

## User's Guide



**IN3252HR**  
**RGBHV Distribution Amplifier/Line Driver**

# Precautions

## Safety Instructions • English



This symbol is intended to alert the user of important operating and maintenance (servicing) instructions in the literature provided with the equipment.



This symbol is intended to alert the user of the presence of uninsulated dangerous voltage within the product's enclosure that may present a risk of electric shock.

## Caution

**Read Instructions** • Read and understand all safety and operating instructions before using the equipment.

**Retain Instructions** • The safety instructions should be kept for future reference.

**Follow Warnings** • Follow all warnings and instructions marked on the equipment or in the user information.

**Avoid Attachments** • Do not use tools or attachments that are not recommended by the equipment manufacturer because they may be hazardous.

## Consignes de Sécurité • Français



Ce symbole sert à avertir l'utilisateur que la documentation fournie avec le matériel contient des instructions importantes concernant l'exploitation et la maintenance (réparation).



Ce symbole sert à avertir l'utilisateur de la présence dans le boîtier de l'appareil de tensions dangereuses non isolées posant des risques d'électrocution.

## Attention

**Lire les instructions** • Prendre connaissance de toutes les consignes de sécurité et d'exploitation avant d'utiliser le matériel.

**Conservser les instructions** • Ranger les consignes de sécurité afin de pouvoir les consulter à l'avenir.

**Respecter les avertissements** • Observer tous les avertissements et consignes marqués sur le matériel ou présentés dans la documentation utilisateur.

**Eviter les pièces de fixation** • Ne pas utiliser de pièces de fixation ni d'outils non recommandés par le fabricant du matériel car cela risquerait de poser certains dangers.

## Sicherheitsanleitungen • Deutsch



Dieses Symbol soll dem Benutzer in der im Lieferumfang enthaltenen Dokumentation besonders wichtige Hinweise zur Bedienung und Wartung (Instandhaltung) geben.



Dieses Symbol soll den Benutzer darauf aufmerksam machen, daß im Inneren des Gehäuses dieses Produktes gefährliche Spannungen, die nicht isoliert sind und die einen elektrischen Schock verursachen können, herrschen.

## Achtung

**Lesen der Anleitungen** • Bevor Sie das Gerät zum ersten Mal verwenden, sollten Sie alle Sicherheits- und Bedienungsanleitungen genau durchlesen und verstehen.

**Aufbewahren der Anleitungen** • Die Hinweise zur elektrischen Sicherheit des Produktes sollten Sie aufbewahren, damit Sie im Bedarfsfall darauf zurückgreifen können.

**Befolgen der Warnhinweise** • Befolgen Sie alle Warnhinweise und Anleitungen auf dem Gerät oder in der Benutzerdokumentation.

**Keine Zusatzgeräte** • Verwenden Sie keine Werkzeuge oder Zusatzgeräte, die nicht ausdrücklich vom Hersteller empfohlen wurden, da diese eine Gefahrenquelle darstellen können.

## Instrucciones de seguridad • Español



Este símbolo se utiliza para advertir al usuario sobre instrucciones importantes de operación y mantenimiento (o cambio de partes) que se desean destacar en el contenido de la documentación suministrada con los equipos.



Este símbolo se utiliza para advertir al usuario sobre la presencia de elementos con voltaje peligroso sin protección aislante, que puedan encontrarse dentro de la caja o alojamiento del producto, y que puedan representar riesgo de electrocución.

## Precaucion

**Leer las instrucciones** • Leer y analizar todas las instrucciones de operación y seguridad, antes de usar el equipo.

**Conservar las instrucciones** • Conservar las instrucciones de seguridad para futura consulta.

**Obedecer las advertencias** • Todas las advertencias e instrucciones marcadas en el equipo o en la documentación del usuario, deben ser obedecidas.

**Evitar el uso de accesorios** • No usar herramientas o accesorios que no sean específicamente recomendados por el fabricante, ya que podrían implicar riesgos.

## Warning

**Power sources** • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it.

**Power disconnection** • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or the desktop power module (if detachable), or from the power source receptacle (wall plug).

