



A WORLD OF A/V SOLUTIONS



DISTRIBUTION AMPLIFIERS

**IN3218HR**  
VIDEO DISTRIBUTION AMPLIFIER / LINE DRIVER 1-IN, 8-OUT



**IN3218HR**  
**OPERATION MANUAL**



## Installation and Safety Instructions

**For Models without a Power Switch:**

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

**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.



## 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 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.



## Installations- und Sicherheitshinweise

**Für Geräte ohne Netzschalter:**

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

**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 ausgetauscht werden.



## Instalacion E Instrucciones de Seguridad

**Modelos Sin Interruptor:**

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

**Para Todos Los Modelos:**

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

**Modelos con Fusibles Internos o Externos:**

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

### 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.

## Product Overview

### DESCRIPTION

The **IN3218HR** is a high performance video distribution amplifier / line driver offering 300 MHz bandwidth performance. The unit is commonly used to amplify and split the signal from one video source out to several monitors, projectors, VCRs and / or other output devices.

**Eight Buffered Outputs - In Normal Mode** the **IN3218HR** is a one-in eight-out video distribution amplifier that can simultaneously drive up to eight output devices. By changing the input jumper, the unit can also be set for **Split Mode** where it operates as two independent 1 x 4 distribution amplifiers. The **IN3218HR** has (4) gain controls and (2) sharpness controls.

**Composite Video Signal Compatibility** - While the **IN3218HR** is most often used with NTSC, PAL or SECAM composite video signals, it offers extremely wide bandpass characteristics and is also compatible with high-resolution monochrome signals at virtually any resolution and refresh rate.

**Loop Output** - The **IN3218HR** loop output connector provides a passive loop-through signal, allowing the user to utilize additional amplifiers to create a larger DA system or to drive a local monitor. In order to use the loop output, the input termination jumper (internal) must be set to High Z (unterminated).

**Line Driving** - The **IN3218HR** is designed to extend video signals down long cable runs. The **Gain Controls** have an adjustment range of 0.7 (30% decrease) to 1.4 (40% increase). These controls can be used to boost video signals to compensate for voltage losses caused by lengthy cable runs.

**Peaking Controls** - have been optimized for maximum effect with NTSC / PAL / SECAM composite video signals. These controls can be adjusted to compensate for high frequency loss in long cable runs. The peak controls also enhance video image quality by increasing clarity and boosting visibility of fine details.

The **IN3218HR** offers high performance, rugged metal construction and flexible video distribution / line drive capabilities, making it suitable for a wide variety of applications including audiovisual installations, medical imaging, military simulation, industrial video and tradeshow video systems. The unit features an **internal power supply** that is pre-set at the factory for 120 VAC or 230 VAC operation. Two units can be rack mounted side-by-side in a 1U rack space using the optional **IN9080** Rack Shelf. A single unit can be rack mounted using the **IN9080** Rack Shelf and an **IN9088** Blank Panel.

## Installation

*If operating the **IN3218HR** in **Normal Mode** without loop output (factory default,) begin with step 2. If operating the **IN3218HR** in split mode or with the loop output connector, please refer to **INTERNAL CONTROLS** section on page 3 and set the appropriate jumpers.*

1. Place / install the **IN3218HR** at the desired location. Make sure that the unit is seated on a flat surface or is securely installed in a standard 19" equipment rack using an **IN9080** rack shelf (optional).
2. Connect the video signal from the source to the **IN3218HR** input.
3. Connect the output(s) to the display device(s) or other equipment.
4. Apply power to the unit using the **IN9230** IEC Power Cord (U.S. only).
5. Adjust gain and peaking controls as needed (see the **GAIN AND PEAKING CONTROLS** section on the following page).

## Operation

The **IN3218HR** is designed to distribute / extend video signals. The unit features gain and peaking controls which can compensate for signal loss (associated with long cable runs), extending a video signal as far as 800 feet with minimum degradation. Actual drive distance depends on the resolution of the signal and the quality of the cable used. Typically, low-resolution video signals (15KHz) can be sent 600-800 feet, and high-resolution signals (30 KHz and above) can be sent 200-400 feet.

### NORMAL MODE / SPLIT MODE OPERATION

The **IN3218HR** can function in two different amplification modes (normal mode or split mode) as described below:

**Normal Mode (factory default):** The unit operates as a single amplifier (the input signal drives all eight outputs). The second connector adjacent to the input may be used as a loop output if the internal jumpers are set properly.

**Split Mode:** The unit operates as two independent amplifiers (each input drives four outputs). In split mode operation, the **IN3218HR** can be used to amplify two separate composite video signals or to amplify a single S-Video signal, with the Y (luminance) signal connected to one input connector and the C (chrominance) signal connected to the second input connector.

