

User's Manual



MTP 4T 15HD RS

**4 High Resolution Video and Serial Link
Mini Twisted Pair Transmitter Assembly**

68-1398-01 **Rev. A**
12 07



Extron Electronics, USA
1230 South Lewis Street
Anaheim, CA 92805
800.633.9876 714.491.1500
FAX 714.491.1517

Extron Electronics, Europe
Beeldschermweg 6C
3821 AH Amersfoort, The Netherlands
+800.3987.6673 +31.33.453.4040
FAX +31.33.453.4050

Extron Electronics, Asia
135 Joo Seng Rd. #04-01
PM Industrial Bldg., Singapore 368363
+800.7339.8766 +65.6383.4400
FAX +65.6383.4664

Extron Electronics, Japan
Kyodo Building, 16 Ichibancho
Chiyoda-ku, Tokyo 102-0082
Japan
+81.3.3511.7655 FAX +81.3.3511.7656

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.

Conservier 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 présents 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 éraclés 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 ces 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 même type ou d'un type équivalent recommandé par le constructeur. Mettre au rebut les batteries usagées 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 Entfernen der Abdeckungen die Gefahr eines elektrischen Schlags und/oder andere Gefahren bestehen.

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

Lithium-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.

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
1001 East Ball Road
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
Kyodo Building
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.

安全须知 • 中文

 这个符号提示用户该设备用户手册中有重要的操作和维护说明。

 这个符号警告用户该设备机壳内有暴露的危险电压，有触电危险。

注意

阅读说明书 • 用户使用该设备前必须阅读并理解所有安全和使用说明。

保存说明书 • 用户应保存安全说明书以备将来使用。

遵守警告 • 用户应遵守产品和用户指南上的所有安全和操作说明。

避免追加 • 不要使用该产品厂商没有推荐的工具或追加设备，以避免危险。

警告

电源 • 该设备只能使用产品上标明的电源。设备必须使用有地线的供电系统供电。第三条线（地线）是安全设施，不能不用或跳过。

拔掉电源 • 为安全地从设备拔掉电源，请拔掉所有设备后或桌面电源的电源线，或任何接到市电系统的电源线。

电源线保护 • 妥善布线，避免被踩踏，或重物挤压。

维护 • 所有维修必须由认证的维修人员进行。设备内部没有用户可以更换的零件。为避免出现触电危险不要自己试图打开设备盖子维修该设备。

通风孔 • 有些设备机壳上有通风槽或孔，它们是用来防止机内敏感元件过热。不要用任何东西挡住通风孔。

锂电池 • 不正确的更换电池会有爆炸的危险。必须使用与厂家推荐的相同或相近型号的电池。按照生产厂的建议处理废弃电池。

声明

所使用电源为 A 级产品，在生活环境中，该产品可能会造成无线电干扰。在这种情况下，可能需要用户对干扰采取切实可行的措施。

FCC Class A Notice

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. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. The Class A 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 with FCC emissions limits.*

Table of Contents

Chapter One • Introduction	1-1
About the MTP 4T 15HD RS.....	1-2
Twisted Pair (TP) Cable Advantages.....	1-4
Transmission distance.....	1-4
Chapter Two • Installation and Operation	2-1
Setting the Transmitter Sync Jumpers(Component Video)	2-2
Installation	2-3
Tabletop placement	2-3
Rack mounting	2-3
UL requirements	2-3
Installation instructions	2-4
Connections and Settings	2-5
TP cable termination.....	2-7
Receiver considerations	2-8
Front Panel Controls and Indicators	2-9
Skew Delay Compensation	2-9
Appendix A • Reference Information	A-1
Specifications	A-2
Part Numbers	A-4
MTP transmitter and receivers.....	A-4
Included parts	A-4
Cables.....	A-5
Connectors.....	A-5



1

Chapter One

Introduction

About the MTP 4T 15HD RS

Twisted Pair (TP) Cable Advantages

68-1398-01 Rev. A
11 07

All trademarks mentioned in this manual are the properties of their respective owners.

CAUTION

Do not connect this device to a computer data or telecommunications network.

