

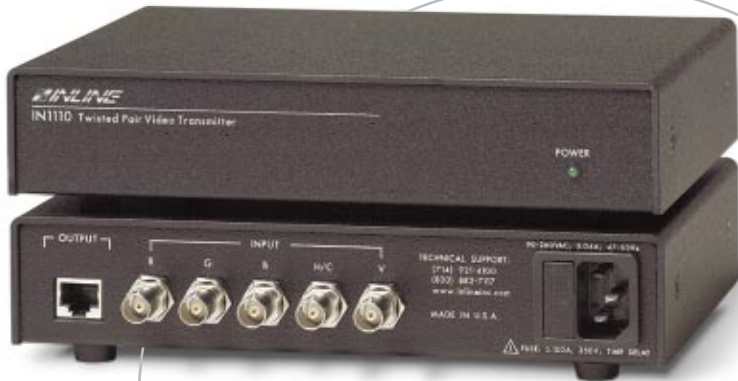


A WORLD OF A/V SOLUTIONS



SPECIALIZED PRODUCTS

IN1110 / IN1111
TWISTED PAIR VIDEO TRANSMITTER & RECEIVER



IN1110
TWISTED PAIR
VIDEO TRANSMITTER

IN1111
TWISTED PAIR
VIDEO RECEIVER



IN1110/IN1111
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 **IN1110 Twisted Pair Video Transmitter** and the **IN1111 Twisted Pair Video Receiver** combine to create a video transmission system for sending high-resolution RGBHV video signals *up to* 1000 feet (300 meters) using Category 5 (CAT5) unshielded twisted pair (UTP) cable. The **IN1110 / IN1111** twisted pair transmission system allows A/V system designers and installers to take advantage of the compact size, flexibility and extremely low cost of CAT5 UTP cable.

IN1110 Transmitter - Input signals are connected to the **IN1110**, which features five BNC connectors for video input and an RJ45 female receptacle for direct connection to CAT5 cable.

IN1111 Receiver - features an RJ45 input receptacle for direct connection to the CAT5 link cable. Five female BNC connectors are provided for the output signal. The **IN1111** includes a front panel compensation control and LED indicators that lets users select the optimum cable equalization for various lengths of CAT5 cable. The **IN1111-0** receiver has been optimized for short to medium length cable runs, offering cable compensation settings from 60 feet (18 meters) to 300 feet (90 meters). The **IN1111-1** receiver is optimized for longer cable runs, offering cable compensation settings from 200 feet (60 meters) to 1000 feet (300 meters).

Rack Mountable - Two **IN1110** or **IN1111** can be mounted side-by-side in a 1-U rack space using the optional **IN9080** rack shelf. A single **IN1110** or **IN1111** can be rack mounted with the **IN9080** Rack Shelf and the **IN9088B** Blank Plate.

ADVANTAGES OF CAT5 CABLE

Category 5 cable is a 4-pair, twisted pair cable that's extremely affordable, costing only a fraction of high-resolution multi-conductor coaxial cables. In addition, CAT5 cable features:

Quick and Easy Termination - Utilizing RJ45 connectors, CAT5 cables offer fast, easy and extremely economical cable terminations.

Easy Handling and Compact Size - CAT5 cable is much thinner than high-resolution and super high-resolution coaxial cables, providing easy cable pulls and preserving conduit space. The **IN1110 / IN1111** twisted pair system uses just one CAT5 cable to transmit an entire high-resolution RGBHV signal. Using multiple **IN1110** transmitters and **IN1111** receivers allows users to send a dozen or more RGBHV signals in the same conduit space required for a single high-resolution 5-conductor coaxial cable.

INLINE CAT5 Cables - **INLINE** offers the **IN9500** series of CAT5 cables, available in lengths from 50 feet to 300 feet (longer lengths are available via special order). These high quality CAT5 cables are pre-terminated with molded RJ45 connectors for enhanced durability.

Leveraging the many benefits of CAT5 cable, the **IN1110 / IN1111** A/V system provides an economical, space efficient solution for high-resolution video transmission in a variety of applications.

Compatibility

INPUT

The **IN1110 / IN1111** Twisted Pair Video Transmission System is compatible with analog video RGBHV or RGSB signals at a variety of resolutions and refresh rates.

