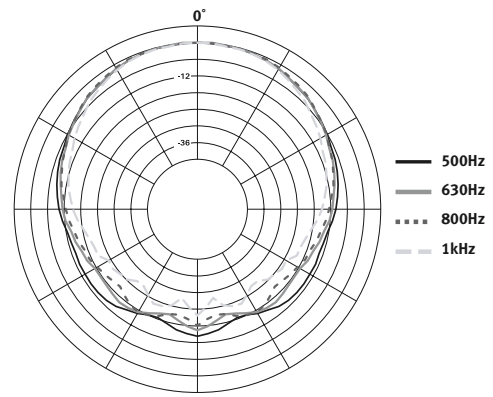
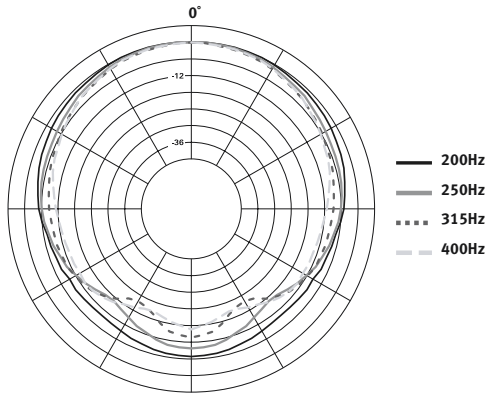


Vertical Off-Axis Frequency Response (DOWN)

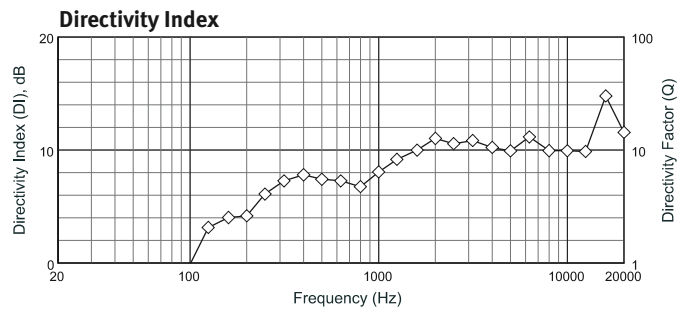
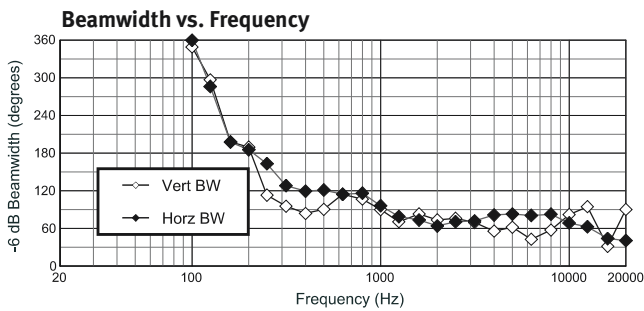
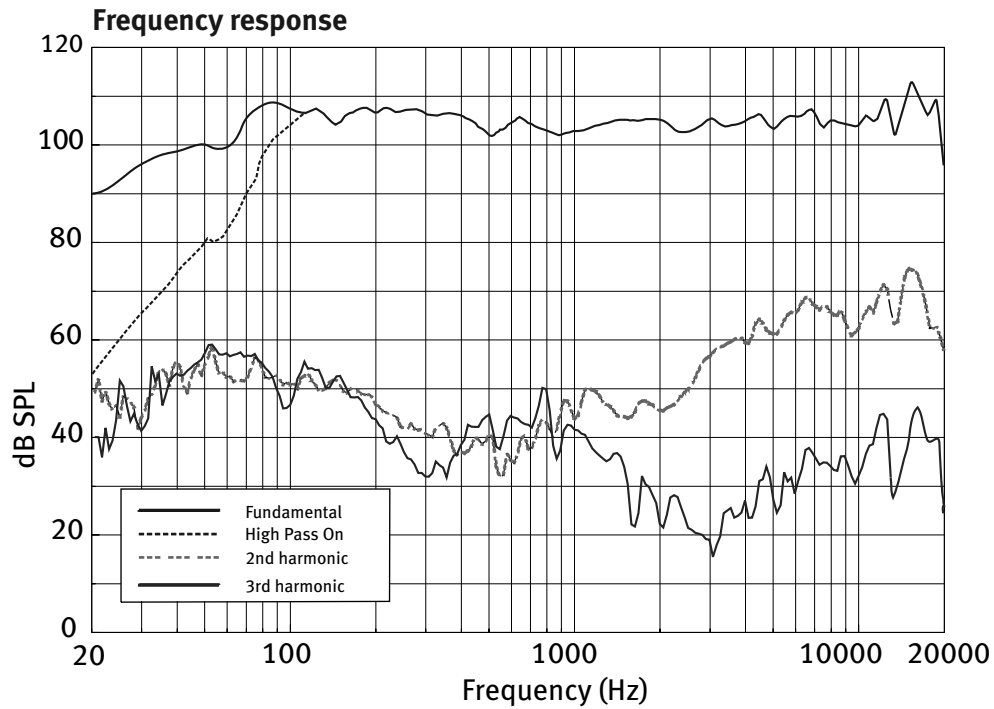