About the MTP 4T 15HD RS

The Extron MTP 4T 15HD RS consists of four MTP T 15HD RS transmitters in a single enclosure. This set of transmitters and the Extron MTP RL 15HD RS and MTP RL 15HD RS SEQ receivers provide a means to distribute VGA or other high resolution video and RS-232 serial communications across long distances.

The MTPs transmit and receive over Extron's Enhanced Skew-Free A/V UTP cable or over CAT 5, 5e, or 6 shielded twisted pair (STP), unshielded twisted pair (UTP), or foil shielded twisted pair (FTP) cable.

The MTP 4T 15HD RS can support four transmitter/receiver *systems*. Each *system* requires a transmitter and at least one connected compatible MTP receiver. Additional receivers can be daisy chained.

NOTE

In this manual the term "transmitter assembly" refers to the MTP 4T 15HD RS.

Each of the MTP transmitters in the assembly inputs a set of high resolution or low resolution video signals (RGB, component video, S-video, or composite video) on a 15-pin HD connector. Each transmitter also passes RS-232 serial data or control signals on 3.5 mm 3-pin captive screw connectors. The transmitters convert the video and RS-232 signals to proprietary signals and each outputs its set of signals to the compatible MTP receivers on an RJ-45 connector. The transmitters also make each video input available for local use on 15-pin HD connectors.

Each receiver inputs the transmitted proprietary signal on an RJ-45 connector, converts the signal back into its high resolution video and serial data components, and outputs it locally.

The RS-232 portion of the TP link:

- Can be bidirectional in each system that consists of just one receiver (not a daisy chain); that is, the receiver can receive commands from the transmitter and pass RS-232 responses back to the transmitter.

NOTE

By default, the RS-232 portion of the TP link is unidirectional only, from the transmitter to the receiver. If there is only one receiver in the system, you can configure that receiver for bidirectional RS-232 communications. Refer to the MTP 15HD RS Series manual.

- Supports software flow control (XON, XOFF).

NOTE

Hardware flow control is not supported.

- Supports full duplex and half duplex operation.
- Supports any baud rate (up to 38,400), data bits, parity, stop bits, and data format without configuration.

NOTE

Higher rates are possible, but performance will vary as a function of baud rate and TP cable length.

Up to eight receivers can be connected in series to a single transmitter, provided that the total distance from the transmitter's TP output to the last receiver in the chain does not exceed the recommended distance for the resolution being used.

NOTE

Each individual transmitter provides pre-peaking, which boosts the signal before it is transmitted. The receiver does not provide any pre-peaking control. The total recommended distance (see page 1-4) for an entire daisy chain is the same as for a single transmitter and receiver. The transmitter's Pre-Peak switch has the same affect on the recommended transmission distance for a daisy chain as for a single transmitter and receiver.

The SEQ version of the receiver also corrects the skew delay (misconvergence) commonly encountered when using CAT 5, 5e, or 6 TP cables for RGB video and component video transmission.

NOTE

An SEQ receiver should not be necessary when Extron Enhanced Skew-Free A/V UTP cable is used.

All four transmitters in the MTP 4T 15HD RS are powered by a single internal 100 VAC to 240 VAC, 50/60 Hz, 20 watts power supply that provides worldwide power compatibility.

Twisted Pair (TP) Cable Advantages

Twisted pair cable is much smaller, lighter, more flexible, and less expensive than coaxial cable. These TP products make cable runs simpler and less cumbersome. Termination of the cable with RJ-45 connectors is simple, quick, and economical.

Transmission distance

The maximum distance is determined by the frequency and resolution of the signal that is input to the transmitter. The table below specifies the recommended maximum transmission distances and transmitter Pre-Peak switch positions (see item ⑤ on page 2-6) using Extron Enhanced Skew-Free A/V UTP cable or UTP CAT 5, 5e, or 6 cable, terminated with RJ-45 connectors.