OUTPUT

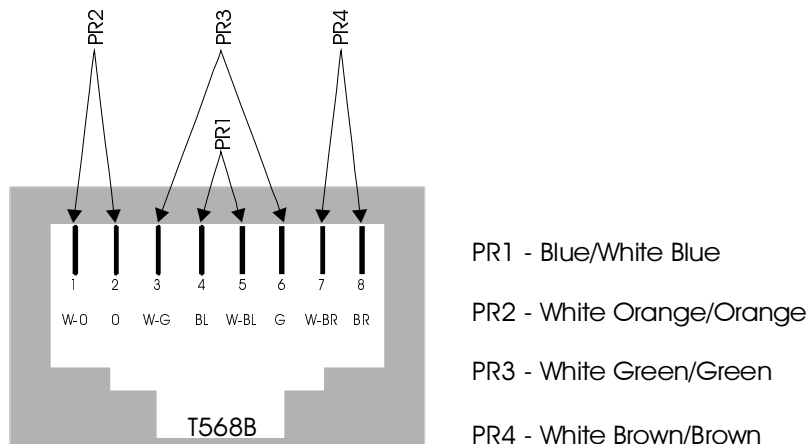
The output signal of the **IN1110 / IN1111** system is analog RGB video on 4 or 5 female BNC connectors. The system features ample bandwidth performance for VGA signals at the highest resolutions.

Installation

This section offers step-by-step instructions for installing the **IN1110 / IN1111** Twisted Pair Video Transmitter and Receiver System. An application diagram is included on page 4.

1. Place / install the **IN1110** and **IN1111** at their desired locations. Make sure that the unit(s) is seated on a flat surface or is / are securely installed in a standard 19" equipment rack (or larger) in a 1-U rack space (using the optional **IN9088** Rack Shelf).
2. Run the appropriate **IN9500** CAT5 cable from the **IN1111** to the **IN1110**. *
Note: Always test your cable(s) prior to any permanent installation.
3. It is imperative that the wired pairs in the **IN1110 / IN1111** CAT5 system adhere to the wiring standards shown on page 3, otherwise the system will not function properly. The pertinent standard for INLINE's CAT5 cable is the TIA 568B. In order for the **IN1110 / IN1111** system to function properly, the CAT5 wire pairs (regardless of their color) must be maintained within both RJ45 connectors.