**Power cord protection** • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

**Servicing** • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

**Slots and openings** • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

**Lithium battery** • There is a danger of explosion if battery is incorrectly replaced. Replace it only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

## Avertissement

**Alimentations** • Ne faire fonctionner ce matériel qu'avec la source d'alimentation indiquée sur l'appareil. Ce matériel doit être utilisé avec une alimentation principale comportant un fil de terre (neutre). Le troisième contact (de mise à la terre) constitue un dispositif de sécurité : n'essayez pas de la contourner ni de la désactiver.

**Déconnexion de l'alimentation** • Pour mettre le matériel hors tension sans danger, déconnectez tous les cordons d'alimentation de l'arrière de l'appareil ou du module d'alimentation de bureau (s'il est amovible) ou encore de la prise secteur.

**Protection du cordon d'alimentation** • Acheminer les cordons d'alimentation de manière à ce que personne ne risque de marcher dessus et à ce qu'ils ne soient pas écrasés ou pincés par des objets.

**Réparation-maintenance** • Faire exécuter toutes les interventions de réparation-maintenance par un technicien qualifié. Aucun des éléments internes ne peut être réparé par l'utilisateur. Afin d'éviter tout danger d'électrocution, l'utilisateur ne doit pas essayer de procéder lui-même à des opérations car l'ouverture ou le retrait des couvercles risquent de l'exposer à de hautes tensions et autres dangers.

**Fentes et orifices** • Si le boîtier de l'appareil comporte des fentes ou des orifices, ceux-ci servent à empêcher les composants internes sensibles de surchauffer. Ces ouvertures ne doivent jamais être bloquées par des objets.

**Lithium Batterie** • Il a danger d'explosion s'il y a remplacement incorrect de la batterie. Remplacer uniquement avec une batterie du meme type ou d'un type equivalent recommande par le constructeur. Mettre au reut les batteries usages conformément aux instructions du fabricant.

## Vorsicht

**Stromquellen** • Dieses Gerät sollte nur über die auf dem Produkt angegebene Stromquelle betrieben werden. Dieses Gerät wurde für eine Verwendung mit einer Hauptstromleitung mit einem geerdeten (neutralen) Leiter konzipiert. Der dritte Kontakt ist für einen Erdschluss, und stellt eine Sicherheitsfunktion dar. Diese sollte nicht umgangen oder außer Betrieb gesetzt werden.

**Stromunterbrechung** • Um das Gerät auf sichere Weise vom Netz zu trennen, sollten Sie alle Netzkabel aus der Rückseite des Gerätes, aus der externen Stromversorgung (falls dies möglich ist) oder aus der Wandsteckdose ziehen.

**Schutz des Netzkabels** • Netzkabel sollten stets so verlegt werden, daß sie nicht im Weg liegen und niemand darauf treten kann oder Objekte darauf- oder unmittelbar dagegen gestellt werden können.

**Wartung** • Alle Wartungsmaßnahmen sollten nur von qualifiziertem Servicepersonal durchgeführt werden. Die internen Komponenten des Gerätes sind wartungsfrei. Zur Vermeidung eines elektrischen Schocks versuchen Sie in keinem Fall, dieses Gerät selbst öffnen, da beim Entfernern der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

**Schlitzte und Öffnungen** • Wenn das Gerät Schlitzte oder Löcher im Gehäuse aufweist, dienen diese zur Vermeidung einer Überhitzung der empfindlichen Teile im Inneren. Diese Öffnungen dürfen niemals von anderen Objekten blockiert werden.

**Litium-Batterie** • Explosionsgefahr, falls die Batterie nicht richtig ersetzt wird. Ersetzen Sie verbrauchte Batterien nur durch den gleichen oder einen vergleichbaren Batterietyp, der auch vom Hersteller empfohlen wird. Entsorgen Sie verbrauchte Batterien bitte gemäß den Herstelleranweisungen.

## Advertencia

**Alimentación eléctrica** • Este equipo debe conectarse únicamente a la fuente/tipo de alimentación eléctrica indicada en el mismo. La alimentación eléctrica de este equipo debe provenir de un sistema de distribución general con conductor neutro a tierra. La tercera pata (puesta a tierra) es una medida de seguridad, no puentearla ni eliminarla.