Recommended transmission distances at 60 Hz

Video format	Pre-Peak off	Pre-Peak on	Max. distance (high quality)	Max. distance (variable quality)
Composite, S-video, Component			800' (245 m)	1000' (300 m)
640 x 480	<300' (90 m)	>350' (105 m)	700' (215 m)	750' (240 m)
800 x 600	<300' (90 m)	>350' (105 m)	550' (165 m)	650' (200 m)
1024 x 768	<300' (90 m)	>350' (105 m)	500' (150 m)	600' (185 m)
1280 x 1024	<250' (75 m)	>300' (90 m)	350' (105 m)	450' (135 m)
1600 x 1200	<250' (75 m)	>300' (90 m)	300' (90 m)	450' (135 m)

- NOTE**

It is possible to exceed the recommended distance; however, image quality may be reduced.
- NOTE**

The MTP units are designed for and perform best with Extron Enhanced Skew-Free A/V cable terminated in accordance with the TIA/EIA T 568 A wiring standard. CAT 5, 5e, and 6 cables are acceptable, but less preferable. We also recommend the use of preterminated and tested cables. Cables terminated on site should be tested before use to ensure that they comply with Category 5 specifications.

- NOTE**

The recommendations shown in the table on page 4 apply for a single transmitter and receiver and for a transmission daisy chain. For example, the maximum suggested range for 1024 x 768 video is 300' (90 m) with Pre-Peak off and 500' (150 m) with Pre-Peak on whether the system consists of one transmitter and one receiver or a transmitter and three daisy-chained receivers.
- NOTE**

For a daisy-chained system, the first receiver in the chain must be at least 100' (30 m) from the transmitter when the Pre-Peak switch is on.
- NOTE**

For a daisy-chained system, any receiver in the chain closer than 350' (105 m) may experience some form of over-peaking when the Pre-Peak switch is on. An overpeaked image may appear bloomed.



2

Chapter Two

Installation and Operation

Setting the Transmitter Sync Jumpers (Component Video)

Installation

Connections and Settings

Front Panel Controls and Indicators

Skew Delay Compensation

Installation and Operation

Setting the Transmitter Sync Jumpers (Component Video)

By default, each transmitter in the MTP 4T 15HD RS is configured to send bi-level (normal) sync. For HDTV/component video applications, the transmitter can be configured to send tri-level sync as follows:

1. If applicable, disconnect all power and other cables, remove the transmitter from its installation location, and remove any previously installed mounting brackets.
2. Remove the eight screws (three on each side and two on top) from the transmitter assembly and lift the top cover off of the transmitter (figure 2-1).

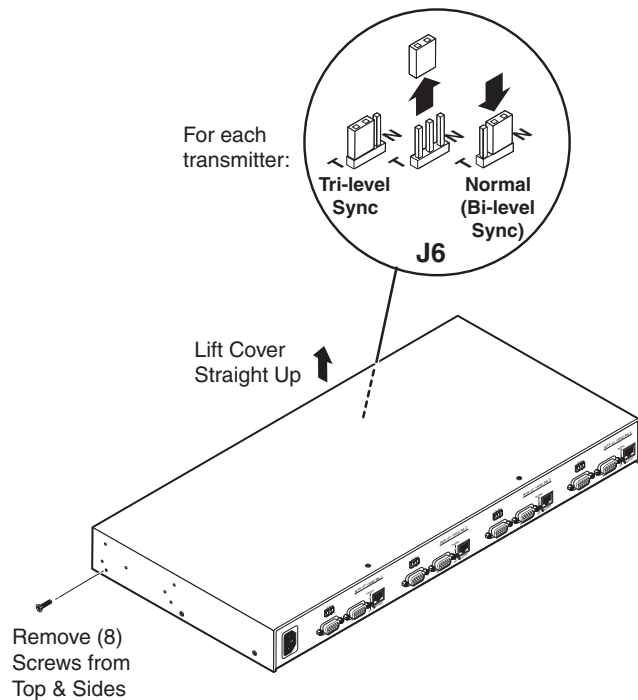


Figure 2-1 — Opening the transmitter assembly and sync jumpering

NOTE There are four transmitter boards. Ensure that you set the jumper on the correct board.