Please note that in split mode there is no loop output connector since the Loop Out / Input 2 Connector is used as an input. However, if a loop output is required, the inputs can be set to High Z termination using the internal jumpers, and an **IN9003** BNC "T" connector can be used to split the signal at the input.

### 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 jumper (internal) must be set to High Z (unterminated). Instructions for changing the input termination jumper are on the following page.

### GAIN AND PEAKING CONTROLS

The gain controls can be used to compensate for video signal voltage losses. Peaking may be used to re-boost high-frequency components that have been attenuated by long cable runs. The peaking 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 (30% decrease) to 1.4 (40% increase). The factory default setting is 1.0 (unity gain). Using the **IN9333** adjustment tool, gently turn the control clockwise to increase the video gain, and counter-clockwise to decrease the gain.

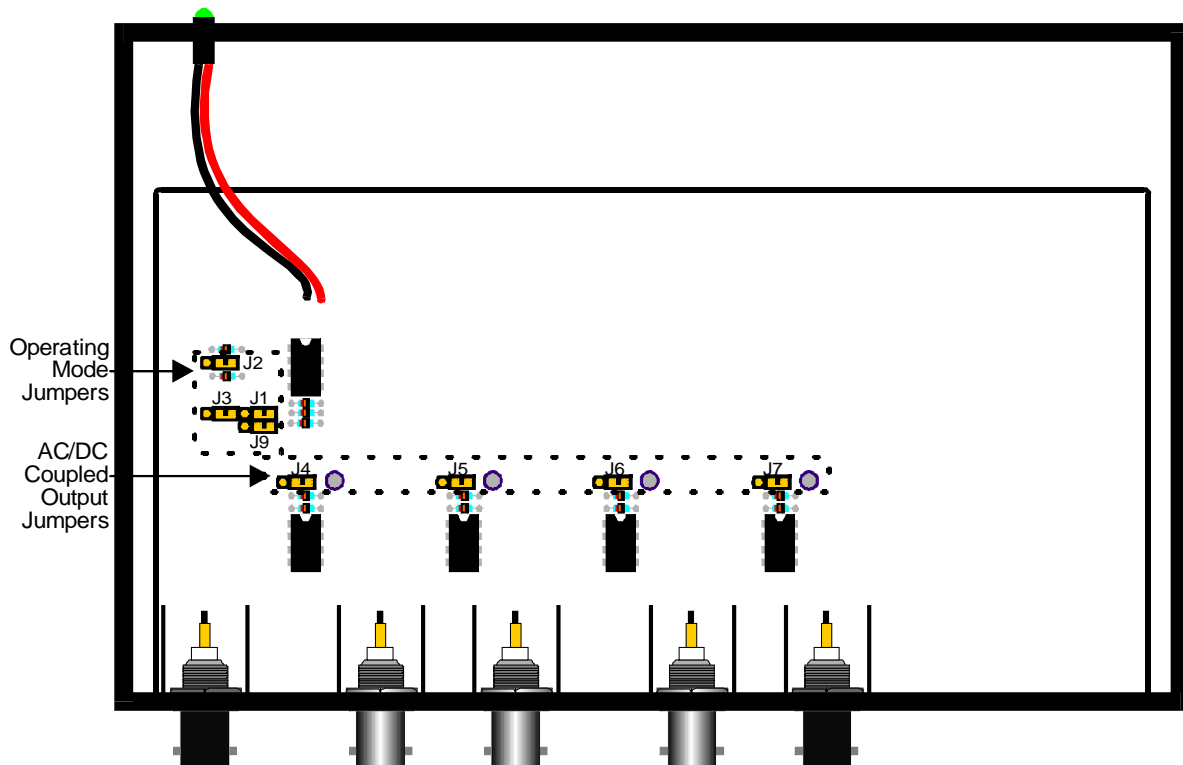
**Peaking Control:** The peaking control enhances image detail and sharpness by boosting high frequencies. Using the **IN9333** adjustment tool, gently turn the control clockwise to increase the peaking, and counter-clockwise to decrease the peaking.

## INTERNAL CONTROLS

**CAUTION:** Adjustment of the IN3218HR internal controls must only be carried out by qualified technicians. Care must be taken to avoid static shock to the internal components.

1. Remove the screws from the sides of the unit.
2. Slide the top cover off.
3. Identify the location of the jumpers using the diagram below and adjust as needed.
4. Replace the top cover and tighten the side screws.