TIA 568B STANDARDS FOR CAT5 CABLE - EIGHT POSITION MODULAR JACK PAIR ASSIGNMENTS FOR RJ45 CONNECTORS

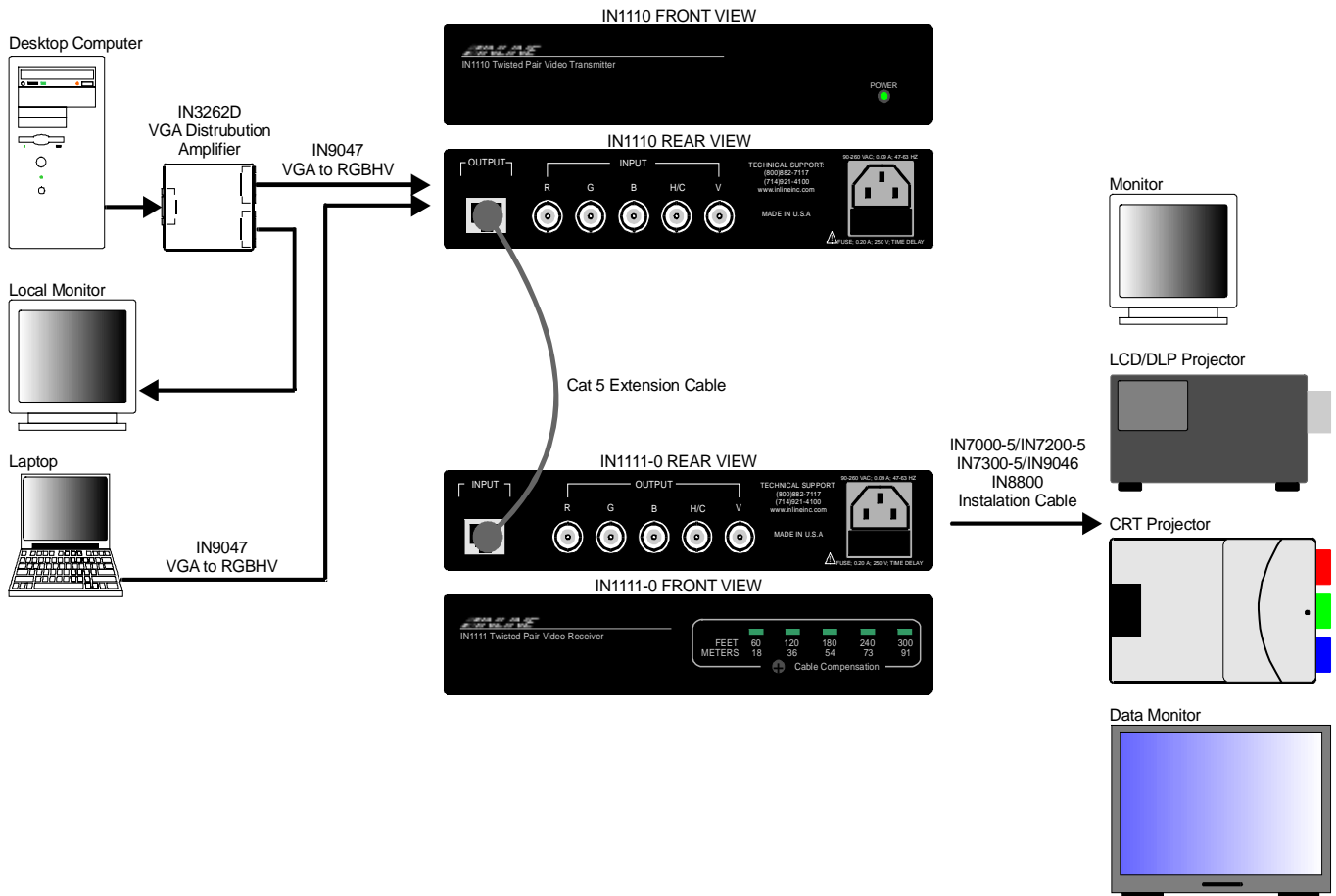


4. Connect one end of the CAT5 cable to the CAT5 Input Receptacle on the back of the **IN1111-0 / IN1111-1** Receiver. Connect the other RJ45 connector to the CAT5 Output Receptacle on the back of the **IN1110** Transmitter.
5. Connect the **IN1110** input to the data output device's RGB output. Installers can use multiple high-resolution BNC cables or a multi-conductor RGBHV / RGBS "snake" (4 or 5 BNC cables bundled in a single jacket). The **IN7000 / IN7200 / IN7300 Series** high-resolution cables are well suited for this purpose. While making connections, take care to insure that the red output is connected to the red input, green output to the green input, etc.
6. Connect the **IN1111-0 / IN1111-1** output to the data display device's RGB input. A list of available RGB output cables can be found on page 6.
7. A local monitor can be attached to the CPU by utilizing a VGA Distribution Amplifier such as the **IN3262D**. All **INLINE** Distribution Amplifiers feature two or more buffered outputs which allow the signal from one computer graphics card to be split out to the **IN1110** and a local monitor(s) / display device(s). Other available **INLINE** Distribution Amplifiers can be found on page 5.
8. Connect power to the transmitter and receiver using the **IN9230** IEC power cables (included).
9. Complete the installation by turning on the data output and display devices.

** Although CAT5 cable significantly reduces signal loss associated with long cable runs (as compared to standard coaxial cable), it does have its limits. High-resolution video signals require a higher bandwidth. The higher the signal bandwidth, the shorter the distance it can be transmitted along any cable before it begins to degrade. The table below provides the maximum recommended cable lengths for the **IN1110 / IN1111-1** system using CAT5 cable:*

Resolution	Maximum Length
1600 x 1200	200'
1280 x 1024	400'
1024 x 768	600'
800 x 600	800'
640 x 480	1000'

IN1110 / IN1111 APPLICATION DIAGRAM



Operation

The **IN1110 / IN1111** Twisted Pair Video Transmitter & Receiver System comes in two versions: a 300-foot system (**IN1111-0**), and a 1000-foot system (**IN1111-1**). All differences between the two systems lie in the **IN1111** receiver only. Both units feature a cable compensation control (located on the right of the faceplate) that allows operators to fine tune video images whose signals are transmitted over long cable runs. Both units are optimized for five discreet lengths:

IN1111-0 - 60', 120', 180', 240' and 300'.

IN1111-1 - 200', 400', 600', 800' and 1000'.

Using the **IN9333** adjustment tool (included), turn the cable compensation regulator clockwise about 2½ turns to enhance the signal's intensity from one level to the next. Turning the compensator counter clockwise decreases the signals intensity. LEDs located above the regulator allow users to match the signal's intensity to the length of the CAT5 cable. Once the LEDs indicate that the proper signal transmission level has been set, gently adjust the regulator until optimum sharpness and picture quality is achieved.