3. Locate jumper J6 on the main (bottom) board and shift the jumper from the normal sync (N) to the tri-level sync (T) position (figure 2-1).

4. Place the top cover back into place.
5. Reinstall the screws removed in step 2. If any mounting brackets were removed in step 1, put them back into position as you reinstall the screws.
6. If applicable, reinstall the transmitter assembly and reconnect all cables.

Installation

CAUTION Installation and service must be performed by authorized personnel only.

The MTP 4T 15HD RS is 1U high and a full rack wide. It is rack mountable, or it can be placed on a table or other furniture. Rubber feet and rack mounting hardware are included.

Tabletop placement

For tabletop use, attach one of the self-adhesive feet to each corner of the bottom side of the unit and place the unit in the desired location.

Rack mounting

UL requirements

The following Underwriters Laboratories (UL) requirements pertain to the installation of the unit into a rack.

1. **Elevated operating ambient temperature** — If the equipment is installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consider installing the equipment in an environment compatible with the maximum 122° F (50° C) ambient temperature (Tma) specified by the manufacturer.
2. **Reduced air flow** — Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised.
3. **Mechanical loading** — Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
4. **Circuit overloading** — Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of the circuits might have on overcurrent protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

- 5. **Reliable earthing (grounding)** — Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (such as the use of power strips).

Installation instructions

Mount the MTP 4T 15HD RS in a rack as follows:

- 1. If feet were installed on the bottom of the transmitter assembly, remove them.
- 2. Attach the included rack/through-desk mounting brackets (part #70-077-03) to the unit using eight machine screws supplied with the mounting kit.

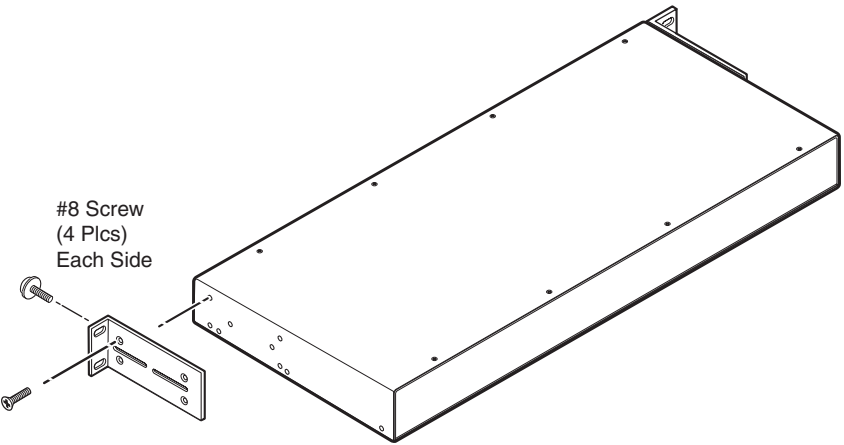


Figure 2-2 — Attaching the mounting brackets

- 3. Insert the unit into the rack and align the holes in the mounting brackets with the holes in the rack. Use four machine screws to attach the brackets to the rack.

Connections and Settings

See figure 2-3 to identify the rear panel connections on the transmitter.

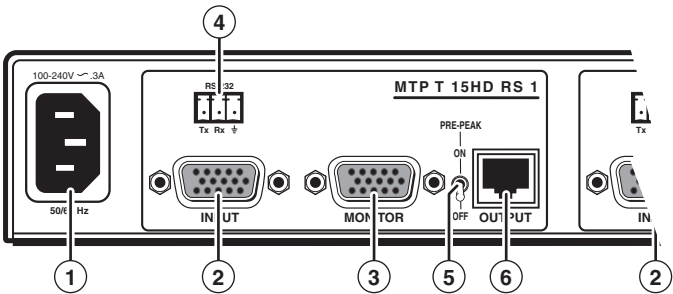
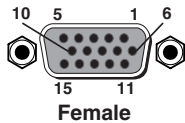


Figure 2-3 — Transmitter assembly's rear panel features

NOTE There is one item ①, powering all four transmitters.
There are four items ② through ⑥, one for each transmitter.

