

Operation Manual



IN3252HR

1-In 2-Out RGBHV Distribution Amplifier / Line Driver





Installation and Safety Instructions

For Models without a Power Switch:

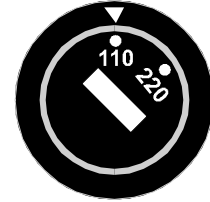
The socket outlet shall be installed near the equipment and shall be accessible.

For Models with 110 / 220V Power Selector:

Caution: Before applying power to this unit, the voltage selector must be set to the appropriate setting to match local A/C line voltage. Improper setting of the voltage selector may cause damage to the unit and create a potential fire hazard.

The voltage selector is a round switch located next to the A/C power input connector which looks like this:

Using a straight slot screwdriver or small coin, rotate the selector to the correct position so that the arrow lines up with 110 or 220 as appropriate for local power line voltage as indicated in the chart below:



Local A/C Voltage	Voltage Selector Setting
110 ~ 120 VAC	110
220 ~ 240 VAC	220

For all Models:

No serviceable parts inside the unit. Refer service to a qualified technician.

For Models with Internal or External Fuses:

For continued protection against fire hazard, replace only with same type and rating of fuse.

For IN2001 / IN3234 / IN3236 / IN3502 / IN3504 / IN3506 / IN3562 / IN3564 / IN3566 / IN3572 / IN3574 / IN3576:

Caution: Double pole / neutral fusing.

For all Models with Integral Lithium Battery:

Caution: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.



Instructions d'installation et de sécurité

Pour les modèles sans interrupteur de courant:

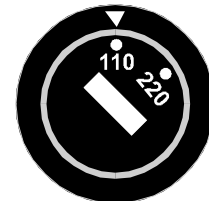
La prise de courant d'alimentation sera installé près de l'équipement et sera accessible.

Pour les modèles avec un sélecteur d'alimentation 110V/220V:

Attention: Avant de connecter l'appareil au circuit d'alimentation, le sélecteur de courant doit être positionné sur la sélection appropriée correspondant au voltage du circuit de courant alternatif local. Une mauvaise sélection peut engendrer des dommages à l'appareil et créer un danger d'incendie.

Le sélecteur d'alimentation est un commutateur rond positionné près du connecteur d'alimentation. Il se représente comme suit:

A l'aide d'un tourne-vis plat ou d'une pièce de monnaie, le sélecteur peut être tourné dans la position adéquate en veillant que la flèche corresponde avec 110 ou 220, en fonction de la valeur du circuit de courant local. (Voir tableau ci-dessous)



Circuit local AC	Position Sélecteur
110 ~ 120 VAC	110
220 ~ 240 VAC	220

Pour tout les modèles:

Pas de composants à entretenir à l'intérieur. Confiez toute réparation à un technicien qualifié.

Pour les modèles équipés de fusibles internes ou externes:

Afin d'éviter tout danger d'incendie, ne remplacer qu'avec le même type et la même valeur de fusible.

Pour IN2001 / IN3234 / IN3236 / IN3502 / IN3504 / IN3506 / IN3562 / IN3564 / IN3566 / IN3572 / IN3574 / IN3576:

Attention: Double pôle / fusible au neutre.

Pour tout les modèles avec une batterie au lithium interne:

Attention: Danger d'explosion si la batterie est incorrectement remplacée. Ne remplacez la batterie qu'avec le même modèle, ou avec un modèle recommandé par le constructeur. Traitez les batteries usagées selon les instructions du fabricant, ou selon les normes écologiques en vigueur.



Installations und Sicherheitshinweise

Für Geräte ohne Netzschalter:

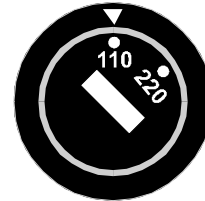
Die Netzsteckdose soll in der Nähe des Gerätes installiert und frei zugänglich sein.

Für Geräte mit 110 / 220V Spannungswähler:

Achtung: Bevor Sie dem Gerät Spannung zuführen, muß der Spannungswähler entsprechend der Spannung des lokalen Wechselspannungsnetzes eingestellt werden. Die falsche Stellung des Spannungswählers kann eine Beschädigung des Gerätes und möglicherweise ein Feuer verursachen.