FUSSION 3000 3-Way Active Speaker System

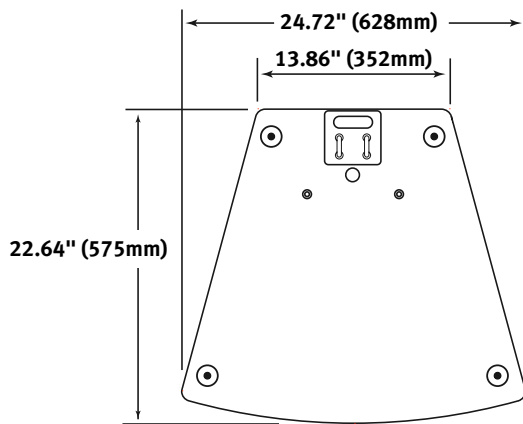
FUSSION 3000 Horizontal Polars



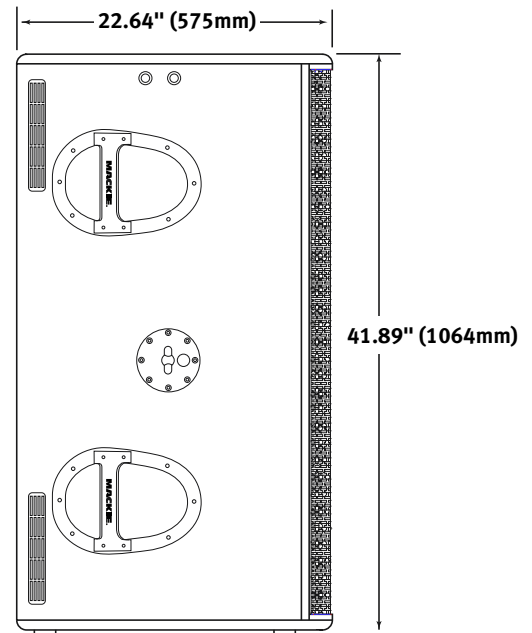
FUSSION 3000 3-Way Active Speaker System



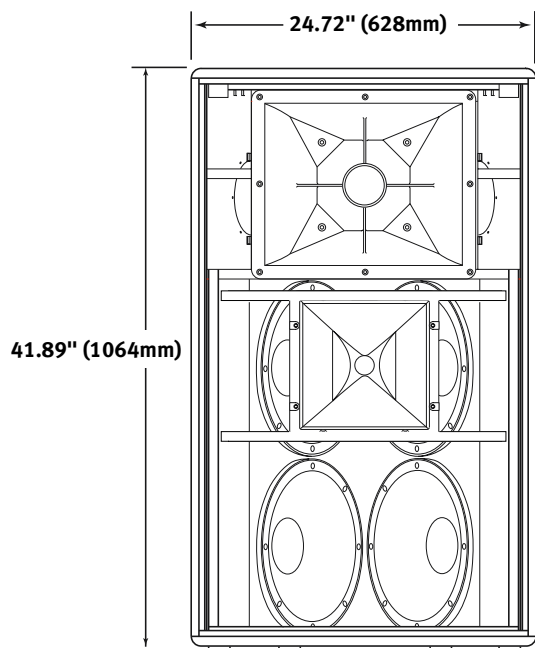
FUSSION 3000 3-Way Active Speaker System



