



RDL[®]
Radio Design Labs

SPECIALISTS IN PRACTICAL PRECISION ENGINEERING™

FLAT-PAK™ SERIES Model FP-PA35A 35 W Audio Power Amplifier with Power Supply

- 35 Watts RMS Constant Voltage Amplifier
- 25 V, 70 V or 100 V Output
- Automatic Energy-Saving Sleep Mode
- Selectable Sleep Delay: Off, 5, 15, 25 Minutes
- Input / Output Terminal Block Connections
- Line Level Balanced or Unbalanced Input
- Compressor/Limiter Controls Clipping
- LED to Indicate Audio Compression Threshold
- Compressor Produces Maximized Average Output Power
- Audio Quality Superior to Standard Amplifiers
- Ultra-compact All Metal Construction
- High-Efficiency Class D Operation
- Thermal and Short-Circuit Protection



The FP-PA35A is part of the group of versatile FLAT-PAK products from Radio Design Labs. The unique FLAT-PAK case can be directly screwed or bolted to cabinets or shelves. Optionally available rack-mounting accessories permit single or multiple FLAT-PAK module mounting.

APPLICATION: The FP-PA35A is the ideal choice in many applications where multiple 25 V, 70 V or 100 V speakers in a zone need to be powered from a single audio power amplifier.

The FP-PA35A features a balanced line level input that may be connected unbalanced. A front panel gain control is designed to be adjusted manually or with a trimming screwdriver. The gain range will accommodate standard unbalanced levels as well as professional balanced levels. Multiple distributed sound system speakers connect to the corresponding 25 V, 70 V or 100 V amplified output.

The FP-PA35A includes an analog compressor/limiter for audio fidelity audibly superior to conventional class D amplifiers with digital limiting. The input **GAIN** setting determines whether the limiter alone is used for clipping suppression, or if the full compressor/limiter will be used to substantially increase the average output power beyond that of a standard 35 W amplifier. A red **COMPRESSION** LED flashes when the limiter is preventing output clipping. Normal audio level signals remain unaffected by the compressor thereby preserving audio dynamics. If the input level is increased so that the compressor is active, the LED remains dimly lit between peak flashes. The audio is compressed according to three dynamic time constants providing aural transparency while maintaining clean, unclipped amplified audio for input overloads of up to 20 dB. The FP-PA35A, with compression, is capable of producing average audio output levels and clarity normally expected from amplifiers with a much higher output power rating.

The FP-PA35A circuits are all designed for low power consumption. In the absence of an audio input, a digital timer is enabled to switch the class D output stage off. When this sleep mode is active, the amplifier module and its included RDL power supply consume less than 1 W of mains power. A front-panel control sets the sleep mode delay timer to 5, 15 or 25 minutes. The control also permits the installer to bypass the sleep mode to conform to system specifications that require the amplifier to be active at all times. Upon detection of an input signal, the amplifier is nearly inaudibly and instantly restored to full operation within 150 milliseconds.

A blue **POWER** LED illuminates when the FP-PA35A is powered from its external 24 Vdc power supply. The power LED is dimly illuminated when the sleep mode disables the amplifier and glows brightly when the amplifier operation is fully enabled. The module is equipped with both thermal and output short-circuit protection. The high-efficiency Class D output stage produces minimal heat for all levels of expected voice or music modulation. Continuous full-power operation with audio tones will not damage the amplifier, but is not recommended.

Wherever an ultra-compact, high quality, high efficiency eco-friendly audio power amplifier is needed to provide reliability and unsurpassed versatility, the FP-PA35A is the ideal choice. Use the FP-PA35A individually, or combine it with other RDL products as part of a complete audio/video system.

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Installation/Operation


EN55103-1 E1-E5; EN55103-2 E1-E4; EN60065
Typical Performance reflects product at publication time exclusive of EMC data, if any, supplied with product. Specifications are subject to change without notice. This product is Professional Apparatus.