Der Spannungswähler ist ein runder Schalter in der Nähe der Netzeingangsbuchse mit folgendem Aussehen:

Drehen Sie den Wähler mit einem normalen Schraubenzieher oder einer kleinen Münze so, daß der Pfeil auf die 110 oder 220 zeigt, entsprechend der Spannung Ihres lokalen Netzes wie hier angezeigt:



Lokale Netzwechselspannung	Stellung des Spannungswählers
110 ~ 120 V	110
220 ~ 240 V	220

Für alle Geräte:

Keine Wartung innerhalb des Gerätes notwendig. Reparaturen nur durch einen Fachmann!

Für Geräte mit interner oder externer Sicherung:

Für dauernden Schutz gegen Feuergefahr darf die Sicherung nur gegen eine andere gleichen Typs und gleicher Nennleistung ausgewechselt werden.

Für IN2001 / IN3234 / IN3236 / IN3502 / IN3504 / IN3506 / IN3562 / IN3564 / IN3566 / IN3572 / IN3574 / IN3576:

Achtung: Allpolige Absicherung

Für alle Geräte mit eingebauter Lithium Batterie:

Achtung: Explosionsgefahr bei falschem Batterieeinsatz. Batterie nur ersetzen durch den gleichen oder entsprechenden Typ wie vom Hersteller empfohlen. Entsorgung verbrauchter Batterien nur nach den Anweisungen des Herstellers.



Instalacion E Instrucciones de Seguridad

Modelos Sin Interruptor:

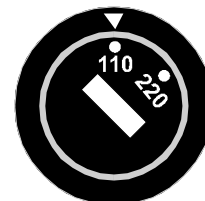
La conexión debe ser instalada cerca del equipo y debe ser accesible.

Modelos con Selector de Voltaje de 110/220V:

Precaución: Antes de operar esta unidad, el selector de voltaje debe instalarse de forma que corresponda a la línea de voltaje local. Instalación inadecuada del selector de voltaje puede causar daño a la unidad y originar un incendio.

El selector de voltaje es un cambio vía redondo localizado cerca de la conexión eléctrica, como se ve en el dibujo:

Use un destornillador común o una moneda pequeña, mueva el selector a la posición correcta, de forma que las flechas indiquen 110 o 220 de acuerdo con el voltaje local, como está indicado a continuación.



Voltaje Local A/C	Selector de Voltaje
110 ~ 120 VAC	110
220 ~ 240 VAC	220

Para Todos Los Modelos:

Dentro de la unidad, no hay partes para reparar. Llame un técnico calificado.

Modelos con Fusibles Internos o Externos:

Para prevenir un incendio, reemplace solo con el mismo tipo de fusible.

Modelos IN2001 / IN3234 / IN3236 / IN3502 / IN3504 / IN3506 / IN3562 / IN3564 / IN3566 / IN3572 / IN3574 / IN3576:

Precaución: Double Polo / Fusible Neutral.

Modelos con Batería de Lithium Interna:

Precaución: Peligro de explosión si la batería es reemplazada incorrectamente. Reemplace solamente con la misma clase de batería, o una equivalente recomendada por el fabricante. Deseche las baterías usadas de acuerdo con las instrucciones del fabricante.

CE COMPLIANCE

All products exported to Europe by Inline, Inc. after January 1, 1997 have been tested and found to comply with EU Council Directive 89/336/EEC. These devices conform to the following standards:

EN50081-1 (1991), EN55022 (1987)

EN50082-1 (1992 and 1994), EN60950-92

Shielded interconnect cables must be employed with this equipment to ensure compliance with the pertinent Electromagnetic Interference (EMI) and Electromagnetic Compatibility (EMC) standards governing this device.

**FCC COMPLIANCE**

This device 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 against harmful interference when 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 equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at their own expense.

DESCRIPTION

The **IN3252HR** is a one input, two output distribution amplifier / line driver designed to split a single RGBHV signal to two data monitors, data projectors, or other RGBHV compatible output devices. Capable of increasing signal voltage by up to 40%, the **IN3252HR** also functions as a line driver, allowing video signals to be sent down longer cables that would be possible without a line driver. Actual maximum drive distance depends on the resolution of the video signal and is largely determined by the bandwidth of the cable used for input and output connections.