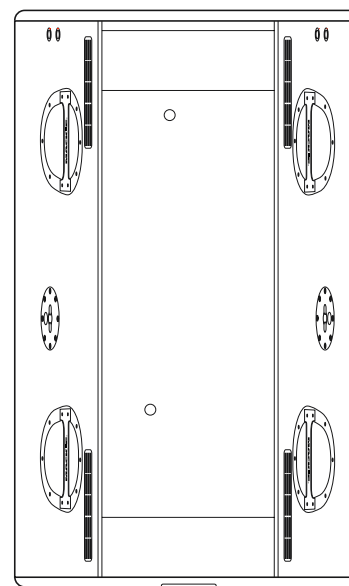
BOTTOM



SIDE



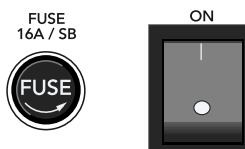
FRONT



REAR

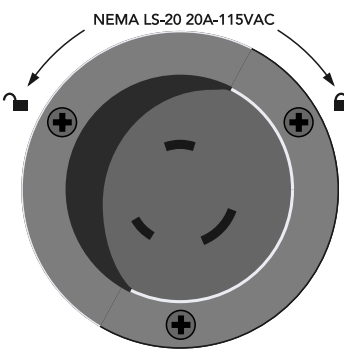
FUSSION 3000 3-Way Active Speaker System

Input/Output Control Panel



FUSE 16A / SB

ON



NEMA LS-20 20A-115VAC

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

WARNING: THIS SURFACE MAY REACH HIGH TEMPERATURE DURING STANDARD USE. TO ENSURE PROPER OPERATION ALLOW A MINIMUM OF 8 INCHES OF CLEARANCE FROM THE SURFACE AND ADEQUATE VENTILATION. TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE THIS PANEL OR ANY ATTACHED COMPONENT, NO OPERATOR SERVICEABLE PARTS INSIDE. REFER SERVING TO QUALIFIED PERSONNEL. TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION: REPLACE WITH THE SAME TYPE FUSE AND RATING. DISCONNECT SUPPLY CORD BEFORE CHANGING FUSE.

ATTENTION: UTILISE UN FUSIBLE DE REMPLACEMENT DE MÊME TYPE. DÉBRANCHER AVANT DE REMPLACER LE FUSIBLE.

AVIS: RISQUE DE CHOC ÉLECTRIQUE — NE PAS OUVRIR.

UTILISEZ UN FUSIBLE DE REMPLACEMENT DE MÊME TYPE.

SERIAL NUMBER MANUFACTURING DATE

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MACKIE.
FUSSION 3000
FS FUSION ACTIVE™
LOUDSPEAKER SERIES

PARALLEL

LOOP OUT MAIN INPUT

HIGH PASS 85Hz - 20kHz


FULL RANGE 55Hz - 20kHz

POWER (GREEN) PIN 1- GND / PIN 2- POS (+) / PROTECT (RED) PIN 3- NEG (-)

FILL OUT 85Hz - 20kHz OUTPUT LEVEL SUB-OUT 20Hz - 85Hz

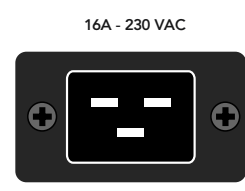
PHASE 0° 180°

Euro/230V Control Panel with IEC AC Connector



FUSE 10A / SB

ON



16A - 230 VAC

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

WARNING: THIS SURFACE MAY REACH HIGH TEMPERATURE DURING STANDARD USE. TO ENSURE PROPER OPERATION ALLOW A MINIMUM OF 8 INCHES OF CLEARANCE FROM THE SURFACE AND ADEQUATE VENTILATION. TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE THIS PANEL OR ANY ATTACHED COMPONENT, NO OPERATOR SERVICEABLE PARTS INSIDE. REFER SERVING TO QUALIFIED PERSONNEL. TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION: REPLACE WITH THE SAME TYPE FUSE AND RATING. DISCONNECT SUPPLY CORD BEFORE CHANGING FUSE.

ATTENTION: UTILISE UN FUSIBLE DE REMPLACEMENT DE MÊME TYPE. DÉBRANCHER AVANT DE REMPLACER LE FUSIBLE.

AVIS: RISQUE DE CHOC ÉLECTRIQUE — NE PAS OUVRIR.

UTILISEZ UN FUSIBLE DE REMPLACEMENT DE MÊME TYPE.