- ① **AC power connector** — Plug a standard IEC power cord into this connector to connect the transmitter assembly to a 100 VAC to 240 VAC, 50 or 60 Hz power source.
- ② **Input video connector** — Connect a computer video source to this 15-pin HD connector for high resolution video input.



NOTE Input only sync signals, no video signals, on the sync pins, 13 and 14.

For component video, use the R (R-Y) and R return pins (pins 1 and 6), G (Y) and G return pins (pins 2 and 7), and B (B-Y) and B return pins (pins 3 and 8).

For S-video, use the R, R return (C-chroma), G, and G return (Y-luma) pins.

For composite video, use the G pin and the associated return pin. For additional genlocked video signals, use the R, B, and associated return pins.

NOTE If the video input is HDTV/component video with tri-level sync, the transmitter's jumper setting must be changed. See "Setting the Transmitter Sync Jumper (Component Video)", on page 2-2.

- ③ **Monitor connector** — Connect a video monitor to this 15-pin HD connector for buffered, high resolution video loop through.
- ④ **RS-232 connector** — Connect a serial communications device to this 3.5 mm, 3-pole captive screw connector for bidirectional RS-232 communication. Wire the connector as shown in figure 2-4.

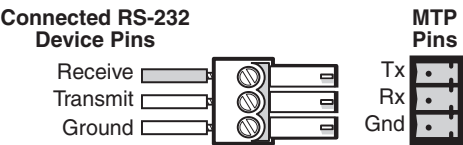


Figure 2-4 — RS-232 connector wiring

NOTE By default, the RS-232 portion of the TP link is unidirectional only from the transmitter to the receiver. If there is only one receiver in a system, a jumper within the receiver allows the RS-232 communication to be bidirectional. Refer to the MTP 15HD RS Series manual.

- ⑤ **Pre-Peak switch** — The Pre-Peak switch alters the TP signal output to correct for long cable runs. See the table on page 1-4 for suggested switch settings based on the transmitted video format and transmission distance.
- ⑥ **Transmitter Output connector** — Connect one end of a TP cable to this RJ-45 female connector on the transmitter.

CAUTION Do not connect this device to a computer data or telecommunications network.

Connect the free end of the same TP cable from the transmitter to the receiver's Input RJ-45 female connector.

See "TP cable termination" on the next page to properly wire the RJ-45 connectors.

TP cable termination

NOTE RJ-45 termination with CAT 5, CAT 5e, or CAT 6 cable must comply with the TIA/EIA T568A or TIA/EIA T568B wiring standards for all connections.

RJ-45 termination with Skew-Free A/V UTP cable must comply with TIA/EIA T568A only.

Figure 2-5 shows the recommended termination of TP cables in accordance with the TIA/EIA T568A or TIA/EIA T568B wiring standards. You can use either standard with CAT 5, 5e, or 6 cable, but use the same standard on both ends of the cable.

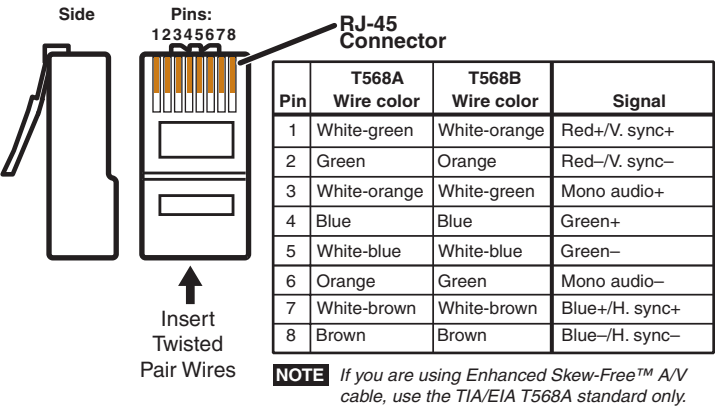


Figure 2-5 — TP cable termination

NOTE Enhanced Skew-free A/V cable is **not recommended** for Ethernet/LAN applications. This cable is specially designed for compatibility with Extron's Twisted Pair products that are wired using the TIA/EIA 568 A standard.

