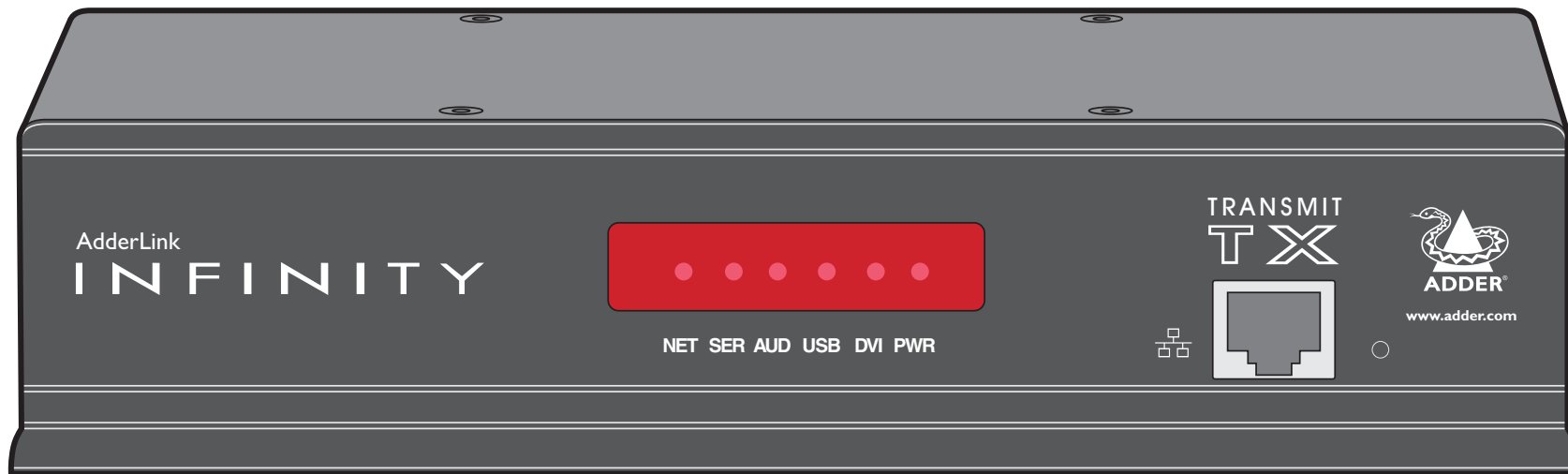




# AdderLink Infinity

## User Guide



Infinity System Software Version 1.0

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# Introduction

Thank you for choosing AdderLink Infinity. AdderLink Infinity represents a major advance in the capabilities of digital extenders and switches. By encoding high quality DVI video, digital audio and USB connections into Internet Protocol (IP) messages, AdderLink Infinity offers highly advanced and flexible signal switching capabilities.

Adder's extensive knowledge of interfacing techniques and high speed networking has allowed us to develop new ways to break the chains of local DVI, USB and audio connections. With AdderLink Infinity, distance is finally no barrier to high specification, high performance computing. Furthermore, since all signals are now IP, the most elaborate and yet simple-to-use switching and multicast techniques make possible a great variety of uses.

The AdderLink Infinity units come in two forms: a TX transmitter and an RX receiver. The former attaches to a single computer; the latter to your DVI video monitor, microphone, speakers and up to four USB peripherals. The distance between them is limited only by the size of your Gigabit Ethernet network.

In addition to separating one computer and its peripherals, AdderLink Infinity promotes sharing. You can arrange for a limitless number of screens and speakers, distributed anywhere across the network, to receive video and audio. You can also switch between any number of transmitter units from a single screen, keyboard and mouse in order to monitor a potentially vast collection of remote systems.

All units feature browser-based configuration utilities to allow quick and easy set up, from near or far.

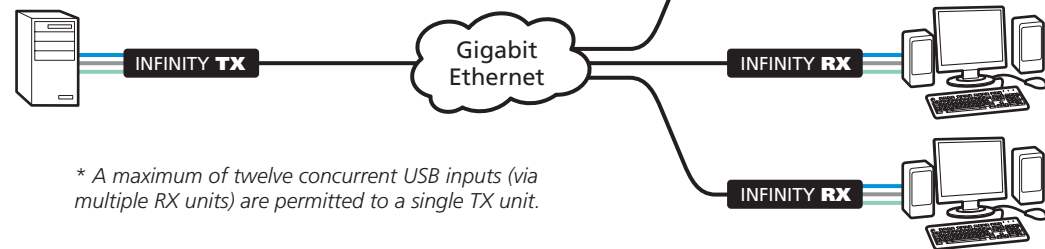
## One-to-one configuration

The simplest configuration links one RX unit to a single TX unit, either by a direct link (up to 100m) or over much greater distances via a Gigabit Ethernet network.