Specifications

IN1110 / IN1111 Twisted Pair Video Transmitter and Receiver	
IN1110	
Input Connectors	(5) BNC Female
Output Connectors	(1) RJ45 Female
RGB Signals	Analog Video, 1.5 Vp-p max.
Sync Signals	TTL
Compatible Formats	RGBHV, RGBS Analog Video Signals
IN1111	
Input Connector	(1) RJ45 Female
Output Connector	(5) BNC Female
Cable Compensation	IN1111-0: 60 - 300 feet; IN1111-1: 200 - 1000 feet
General	
Power Supply	Internal Switch Mode: 90 - 260 VAC; 47 - 63 Hz
Shipping Weight	4 lbs. / 2 Kg.
Product Weight	2.2 lbs. / 1.0 Kg.
Dimensions	1.65" x 8.5" x 6" / 4.2 cm. x 21.6 cm. x 15.2 cm.
Regulatory Approvals	UL 1950, CAN/CSA-22.2 No. 950, 3 rd Edition CE: EN55022 (1987), EN 50081-1 (1991), EN50082-1 (1992 and 1994), EN60950-92

Parts Included
IN1110 - Video Transmitter, or IN1111-0 / IN1111-1 - Video Receiver IN9333 - Adjustment Tool (included with IN1111-0 / IN1111-1 only) IN9230 - IEC Power Cable, 6' long (USA only) Operation Manual

Optional Accessories
CAT5 Link Cable
IN9550 - 50' Long IN95100 - 100' Long IN95150 - 150' Long IN95200 - 200' Long IN95250 - 250' Long IN95300 - 300' Long (Custom / longer lengths are available via special order. Call INLINE at (800) 882-7117)
VGA Distribution Amplifiers (for local monitor)
IN3262D / IN3262DS: High-Resolution 1-In 2-Out D.A. IN3264: High-Resolution 1-In 4-Out D.A. IN3268: High-Resolution 1-In 8-Out D.A.
VGA Cables
IN8000 Series High Resolution VGA Cables with 15-Pin HD Connectors (available in a variety of lengths) IN904x: 15-Pin HD Male VGA to 5 BNC Male Cable (available in various lengths)
Hardware
IN9080 - Rack Shelf IN9088B - Blank Plate (Black)

RGB Output Cables and Connectors		
Cables*	4-Conductor	5-Conductor
Standard Resolution	IN7000-4	IN7000-5
Standard Resolution, Plenum	IN7000P-4	IN7000P-5
Ultra High Resolution	IN7200-4	IN7200-5
Super High Resolution		IN7300-5
Connectors		
IN9301: BNC Male connector for terminating IN7000 Series bulk cable and IN7200 / IN7300 / IN8800 sync wires IN9303: BNC Male connector for terminating IN7200 Series bulk cable IN9304: BNC Male connector for terminating IN7300 Series bulk cable		
Tools		
IN9320: Crimp Tool Frame IN9321: Die (IN9320 and IN9321 are used to terminate bulk cables)		

*All cable grades are available in lengths from 3' to 250.' All grades can be ordered pre-terminated with high quality BNC connectors or as bulk cable

Troubleshooting

Problem: The output image is missing a color

Solution: Possibly the RGBHV / RGBS cable is bad. Try switching connectors on the output to verify that the bad color's cable is OK (*Example:* If there is on red, try running the green output through the red cable and see if the green is displayed or not).

Problem: The IN1110 / IN1111 is plugged in but the power indicator light / LED display on the front panel is dark.

Solution 1: Make sure that the **IN9230** IEC power cable is securely plugged into the unit and the A/C source.

Solution 2: Make sure the A/C source is live.

Problem: LED's on the front panel of the IN1111 are illuminated, but the data display connected to the receiver has a bad / scrambled image.

Solution 1: Make sure the data display device is on.

Solution 2: Make sure the power light on the **IN1110** is illuminated.

Solution 3: Make sure that both RJ45 connectors of the CAT5 cable are securely seated in each unit.

Solution 4: The RGBHV or RGBS cable may have a bad sync line. Try running the sync through another cable.

Problem: The image on the IN1111 monitor is blurry.

Solution: The signal may be overdriven. Adjust the cable compensation regulator on the **IN1111** so that the signal's intensity matches the length of the CAT5 cable. Once the LEDs indicate that the proper signal transmission level has been set, gently adjust the regulator until optimum sharpness and picture quality is achieved.

If problems persist, call INLINE Technical Services at (800) 882-7117 for further assistance.

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 the **IN1110 / IN1111** features and specifications is subject to change without notice.

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