PRODUCT FEATURES

- **Two Buffered Outputs** – Allows the signal from one RGBHV source to drive two displays.
- **600 MHz Video Bandwidth** – Provides superb video performance and compatibility with ultra-high resolution video signals from graphic workstations.
- **External Gain Controls** – Individual gain controls for Red, Green and Blue Signals. Permits accurate adjustment of gray scale and increases signal voltage to drive long cable runs.
- **Sharpness Control** -- Enhances high resolution video signals. Provides improved image clarity and boosts visibility of fine details.
- **BNC input and output connectors**
- **Wide Compatibility** – Compatible with RGBHV, RGBS, RGsB, RsGsBs, Component, Y/C, High Resolution Monochrome Video and Composite Video Baseband Signals.
- **Loop Output** – Provides passive loop-through signal which can drive additional amplifiers to create a larger DA system or drive a local monitor.
- **Metal case enclosure**
- **Optional Mounting Brackets**

COMPATIBILITY

The **IN3252HR** will operate with RGBHV, RGBS, RGsB, and RsGsBs analog video input signals. When amplifying RGsB signals (sync on green) and RsGsBs signals (sync on all) only use the red, green, and blue channels (i.e.: leave the sync channels open.) The red, green, and blue channels may also be used to amplify or split composite NTSC video signals.

INSTALLATION

1. *If operating the **IN3252HR** without loop output (factory default,) begin with step 2.* If operating the **IN3252HR** with the loop output connector, please refer to **INTERNAL CONTROLS** section on page 3 and set jumpers as appropriate.
2. Connect the red, green, blue, and sync signals from the source to the input of the **IN3252HR** (see the **Compatibility** section for details on Sync on Green and Sync on All signals.)
3. Connect output red, green, blue and sync signals to the display devices or other equipment. When distributing higher scan rate signals over long cable lengths, cable choice is very critical to overall system performance. The **IN7000-5 / IN7100-5 / IN7200-5 Series** High Resolution RGBHV cables are available in a variety of lengths and are well suited for this purpose.
4. Connect power by plugging in the power supply.
5. Adjust gain and sharpness controls if required (see **OPERATION** section for details.)

OPERATION

The **IN3252HR** has external gain / sharpness controls and internal jumpers which may be used to customize the **IN3252HR** for specific needs (see diagram on page 3.) While the internal controls need not be changed from the factory default settings for most installations, this section describes how to change the jumper settings for unique applications. For all jumper settings in this section, orient the unit so the RGBHV / POWER input side is facing towards you and the output side is facing away.

GAIN AND SHARPNESS CONTROLS

The gain controls may be used to adjust the Red, Green, and Blue output signal voltage over a gain range of 0.7 to 1.4. These controls may be used to calibrate the color balance or to increase the signal voltage, compensating for signal losses due to long cable runs. Sharpness may be used to reboost high frequency components that have been attenuated by long cable runs. The sharpness control employs an equalization circuit, introducing an adjustable high frequency peak.

Gain Control

The gain control is used to increase/decrease the contrast of an image by adjusting the amplitude of the video signal. The control has a range of 0.7 to 1.4. Using the IN9333 adjustment tool, gently turn the control clockwise to increase the video gain, and counter-clockwise to decrease the gain.

Sharpness Control

The sharpness control enhances image detail and sharpness by boosting high frequencies. This control is optimized for signal frequencies of 30 KHz and higher. There is little visible effect for lower scan rate signals such as NTSC/PAL. Using the IN9333 adjustment tool, gently turn the control clockwise to increase peaking, and counter-clockwise to decrease the peaking.

LOOP OUTPUT CONNECTOR

The loop output connector provides a passive loop-through signal. This can be looped through to additional amplifiers to create a larger DA system or to drive a local monitor. In order to use the loop output, the Input termination jumpers (internal) must be set to High Z (unterminated.) The locations of the input termination jumpers are indicated on page 3. *If you are driving a local monitor, be sure to keep the cable shorter than 12 feet in order to prevent reflections.*