## One-to-many configuration (also known as True Share)

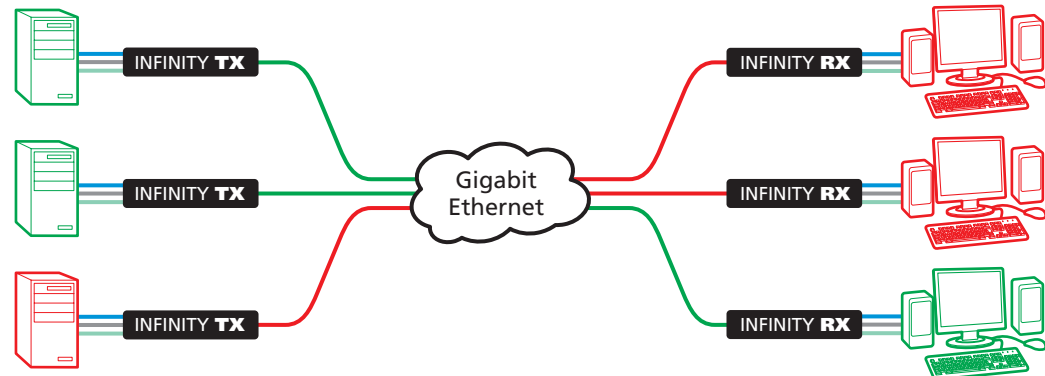
Using multicast techniques, an unlimited number of receivers\* can receive video and audio data streams from a single TX unit.



\* A maximum of twelve concurrent USB inputs (via multiple RX units) are permitted to a single TX unit.

## Many-to-one (and many-to-many) configuration

Each RX unit can switch between different TX units. Multiple instances of **many-to-one** and **one-to-many** configurations produce a highly flexible **many-to-many** installation.

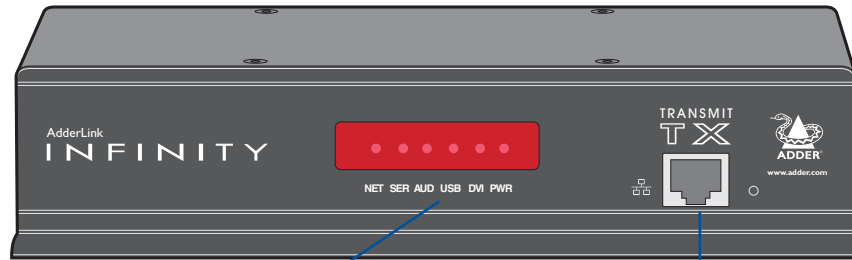


# AdderLink Infinity TX and RX unit features

The AdderLink Infinity units are housed within durable, metallic enclosures with most connectors situated at the rear panel - only the Ethernet ports are situated at the front panel. The smart front faces feature the operation indicators.



## Infinity TX (transmitter) - front



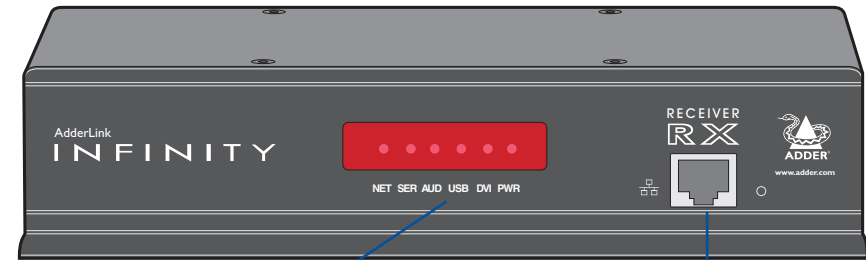
Indicators

Gigabit Ethernet port

These six indicators clearly show the key aspects of operation:

- **NET** On when valid network link is present. Flashes when the unit is in error.
- **SER** On when the AUX (serial) port is enabled and active.
- **AUD** On when audio is enabled and active.
- **USB** On when USB is enabled and active.
- **DVI** On when DVI video is enabled and active.
- **PWR** Power indicator.