**Desconexión de alimentación eléctrica** • Para desconectar con seguridad la acometida de alimentación eléctrica al equipo, desenchufar todos los cables de alimentación en el panel trasero del equipo, o desenchufar el módulo de alimentación (si fuera independiente), o desenchufar el cable del receptáculo de la pared.

**Protección del cables de alimentación** • Los cables de alimentación eléctrica se deben instalar en lugares donde no sean pisados ni apretados por objetos que se puedan apoyar sobre ellos.

**Reparaciones/mantenimiento** • Solicitar siempre los servicios técnicos de personal calificado. En el interior no hay partes a las que el usuario deba acceder. Para evitar riesgo de electrocución, no intentar personalmente la reparación/mantenimiento de este equipo, ya que al abrir o extraer las tapas puede quedar expuesto a voltajes peligrosos u otros riesgos.

**Ranuras y aberturas** • Si el equipo posee ranuras o orificios en su caja/alojamiento, es para evitar el sobrecalentamiento de componentes internos sensibles. Estas aberturas nunca se deben obstruir con otros objetos.

**Batería de litio** • Existe riesgo de explosión si esta batería se coloca en la posición incorrecta. Cambiar esta batería únicamente con el mismo tipo (o su equivalente) recomendado por el fabricante. Desachar las baterías usadas siguiendo las instrucciones del fabricante.

# FCC Class A Notice

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

Note: This unit was tested with shielded cables on the peripheral devices. Shielded cables must be used with the unit to ensure compliance.

# Extron's Warranty

Extron Electronics warrants this product against defects in materials and workmanship for a period of three years from the date of purchase. In the event of malfunction during the warranty period attributable directly to faulty workmanship and/or materials, Extron Electronics will, at its option, repair or replace said products or components, to whatever extent it shall deem necessary to restore said product to proper operating condition, provided that it is returned within the warranty period, with proof of purchase and description of malfunction to:

## USA, Canada, South America, and Central America:

Extron Electronics  
1230 South Lewis Street  
Anaheim, CA 92805, USA

## Asia:

Extron Electronics, Asia  
135 Joo Seng Road, #04-01  
PM Industrial Bldg.  
Singapore 368363

## Europe, Africa, and the Middle East:

Extron Electronics, Europe  
Beeldschermweg 6C  
3821 AH Amersfoort  
The Netherlands

## Japan:

Extron Electronics, Japan  
16 Ichibancho  
Chiyoda-ku, Tokyo 102-0082  
Japan

This Limited Warranty does not apply if the fault has been caused by misuse, improper handling care, electrical or mechanical abuse, abnormal operating conditions or non-Extron authorized modification to the product.

*If it has been determined that the product is defective, please call Extron and ask for an Applications Engineer at (714) 491-1500 (USA), 31.33.453.4040 (Europe), 65.6383.4400 (Asia), or 81.3.3511.7655 (Japan) to receive an RA# (Return Authorization number). This will begin the repair process as quickly as possible.*

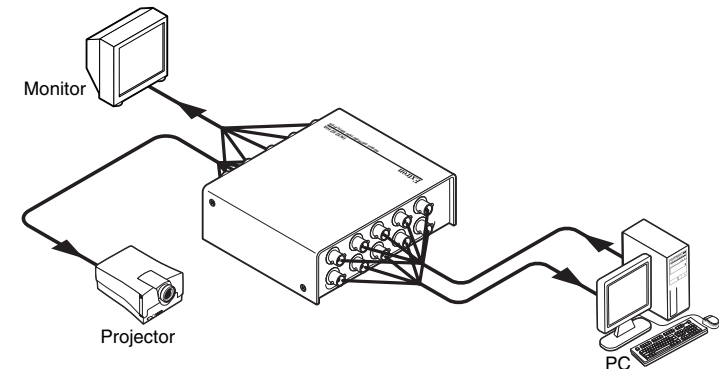
Units must be returned insured, with shipping charges prepaid. If not insured, you assume the risk of loss or damage during shipment. Returned units must include the serial number and a description of the problem, as well as the name of the person to contact in case there are any questions.