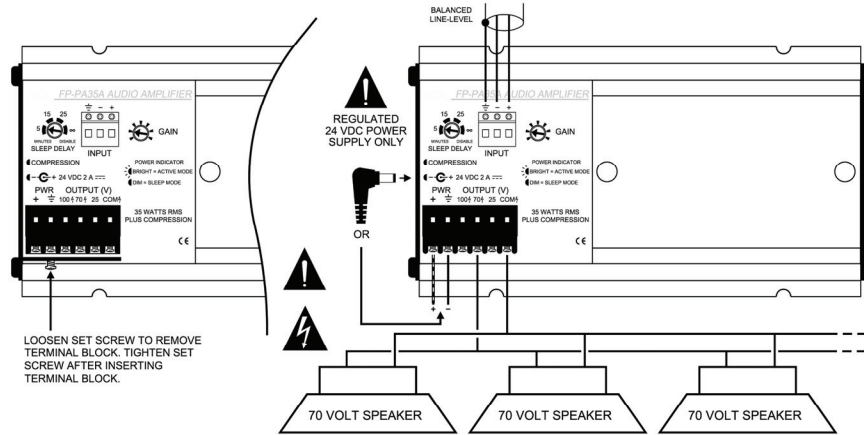
Mounting

The FP-PA35A should be mounted in a location with good ventilation. If the module is mounted using a box that does not provide ventilation, the amplifier should be secured to the outside surface of the box. The ambient operating environment must not exceed 40 degrees C.

 USE ONLY THE POWER SUPPLY SUPPLIED WITH THE MODULE.

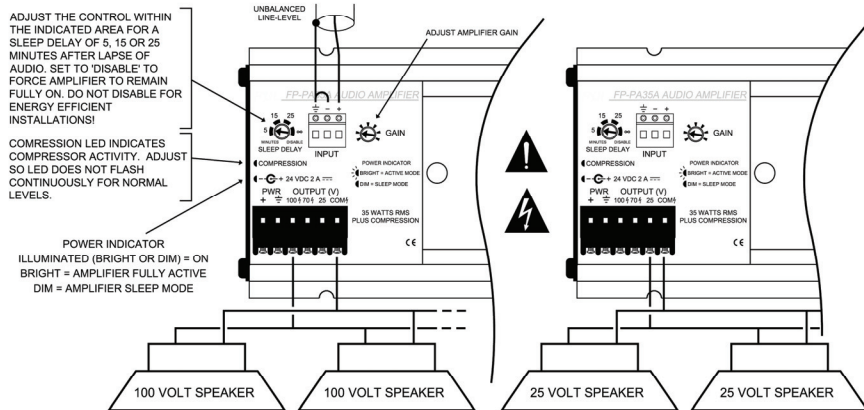
 USE ONLY THE TERMINAL BLOCK SUPPLIED WITH THE MODULE.

 OUTPUT CONNECTIONS MUST BE MADE BY PERSONS ADVISED OR SUPERVISED TO AVOID DANGERS AND PREVENT RISKS WHICH ELECTRICITY MAY CREATE.



Sleep Mode is automatic after the sleep delay time has elapsed following absence of input audio.

Sleep Mode may be activated manually by repowering the module with input audio absent.



TYPICAL PERFORMANCE

Input:	Line level (+4 dBu nominal balanced) (-10 dBV nominal unbalanced)
Input Impedance:	20 kΩ balanced bridging 10 kΩ unbalanced
Input / Output Connectors:	Detachable terminal block
Gain Adjustment:	Single turn audio taper
Minimum Input Levels:	Balanced:.....-14 dBu (to cross compressor threshold) Unbalanced:.....-15 dBV (to cross compressor threshold)
Maximum Input Levels:	Balanced:.....+22 dBu Unbalanced:.....+20 dBV
Frequency Response:	50 Hz to 20 kHz (+/- 3 dB)*
THD+N:	< 0.5% (@ 1 kHz)* < 0.5% (50 Hz to 20 kHz, 1 W)
Compressor:	Threshold 2 dB below rated output, automatic adjusting attack and release times <-75 dB (below 35 W RMS) > 60 dB (50 Hz to 120 Hz)
Noise:	< 1 W (amplifier and included power supply)
CMRR:	5, 15 or 25 minutes (selectable)
Output Power:	35 W RMS @ 25 V, 70 V or 100 V
Sleep Mode Power Consumption:	Selectable
Sleep Mode Delay:	< 150 mS after input audio detected
Sleep Mode Disable:	-50 dBu balanced, -52 dBV unbalanced
Active Mode Delay:	0° C to 40° C Maximum; 20° C Recommended
Audio Detector Threshold:	Red LED: PEAK LED indicates compressor activity
Ambient Operating Environment:	Blue LED: Power ON, Dim: Sleep mode active; Bright: Amplifier active
Indicators (2):	100 to 240 Vac, 50-60 Hz, 2A; 24 Vdc output to module, Ground-referenced
Power Supply (included):	Height: 2.80 in.(7.1 cm); Width: 3.25 in.(8.26 cm); Length: 6.04 in.(15.3 cm)
Dimensions:	

*measured at compressor threshold level equalling 22 W RMS output power

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rule. These limits are designed to provide reasonable protection against harmful interference in a residential installation. The equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Radio Design Labs Technical Support Centers

U.S.A. (800) 933-1780, (928) 778-3554; Fax: (928) 778-3506

Europe [NH Amsterdam] (+31) 20-6238 983; Fax: (+31) 20-6225-287

Safety Instructions

Do not remove the cover or rear panel. This unit contains no user serviceable parts inside.