## IN3218HR INTERNAL JUMPERS



## JUMPER FUNCTIONS

<b>J2</b>	*Closed Open	Input Terminated into 75 ohms Input unterminated (High Z)
<b>J1 &amp; J3</b>	*Closed Open	Unit Operates as One 1 x 8 Distribution Amplifier Unit Operates as Two 1 x 4 Distribution Amplifiers
<b>J9</b>	Closed *Open	Input #2 Terminated into 75 ohms Input #2 unterminated (High Z)
<b>J4 / J5 / J6 / J7</b>	Closed *Open	Outputs DC Coupled Outputs AC Coupled

\*Factory Default Settings

## TABLE OF OPERATING MODES

	J2	J3	J1	J9
*Normal Mode - Unit Operates as a Single 1 x 8 Distribution Amplifier Input is Terminated (No Loop-Through)	Closed	Closed	Closed	Open
Normal Mode - Unit Operates as a Single 1 x 8 Distribution Amplifier Input is Unterminated (Using Loop Output)	Open	Closed	Closed	Open
Split Mode - Unit Operates as Two Independent 1 x 4 Distribution Amplifiers Input 1 & Input 2 Terminated into 75 ohms	Closed	Open	Open	Closed
Split Mode - Unit Operates as Two Independent 1 x 4 Distribution Amplifiers Input 1 & Input 2 Unterminated (High Z)	Open	Open	Open	Open

\*Factory Default Settings

## Specifications

IN3218HR Video Distribution Amplifier	
<b>Input</b>	
Input 1	(1) BNC for composite video signals Termination: 75 ohms or High Z
Signal	Analog Video, 1.5 Vp-p max.
Loop Out / Input 2	(1) BNC Termination: 75 ohms or High Z
<b>Output</b>	
Connectors	(8) BNC female
Impedance	75 ohms
Gain Range	0.7 (30% decrease) to 1.4 (40% increase)
<b>General</b>	
Bandwidth	300 MHz @ -3dB
Internal Jumpers	(2) Input termination (2) Normal / Split Mode
Power	Internal; Factory set for 120 VAC or 230 VAC
Dimensions	1.65" x 6.8" x 4.8" / 4.2cm x 17.3cm x 12.2cm
Weight	Product Weight: 1.5 lbs. / 0.7 kg. Shipping Weight: 3 lbs. / 1.5 kg.
<b>Regulatory Compliance</b>	
Safety	UL 1950, 3 <sup>rd</sup> Ed.; CE: EN60950-92; CAN/CSA-22.2 No 950, 3 <sup>rd</sup> Ed.
EMI	FCC class A; CE: EN55022 (1987), EN50081-1 (1991), EN50082-1 (1992 & 1994), EN60950-92

Parts Included
<b>IN9333</b> - Gain / Peaking Adjustment Tool <b>IN9230</b> - IEC to Edison Power Cord (U.S. only) Operation Manual

Optional Accessories
<b>IN9080</b> - Rack Shelf (for mounting two units in a 1U rack space) <b>IN9088</b> - Rack Shelf Blank Plate (for mounting a single unit in a 1U rack space) <b>IN9003</b> - BNC "T" <b>IN7200-1</b> Ultra High-resolution Single Conductor Video Cables - Available in a Variety of lengths from 6' to 250'

## Troubleshooting

**The output device connected to the IN3218HR has no image.**

**Solution 1:** Make sure the power supply is plugged in and that the input and output cables are connected properly.

**Solution 2:** Bypass the **IN3218HR** by connecting the input and output cables with a BNC barrel connector to ensure there is a video signal present.

**The output image is too dark.**

**Solution:** Make sure the display device contrast and brightness controls are set properly. Then increase the appropriate **IN3218HR** gain control until the desired image is achieved.

**The output image is too bright or the picture blooms.**

**Solution 1:** Make sure the display device contrast and brightness controls are set properly. Then decrease the appropriate **IN3218HR** output gain control until the desired image is achieved.

**Solution 2:** The input termination may be set to High Z. Check the termination jumper settings (see page 3).

**The output image is not sharp enough. Vertical lines are very thin.**

**Solution 1:** Make sure you are using the appropriate video cable for your signal type. When dealing with high-resolution video signals, a high quality coaxial cable must be used for long distance cable runs (100 ft. or more). **IN7200** series cables are recommended for very lengthy cable runs.

**Solution 2:** Increase the peaking control of the **IN3218HR** to compensate for high frequency losses.

**The loop output is not working.**

**Solution:** 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.**

The information in this manual has been carefully checked and is believed to be accurate. However, INLINE, Inc. assumes no responsibility for any inaccuracies that may be contained in this manual. In no event will INLINE, Inc. be liable for direct, indirect, special, incidental, or consequential damages resulting from any defect or omission in this manual, even if advised of the possibility of such damages. The technical information contained herein regarding **IN3218HR** features and specifications is subject to change without notice.

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