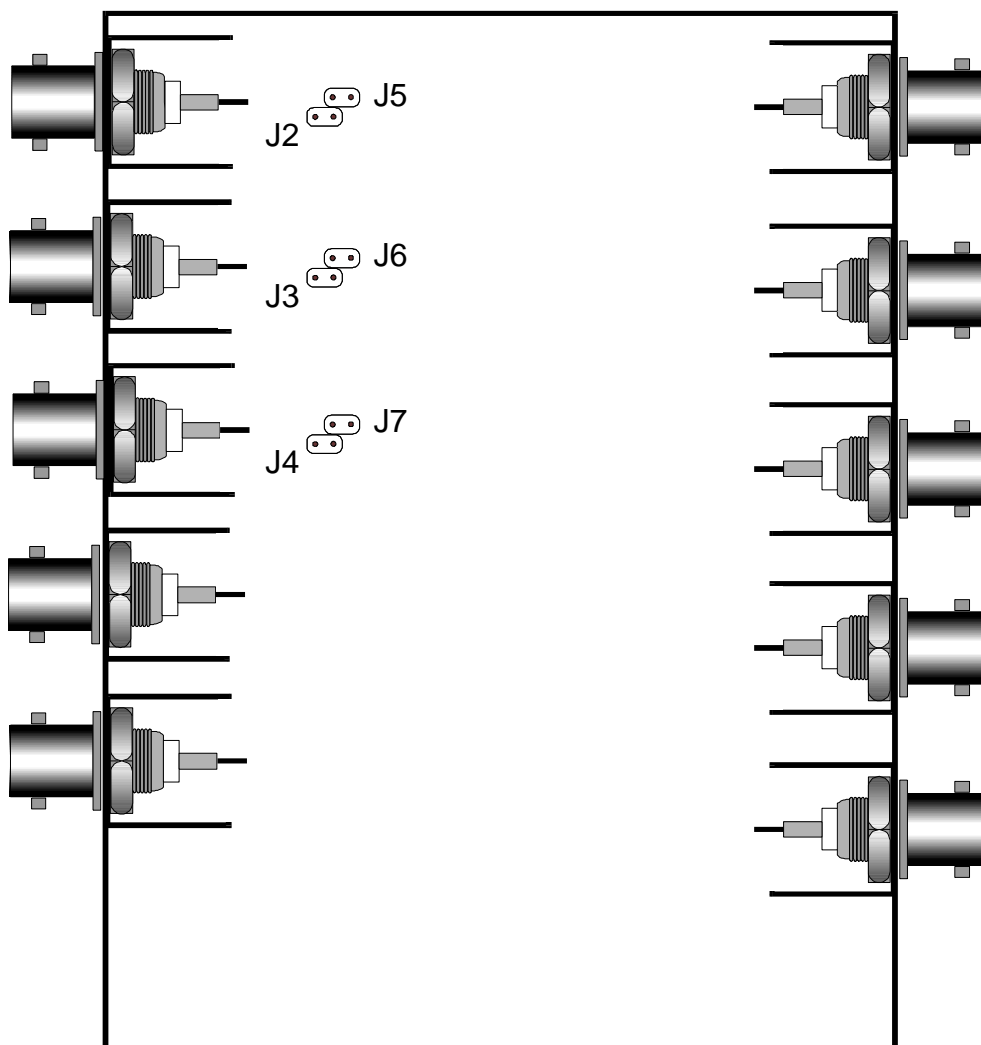
INTERNAL CONTROLS

CAUTION: Adjustment of the IN3252HR internal controls must only be carried out by qualified technicians. Care must be taken to avoid static shock to the internal components. Power must be removed from the unit before making any jumper changes.

The **IN3252HR** has internal jumpers which can be accessed using the following procedure:

1. Remove power from the unit.
2. Remove the screws from the sides of the unit and slide the top cover off.
3. Identify location of jumpers using the diagram on page 3 and adjust as needed.
4. Replace top cover and tighten screws.

IN3252HR Internal Jumpers



Jumper Functions

J2, J3 & J4	*Closed Open	Input Terminated into 75 ohms Input Unterminated (High Z)
J5, J6 & J7	*Open Closed	AC Coupling DC Coupling

Table of Operating Modes

	J2, J3 & J4
*Input is Terminated to 75ohms (Loop Through Not Used)	Closed
Input is Unterminated (High Z) (Loop Through Connected to a Local Monitor or Another Amplifier)	Open