- 1) Read these instructions before operating the unit.
- 2) Keep these instructions.
- 3) Heed all warnings.
- 4) Follow all instructions.
- 5) Do not use this apparatus near water or moisture.
- 6) Clean only with dry cloth.
- 7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- 8) Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9) Only use attachments/accessories specified by the manufacturer.
- 10) Unplug this apparatus during lightning storms or when unused for long periods of time.
- 11) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as if the power-supply 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.
- 12) To completely disconnect this apparatus from the AC mains, disconnect the power supply plug from the AC receptacle.
- 13) WARNING – To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.
- 14) Do not expose this equipment to dripping or splashing and ensure that no objects filled with liquids, such as vases, are placed on the equipment.
- 15) Warning labels may be attached to any surface (including the bottom) of the apparatus.



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



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 sufficient magnitude to constitute a risk of electric shock to persons.

Instrucciones de seguridad

No quitar la tapa ni la parte posterior del chasis. Dentro del aparato no hay piezas susceptibles de ser reparadas por el usuario.

- 1) Lea estas instrucciones antes de comenzar a usar la unidad.
- 2) Conserve estas instrucciones.
- 3) Atienda todas las advertencias.
- 4) Siga todas las instrucciones.
- 5) No use este aparato cerca del agua o en lugares húmedos.
- 6) Limpie sólo con un paño seco.
- 7) No bloquee ningún orificio de ventilación. Instale de acuerdo con las instrucciones del fabricante.
- 8) No lo instale cerca de ninguna fuente de calor, como radiadores, registros de calefacción, estufas u otros aparatos (incluidos los amplificadores) que produzcan calor.
- 9) Use únicamente aditamentos o accesorios especificados por el fabricante.
- 10) Desenchufe este aparato durante las tormentas eléctricas o cuando no se use durante períodos prolongados de tiempo.
- 11) Refiera todo el servicio a personal cualificado. Se requiere servicio cuando el aparato se ha dañado de cualquier forma, como si se dañan el cable de alimentación o la clavija, si se ha vertido un líquido o han caído objetos al interior del aparato, si el aparato ha estado expuesto a la lluvia o la humedad, no funciona normalmente o ha caído.
- 12) Para desconectar completamente este aparato de la red de CA, desconecte el alimentación eléctrica del receptáculo de CA.
- 13) ADVERTENCIA – Para reducir el riesgo de incendio o descarga eléctrica, no exponga este aparato a la lluvia o la humedad.
- 14) No exponga este equipo a escurrimientos o salpicaduras, y asegúrese de que no se coloquen objetos llenos de líquido, como jarrones, sobre el equipo.
- 15) Las etiquetas de advertencia se pueden sujetar a cualquier superficie (parte inferior incluyendo) del aparato.



El signo de exclamación dentro de un triángulo equilátero alerta al usuario de la existencia de importantes instrucciones sobre funcionamiento y mantenimiento (asistencia) en el manual que acompaña al equipo.



El símbolo del relámpago con punta de flecha, dentro de un triángulo equilátero, alerta al usuario de la presencia de un "voltaje peligroso" sin aislar en el interior del producto, que puede ser de la suficiente magnitud como para constituir un riesgo de descarga eléctrica para las personas.

Consignes de sécurité

N'ôtez pas le couvercle ni le panneau arrière du boîtier. Cet appareil ne contient aucune pièce remplaçable par l'utilisateur.