The green, brown, and blue pairs of this cable have virtually identical lengths and should be used to transmit the RGB signals.

The orange pair of this cable has a different length and **should not** be used to transmit the RGB signals.

Receiver considerations

- NOTE** Each transmitter in the assembly requires a separate receiver.
- NOTE** The receivers' buffered outputs do not provide pre-peaking control. The total recommended distance for an entire daisy chain is the same as for a single transmitter and receiver. The transmitter's Pre-Peak switch has the same affect on the recommended transmission distance for a daisy chain as for a single transmitter and receiver.
- NOTE** Up to 8 receivers can be connected in series to a transmitter using the receivers' Buffered Output connectors, provided that the total distance from the transmitter's TP output to the last receiver in the chain does not exceed the recommended distance for the resolution being used.
- NOTE** See the recommended transmission ranges in the table on page 1-4. The recommendations in the table apply equally for a single transmitter and receiver and for a transmission daisy chain. For example, the maximum suggested range for 1024 x 768 video is 300' with Pre-Peak off and 500' with Pre-Peak on for either one transmitter and one receiver or a transmitter and three daisy-chained receivers.
- NOTE** For daisy-chained units, the first receiver in the chain must be at least 100' from the transmitter when the Pre-Peak switch is on.
- NOTE** For daisy-chained units, any receiver in the chain closer than 350' may experience some form of over-peaking when the Pre-Peak switch is on.
- NOTE** If a receiver is the last receiver in a daisy chain, its end unit DIP switch setting needs to be changed. Refer to the MTP 15HD RS Series manual.

Front Panel Controls and Indicators

Figure 2-6 shows the front panel of the MTP 4T 15HD RS and its power LED.

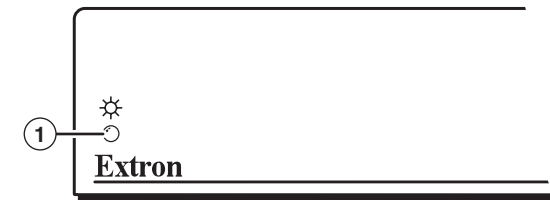


Figure 2-6 — MTP 4T transmitter front panel

- ① **Power LED** — Indicates power is applied to the MTP 4T 15HD RS.

Skew Delay Compensation

CAT 5/5e/6 TP cable can lead to registration errors between the red, green, and blue video signals. Pair skew can be measured with test equipment or identified by viewing a crosshatch test pattern with a critical eye to determine if either the red, green, or blue video image leads (appears to the left of) the other two video images.

- NOTE** Unless the TP cable is changed, the skew adjustment should only need to be made once, during installation.

SEQ receiver skew compensation

The MTP 15HD RS SEQ receiver has built-in skew compensation capabilities. Refer to the *MTP 15HD RS Series manual* for details.

Non-SEQ receiver skew compensation

Try using the following methods to minimize or eliminate pair skew:

- Switch to Extron's Enhanced Skew-Free A/V UTP cable.
- Add a skew compensation cable equal to the length of pair skew to the receiver's output.
- Install an SEQ 100 15HD Skew Equalizer on the receiver's video output and adjust the skew for the leading video image.



A

Appendix A

Reference Information

Specifications

Part Numbers

Reference Information

Specifications

Video

Gain	Unity
Number/signal type.....	4 sets of proprietary analog signals
Connectors	4 female RJ-45

Video input and loop through — per transmitter

Number/signal type.....	1 analog RGBHV, RGBS, RGsB, RsGsBs, component video (with bi-level or tri-level sync), S-video, or composite video 1 buffered RGBHV, RGBS, RGsB, RsGsBs local monitor loop through (includes ID bits)
Connectors	2 female 15-pin HD
Nominal level	1 Vp-p for Y of component video and S-video, and for composite video 0.7 Vp-p for RGB and for R-Y and B-Y of component video 0.3 Vp-p for C of S-video
Minimum/maximum levels.....	0.3 V to 1.45 Vp-p
Impedance	75 ohms
Horizontal frequency.....	15 kHz to 130 kHz
Vertical frequency.....	30 Hz to 150 Hz
Return loss	<-30 dB @ 5 MHz
DC offset (max. allowable).....	250 mV