*Factory Default Settings

SPECIFICATIONS

IN3252HR 1 X 2 RGBHV Distribution Amplifier / Line Driver	
Input	
Connector	5 BNC female for RGBHV
Video	1.5 Vp-p max.
Input Terminations	75 ohm (factory default) or High Z (unterminated)
Sync	0.5 to 5.0 Vp-p
Output	
Connectors	Two sets of 5 female BNC for RGBHV
Loop Output	5 female BNC for RGBHV
Video	75 Ohm impedance
RGB Gain	0.7 to 1.4
Sync	TTL
General	
Bandwidth	600 MHz @ -3dB
Internal Jumpers	Input Termination 75 ohm / High Z; AC / DC Coupling
Dimensions	
Size	5.25" x 5.1" x 1.6" / 13.3cm x 13.0cm x 4cm
Weight	Shipping: 3 lbs. / 1.5 Kg Product: 1 lb. / .4 Kg
Power	
Power Supply	9VDC 500 mA
Consumption	4 Watts
Accessories Included	
	IN9204 External Power Adaptor
	Operation Manual
	IN9333 INLINE Adjustment Tool
Optional Accessories	
	IN7000-5, IN7000P-5, IN7100-5, IN7200-5 Coaxial Cables Available in Lengths from 3' to 250' or in Bulk
	IN9128 Mounting Brackets
Regulatory Approvals	UL1950, CAN/CSA-22.2 No.950, Third Edition CE: EN5502 (1987), EN50081-1 (1991), EN50082-1 (1992 and 1994), EN0950-92

TROUBLESHOOTING

Problem: *There is no image displayed on the projector. The output of the IN3252HR doesn't seem to work.*

Suggestions:

- ❑ Verify that the signal from the graphics source is compatible with the projection device by connecting them directly (bypass the **IN3252HR**.)
- ❑ Check to make sure the sync cables are good. Try sending the sync signals on different cables.
- ❑ Check the power supply. If the power supply is receiving power and working properly it should feel slightly warm to the touch after it has been plugged in for half an hour. If the power supply feels cool to the touch you may have either a faulty A/C power source or a bad power supply.

Problem: *One of the colors is completely missing from the projected image.*

Suggestion:

- ❑ Verify that the input and output cables are good. Bypass the missing color signal around the **IN3252HR**, joining the input and output cable for that one color together with a BNC barrel. If the problem goes away, the **IN3252HR** may be faulty. If the problem persists, one of the input/output cables or the graphics source is faulty.

Problem: *The colors are not displayed properly on the projector/monitor.*

Suggestions:

- ❑ Verify that all RGB connections are correct and that none of the colors are swapped.
- ❑ The **IN3252HR** gain controls may be misadjusted. Begin by setting the three gain controls to a similar position.
- ❑ Bypass the **IN3252HR**. If the problem persists, the data projector may have the video drive levels on the CRTs misadjusted. Re-calibrate the Red, Green, and Blue drive levels.

Problem: *The projected image is far too "hot," appearing excessively white and washed-out.*

Suggestions:

- ❑ Bypass the **IN3252HR**. If the image looks better, the **IN3252HR** RGB gain controls may be set too high. Reinstall the **IN3252HR** into the signal path and reset the gain controls to a lower level. If the problem persists after the **IN3252HR** is removed try the following suggestions.
- ❑ Check the termination switches on the monitor or video projector. The termination switches should be set to "75 Ohm Termination" unless the signal is being looped to another display device.
- ❑ Check the brightness and contrast settings on the projector or monitor. Many CRT type devices look best when the contrast is set towards the upper end of the adjustment range (80% - 95%) and the brightness is set in the middle of the adjustment range (40 - 65%).
- ❑ The input termination may be set to High Z. Check the termination jumper settings (see page 3.)

Problem: *The IN3252HR is being used to drive / split five separate composite video signals. The three signals on the Red, Green, and Blue are working well, but the H & V Sync connectors don't seem to pass the other two video signals*

Suggestion:

- ❑ While it is perfectly fine to use the Red, Green, and Blue channels to drive or split composite video signals, the Sync channels are designed to work with digital sync signals and will not properly amplify analog video signals.

Problem: *The loop output is not working.*

Suggestion:

- ❑ The input termination for input 1 must be set to High Z. Set the internal jumpers as shown on page 3.

WARRANTY

- ◆ Inline warrants the equipment it manufactures to be free from defects in materials and workmanship.
- ◆ If equipment fails because of such defects and INLINE is notified within two (2) years from the date of shipment, INLINE will, at its option, repair or replace the equipment at its plant, provided that the equipment has not been subjected to mechanical, electrical, or other abuse or modifications.
- ◆ Equipment that fails under conditions other than those covered will be repaired at the current price of parts and labor in effect at the time of repair. Such repairs are warranted for ninety (90) days from the day of re-shipment to the Buyer.
- ◆ **This warranty is in lieu of all other warranties expressed or implied, including without limitation, any implied warranty or merchantability or fitness for any particular purpose, all of which are expressly disclaimed.**

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