Extron Electronics makes no further warranties either expressed or implied with respect to the product and its quality, performance, merchantability, or fitness for any particular use. In no event will Extron Electronics be liable for direct, indirect, or consequential damages resulting from any defect in this product even if Extron Electronics has been advised of such damage.

Please note that laws vary from state to state and country to country, and that some provisions of this warranty may not apply to you.

The IN3252HR is an ultrahigh resolution RGBHV video distribution amplifier (DA) with gain and peaking controls. It accepts RGBHV, RGBS, RGsB, RsGsBs, component video, S-video, as well as high resolution monochrome video and composite video baseband signals, and distributes the signals to two separately buffered outputs and one passive loop-through.

The DA is powered by an external power supply, which is included with the unit.



**Figure 1 — Typical connection setup**

## Features

- 400 MHz (-3 dB) video bandwidth** — Provides outstanding video performance.
- Wide compatibility** — Compatible with RGBHV, RGBS, RGsB, RsGsBs, component, S-video, as well as high resolution monochrome video and composite video baseband signals.
- 2 outputs** — Distributes a video signal from a single input to two outputs.
- Local monitor loop-through** — Provides a passive loop-through signal for a local monitor or for cascading to create a larger DA system.
- Gain controls** — Individual red, green, and blue gain controls amplify the signals to compensate for long cable runs.
- Peaking controls** — Enhances the image by increasing fine details and clarity.

## Installation

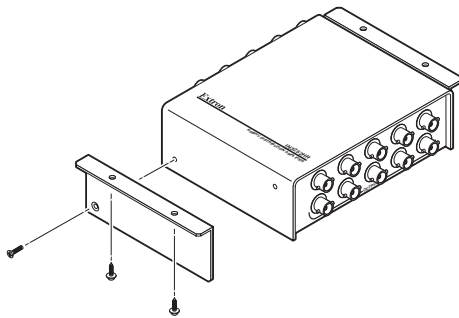
The IN3252HR can be placed on a desktop or shelf, or mounted in a convenient location using optional mounting brackets (IN9128).

1. Turn all equipment off and ensure that the source device, the DA, and the output devices have been disconnected from the power source.
2. Place or install the unit in the desired location.
3. Connect the video signal source (input) device to the input connector.
4. Connect the output devices to the output connectors.
5. Apply power to output device, the DA, and the input devices.
6. Turn on the input and output devices.
7. Adjust the gain and peaking as needed.

## Furniture mounting

Furniture mount the unit using the mounting bracket, as follows:

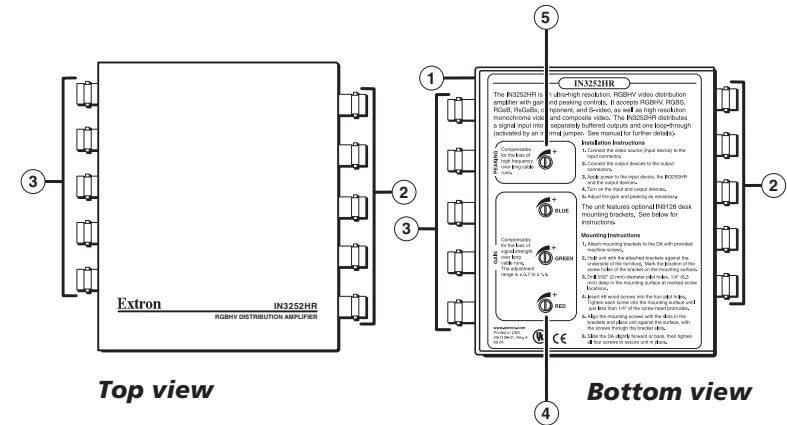
1. Attach the mounting brackets to the distribution amplifier with the provided machine screws (figure 2).
2. Hold the unit with the attached brackets against the underside of the table or other furniture. Mark the location of the screw holes of the bracket on the mounting surface.



**Figure 2 — Desk mounting the IN3252HR**

3. Drill 3/32" (2 mm) diameter pilot holes, 1/4" (6.3 mm) deep in the mounting surface at the marked screw locations.
4. Align the mounting holes in the brackets with the pilot holes in the furniture.
5. Firmly secure the IN3252HR to the furniture using #8 wood screws.