- 1) Lisez ces instructions avant d'utiliser l'appareil.
- 2) Conservez ces instructions.
- 3) Respectez toutes les mises en garde.
- 4) Suivez toutes les instructions.
- 5) N'utilisez pas cet appareil près d'une source liquide ou dans un lieu humide.
- 6) Nettoyez-le uniquement avec un chiffon sec.
- 7) Ne bloquez pas aucune ouverture de ventilation. Installez l'appareil en suivant les instructions du fabricant.
- 8) Ne l'installez pas à proximité d'une source de chaleur, comme un radiateur, un four ou tout autre appareil (amplificateurs y compris) qui produisent la chaleur.
- 9) Utilisez uniquement les fixations/accessoires agréés par le fabricant.
- 10) Déconnectez l'appareil pendant les orages ou lors de périodes d'inutilisation prolongées.
- 11) Confiez toutes les réparations à un technicien qualifié. Vous devez faire contrôler cet appareil s'il a été endommagé de quelque façon que ce soit, comme lorsque l'alimentation ou les fiches sont endommagés, qu'un liquide ou des objets se sont infiltrés dans l'appareil, qu'il a été exposé à la pluie ou l'humidité, qu'il a subi un choc ou qu'il ne fonctionne pas normalement.
- 12) Pour déconnecter entièrement l'appareil du secteur, déconnectez la fiche de l'alimentation de la prise.
- 13) MISE EN GARDE – Pour réduire les risques d'incendie ou d'électrocution, n'exposez pas cet appareil aux intempéries ou à l'humidité.
- 14) N'exposez pas cet appareil à l'humidité ou aux projections liquides. Ne posez pas de récipient rempli de liquide, tel qu'un vase, sur cet appareil.
- 15) Des étiquettes d'avertissement peuvent être attachées à n'importe quelle surface (y compris le fond) de l'appareil.



Le point d'exclamation au centre d'un triangle équilatéral prévient l'utilisateur de la présence d'instructions importantes dans le mode d'emploi concernant la mise en oeuvre et l'entretien de l'appareil.



L'éclair de foudre fléché au centre d'un triangle équilatéral prévient l'utilisateur de la présence de courants élevés dans l'appareil, pouvant constituer un risque d'électrocution en cas de mise en contact avec les composants internes.

Sicherheitsvorkehrungen

Um die Gefahr eines Stromschlags zu verringern, sollten Sie weder Deckel noch Rückwand des Geräts entfernen. Im Innern befinden sich keine Teile, die vom Anwender gewartet werden können.

- 1) Lesen Sie diese Anweisungen bevor Sie das Gerät in Betrieb nehmen.
- 2) Bewahren Sie diese Anweisungen auf.
- 3) Beachten Sie alle Warnhinweise.
- 4) Befolgen Sie alle Anweisungen.
- 5) Benutzen Sie die Vorrichtung nie in der Nähe von Wasser oder Feuchtigkeit.
- 6) Nur mit trockenem Tuch reinigen.
- 7) Belüftungsöffnungen nicht blockieren. Den Anweisungen des Herstellers entsprechend installieren.
- 8) Installieren Sie die Vorrichtung nicht in der Nähe von Wärmequellen wie Radiatoren, Heizkörpern, Herden oder anderen Geräten (insbesondere Verstärkern), die Wärme erzeugen.
- 9) Verwenden Sie nur vom Hersteller zugelassenes Zubehör.
- 10) Ziehen Sie bei Gewittern oder bei längeren Stillstandzeiten den Netzstecker des Geräts.
- 11) Überlassen Sie alle Wartungsarbeiten qualifiziertem Personal. Ein Service wird erforderlich, wenn das Gerät in irgendeiner Weise beschädigt wurde, beispielsweise bei Beschädigung des Netzteils oder des Netzkabels, wenn Flüssigkeiten über das Gerät vergossen wurden oder Gegenstände in das Gerät gefallen sind, das Gerät Regen oder Feuchtigkeit ausgesetzt war, nicht ordnungsgemäß funktioniert oder fallen gelassen wurde.
- 12) Ziehen Sie den Netzstecker aus der Steckdose, um das Gerät vollständig vom Wechselstromnetz zu trennen.
- 13) WARNHINWEIS: Um die Gefahr vom Feuer oder Stromschlag zu vermeiden, darf das Gerät nicht Regen oder Feuchtigkeit ausgesetzt werden.
- 14) Lassen Sie nicht zu, dass Flüssigkeiten auf das Gerät tropfen oder gespritzt werden können, und achten Sie darauf, dass keine mit Wasser gefüllten Gegenstände wie Vasen auf das Gerät gestellt werden.
- 15) Warnaufkleber können sich an beliebiger Stelle (inklusive Unterseite) am Gehäuse des Apparates befinden.



Das Ausrufezeichen im gleichseitigen Dreieck soll den Anwender auf wichtige Bedienungs- und Wartungsanleitungen aufmerksam machen, die im mitgelieferten Informationsmaterial näher beschrieben werden.



Der Blitz mit Pfeilspitze im gleichseitigen Dreieck soll den Anwender vor nichtisolierter "gefährlicher Spannung" im Geräteinnern warnen. Diese Spannung kann so hoch sein, dass die Gefahr eines Stromschlags besteht.