Video output — see receivers' specifications

Sync

Input type (transmitter)	RGBHV, RGBS, RGsB, RsGsBs, bi-level or tri-level for component video
Output type (receivers)	RGBHV, RGBS, RGsB, RsGsBs
Standards.....	NTSC 3.58, NTSC 4.43, PAL, SECAM
Input level (transmitter)	3.5 V to 5.5 Vp-p, unterminated
Output level (receivers).....	4.0 V to 5.0 Vp-p, unterminated
Input impedance	510 ohms
Output impedance	110 ohms
Max. input voltage	5.5 Vp-p
Polarity.....	Positive or negative

Control/remote — external device (pass-through, unidirectional or bidirectional)

Serial control port input/output.	RS-232 via (1) 3.5 mm, 3 pole captive screw connector
Serial control port output/input.	1 set of proprietary signals on a female RJ-45 jack

NOTE *The serial communications link of an MTP RL 15HD RS or MTP RL 15 HD RS SEQ is unidirectional only, transmitter to receiver, unless the receiver's directional jumper has been repositioned. The jumper should be repositioned only when the receiver is the only one in the system.*

Baud rates	Up to 38400 bps at up to 600' (183 m) (Higher data rates and distances are possible. Performance will vary based on baud rate and cable length.)
Protocol.....	Data bits = 5 - 8 Stop bits = 1 or 2 Parity = odd, even, none Flow control = XON, XOFF, none

NOTE *Protocol is mirrored between the transmitter and the receiver.*

Serial control pin configurations. Captive screw connectors: 1 = TX, 2 = RX, 3 = GND

General

Power	100 VAC to 240 VAC, 50/60 Hz, 20 watts, internal
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
Cooling	Convection, unvented
Rack mount.....	Yes, with included mounting brackets, part #70-077-03
Enclosure type	Metal
Enclosure dimensions	1.7" H x 17.5" W x 8.5" D (1U high, full rack wide) 4.3 cm H x 44.4 cm W x 21.6 cm D (Depth excludes connectors.)
Product weight	6.0 lbs (2.7 kg)
Shipping weight	10 lbs (5 kg)
Vibration	ISTA 1A in carton (International Safe Transit Association)

Reference Information, cont'd

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 ±10%.

NOTE Specifications are subject to change without notice.

Part Numbers

MTP transmitter and receivers

NOTE A complete transmission system requires one of the four transmitters built into the MTP 4T 15HD RS and at least one MTP receiver.

Transmitter assembly	Part number
MTP 4T 15HD RS transmitter assembly	60-905-01

Compatible receivers	Part number
MTP RL 15HD RS receiver	60-735-01
MTP RL 15HD RS SEQ receiver	60-735-02

Included parts

The following parts are included in each order for an MTP 4T 15HD RS:

Included parts	Part number
Rubber feet (self-adhesive) (4)	
MBD 149 1U Through-desk and rack mounting kit	70-077-03
IEC power cord	27-044-01
Tweezer (small screwdriver)	
User’s Manual	

Cables

NOTE Enhanced Skew-Free™ A/V UTP cables are not recommended for Ethernet/LAN applications.

Enhanced Skew-Free™ A/V cable	Part number
Enhanced Skew-Free A/V cable (cut, various lengths)	26-569-xx
Enhanced Skew-Free A/V 1000’ (Bulk) (non-plenum)	22-141-03
Plenum enhanced Skew-Free A/V 1000’ (Bulk)	22-142-03

Connectors

Enhanced Skew-Free™ A/V cable	Part number
CAT 6 jack (black)	10-463-10
CAT 6 jack (red)	10-463-11
CAT 6 jack (blue)	10-463-12
CAT 6 jack (orange)	10-463-13
CAT 6 jack (gray)	10-463-14
CAT 6 jack (white)	10-463-15
CAT 6 jack (ivory)	10-463-16