## Connections and Controls



**Figure 3 — IN3252HR connectors and controls**

1. **Power connector** — Plug the external power supply cord into this connector.
2. **Video output connectors** — Connect up to two RGBHV, RGBS, RGsB, RsGsBs, component video, S-video, high resolution monochrome video, or composite video output devices, such as data projectors or data monitors, to these female BNC connectors. See figure 4, *BNC connectors* for a connection diagram.
3. **Inputs/Loop-thru connectors** — Connect an RGBHV, RGBS, RGsB, RsGsBs, component video, S-video, high resolution monochrome video, or composite video device to these female BNC connectors. See figure 4, *BNC connectors* for a connection diagram.
4. **Gain controls** — Rotate to adjust the amount of amplification added to the individual red, green and blue video signals to compensate for long cable runs. The adjustment range is 0.7 (30% decrease) to 1.4 (40% increase).

- ⑤ **Peaking control** — Rotate to adjust the amount of high frequency boost added to the video signals to compensate for long cable runs.

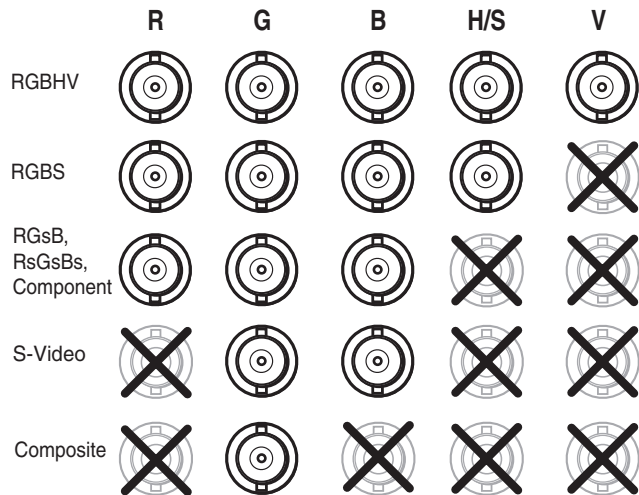


Figure 4— BNC connectors

## Internal Jumper Settings

### Input termination jumpers (J2, J3, and J5)

In normal operation (factory default) the inputs are terminated internally. To provide a passive loop-through signal for a local monitor or extended DA system with 75 ohm input impedance, jumpers J2, J3, and J5 must be changed from closed to open (see figure 5 below).

Configuration	J2	J3	J5	J1	J4	J6
Input is terminated to 75 ohms (loop-through not used)*	Closed*	Closed*	Closed*			
Input is unterminated (High Z) (loop-through connected to a local monitor or another amplifier)	Open	Open	Open			
AC coupling				Open	Open	Open
DC coupling				Closed*	Closed*	Closed*

\*Factory default settings

Figure 5 — Jumper table

### Input coupling jumpers (J1, J4, and J6)

To insure the best picture quality, inputs are DC coupled as a factory default.

If the source device has a high DC offset that causes picture distortion and/or instability, change the jumpers to AC coupling.

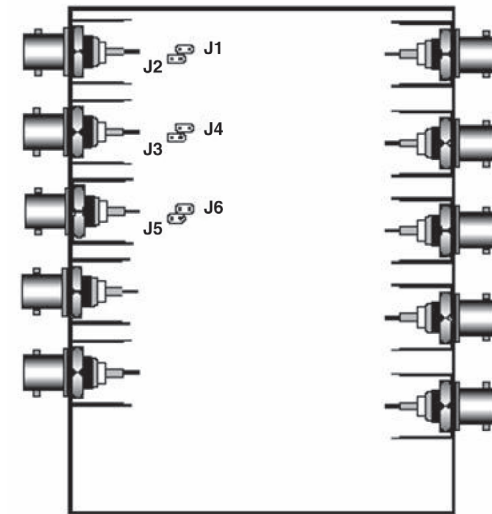


Figure 6 — Board view of jumpers

## Potentiometer Adjustments

### With an oscilloscope

1. Feed a grayscale signal from an Extron VTG 300/400 or other A/V test generator to the input of the IN3252HR DA.
2. Remove the far end of the green output cable from the display and connect it to the oscilloscope with 75 ohm termination.
3. Adjust the green gain control to achieve 0.7 Vp-p for the white bar of the test pattern.
4. Repeat steps 2 and 3 for the red and blue channels.
5. Adjust the peaking control by connecting the oscilloscope back to the far end of the green output cable and adjusting the peaking potentiometer until no overshooting or round corners appear on the test pattern.
6. Plug the far end cables back to the display device.