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MACKIE.
FUSSION 3000
FS FUSION ACTIVE™
LOUDSPEAKER SERIES

PARALLEL

LOOP OUT MAIN INPUT

HIGH PASS 85Hz - 20kHz

FULL RANGE 55Hz - 20kHz

POWER (GREEN) PIN 1- GND / PIN 2- POS (+) / PROTECT (RED) PIN 3- NEG (-)

FILL OUT 85Hz - 20kHz OUTPUT LEVEL SUB-OUT 20Hz - 85Hz

PHASE 0° 180°

FUSSION 3000 3-Way Active Speaker System

Architects' and Engineers' Specifications

The active, 3-way, full-range loudspeaker system shall incorporate four 12-inch low-frequency (LF) transducers, one horn-loaded 8-inch mid-frequency (MF) transducer and a 1.4-inch exit, 3-inch titanium diaphragm, compression driver high-frequency (HF) transducer. The LF drivers shall be mounted in a vented, multi-ply birch wood enclosure, tuned for optimum low-frequency response. The MF transducer shall be sealed from the rear and loaded on a one-piece horn assembly providing optimum compression ratio and dispersion characteristics. The HF transducer shall be mounted on an aluminum, constant-directivity horn. The system shall provide a nominal coverage pattern of 80° (horizontal) x 70° (vertical). System frequency response shall vary no more than ± 3 dB from 60Hz to 18kHz measured on axis. The loudspeaker shall incorporate a low-frequency amplifier, capable of delivering 1500 watts over a frequency range of 20Hz to 500Hz. The system shall incorporate a 300-watt amplifier specifically designed to power the MF driver over the range of 500Hz to 2.5kHz and a 150-watt amplifier specifically designed to power the high-frequency driver over the range of 2.5kHz to 20kHz. The amplifiers shall be mounted on an aluminum heat sink installed within the cabinet. The loudspeaker enclosure shall have a trapezoidal shape and shall incorporate four side handles along with hanging and rigging hardware. The system will include a control panel with XLR input connector and an XLR loop-through signal connector, a high-pass or full-range mode selection switch, a sub-out XLR connector providing low-pass audio and control signal for subwoofer systems, a "Fill-Out" XLR connector with level and phase controls, and power and protection mode LED indicators. The front of the loudspeaker shall be covered with a powder-coated, weather-resistant perforated steel grille.

The active 3-way full-range loudspeaker system shall be the Mackie Designs FUSSION 3000.


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deliver very high output levels (133dB peak-full range) and wide dispersion, the system can only be line-arrayed with other FUSSION 3000 cabinets. The system's wide dispersion characteristics do not allow it to be used in large arrays.

■ FUSSION 3000 is the first professional speaker system to create a completely ideal union between transducers and amplifiers. To ensure long-term reliability and performance, the amplifier cards and processor are mounted to a huge heat sink eliminating the need for fans, dramatically extending life expectancy and eliminating maintenance cycles. An easily-accessible rear input and control panel offers substantial signal routing flexibility. All audio connections are via XLR connectors, including a main input with a loop-through output for connection to other enclosures. A Full Range/High Pass switch allows the FUSSION 3000 to be operated full range or above 85Hz only. A SUB-OUT connector allows simple connection to the Fussion 1800AS/1800S active subwoofer system. The SUB-OUT signal is low-passed below 85Hz and also contains the limiting and protection circuitry for the active subs. For sound reinforcement situations where "fill" speakers are needed, there is a Fill-Out connector with level and (0°–180°) phase controls. Mackie's FUSSION 3000 can run on 115V AC or 230V AC single phase. The system features soft-start circuitry that eliminates "pops" and precisely controls AC in-rush current surges.

Electronic files for this product available at:
www.mackie.com

| | |
|---|-------------------|
| This Specification Sheet | FUSSION3000.PDF |
| Architects' & Engineers' Specifications | FUSSION3000AE.TXT |
| Quick-Start Manual | FUSSION3000QS.PDF |
| Applications Guide | FUSSION3000AG.PDF |
| Owner/Operator's Manual | FUSSION3000ML.PDF |
| CADD files | FUSSION3000.DXE |
| EASE data | FUSSION3000.EAS |

Mackie continually engages in research related to product improvement. New material, production methods, and design refinements are introduced into existing products without notice as a routine expression of that philosophy. For this reason, any current Mackie product may differ in some respect from its published description, but will always equal or exceed the original design specifications unless otherwise stated. ©1999-2000 Mackie Inc. All rights Reserved. **MACKIE** and  are registered trademarks of Mackie Inc. Mackie is a trademark of Mackie Designs Inc.

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