**Without an oscilloscope**

1. Feed a grayscale signal from an Extron VTG 300/400 or other A/V test generator to the input of the IN3252HR DA.
2. Adjust the green gain control potentiometer until the picture from the display device appears to have the correct brightness and contrast.
3. Adjust the red and blue potentiometers until the grayscale picture appears to be gray only; no color is present.
4. Adjust the peaking control potentiometer until the picture appears sharp and without visible smearing.

**Specifications**

**Video**

Gain .....	-3 dB to +3 dB (0.7 to 1.4), adjustable
Peaking .....	0 to +6 dB @ 100 MHz
Bandwidth .....	400 MHz (-3 dB)

**Video input and loop-through**

Number/signal type .....	1 RGBHV, RGBS, RGsB, RsGsBs, component video, S-video, composite video input 1 RGBHV, RGBS, RGsB, RsGsBs, component video, S-video, composite video passive loop-through
Connectors .....	2 x 5 female BNC
Nominal level .....	0.7 Vp-p for RGB
Minimum/maximum levels .....	Analog: 0.3 V to 1.5 Vp-p with no offset at unity gain
Impedance .....	75 ohms (default) or Hi-Z (selectable)
Return loss .....	<-40 dB @ 5 MHz
Input coupling .....	AC/DC, jumper selectable

**Video output**

Number/signal type .....	2 RGBHV, RGBS, RGsB, RGBcvS, component video, S-video, composite video (follows input type)
Connectors .....	2 x 5 BNC female
Nominal level .....	1 Vp-p for Y of component video and S-video, and for composite video 0.7 Vp-p for RGB 0.3 Vp-p for R-Y and B-Y of component video, and for C of S-video
Minimum/maximum levels .....	0.3 Vp-p to 1.5 Vp-p (follows input)
Impedance .....	75 ohms
Return loss .....	<-40 dB @ 5 MHz
DC offset .....	±100 mV with input at 0 offset

**Sync**

Input type .....	RGBHV, RGBS, RGsB, RsGsBs
Output type .....	RGBHV, RGBS, RGsB, RsGsBs
Input level .....	2.0 V to 5.0 Vp-p
Output level .....	TTL: 5.0 Vp-p, unterminated

## Specifications, Part Numbers, Accessories, cont'd

Input impedance .....	510 ohms
Output impedance .....	50 ohms
Max. propagation delay .....	40 ns
Max. rise/fall time .....	9 ns
Polarity .....	Positive or negative (follows input)

### General

External power supply .....	100 VAC to 240 VAC, 50/60 Hz, external, autoswitchable; to 9 VDC, 1 A, regulated
Power input requirements .....	9 VDC, 0.2 A
Temperature/humidity .....	Storage: -40 to +158 °F (-40 to +70 °C) / 10% to 90%, noncondensing Operating: +32 to +122 °F (0 to +50 °C) / 10% to 90%, noncondensing
Rack mount .....	No, but furniture mountable with optional brackets
Enclosure type .....	Metal
Enclosure dimensions .....	1.6" H x 5.25" W x 4.4" D 4.1 cm H x 13.3 cm W x 11.2 cm D (Excluding connectors.)
Product weight .....	1.0 lbs (0.5 kg)
Shipping weight .....	3 lbs (2 kg)
Vibration .....	ISTA 1A in carton (International Safe Transit Association)
Listings .....	UL, CUL
Compliances .....	CE, FCC Class A, VCCI, AS/NZS, ICES
MTBF .....	30,000 hours
Warranty .....	3 years parts and labor

**NOTE** All nominal levels are at  $\pm 10\%$ .

**NOTE** Specifications are subject to change without notice.

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