## Infinity RX (receiver) - front



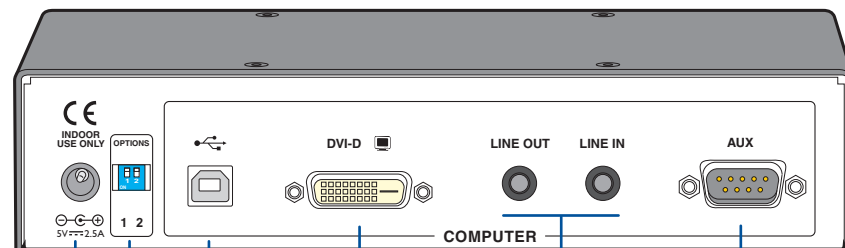
Indicators

Gigabit Ethernet port

These six indicators clearly show the key aspects of operation:

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- **USB** On when USB is enabled and active.
- **DVI** On when DVI video is enabled and active.
- **PWR** Power indicator.

## Infinity TX (transmitter) - rear



Power input

USB port

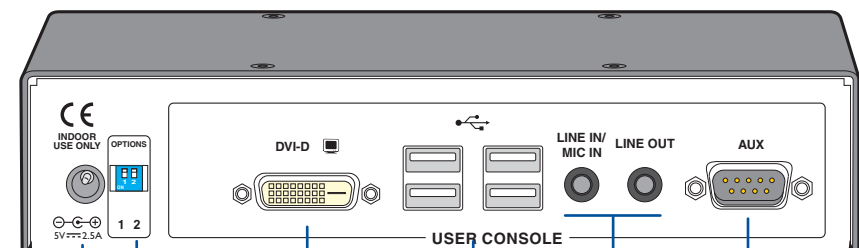
Video input

Audio line in/out

AUX (serial) port

Configuration switches

## Infinity RX (receiver) - rear



Power input

Video output

USB ports

Audio line in/out

AUX (serial) port

Configuration switches

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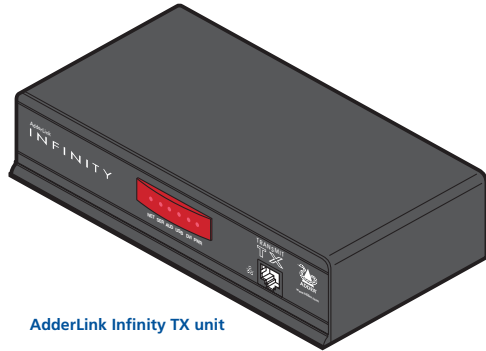
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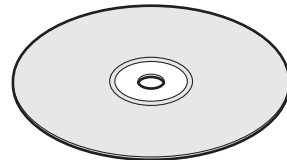
# What's in the box



## AdderLink Infinity TX package



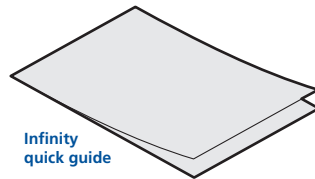
AdderLink Infinity TX unit



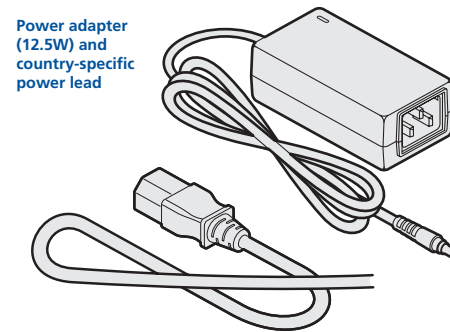
CD-ROM



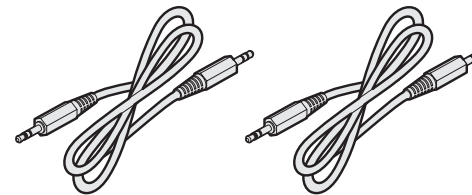
Four self-adhesive rubber feet



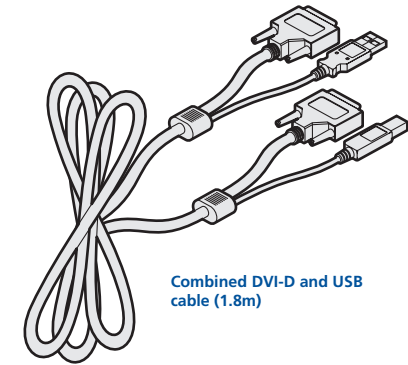
Infinity quick guide



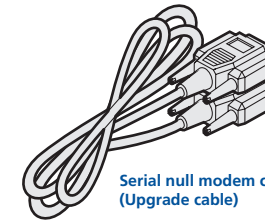
Power adapter (12.5W) and country-specific power lead



2 x Audio cable 2m (3.5mm stereo jacks)



Combined DVI-D and USB cable (1.8m)

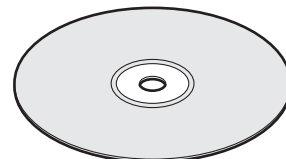


Serial null modem cable 2m (Upgrade cable)

## AdderLink Infinity RX package



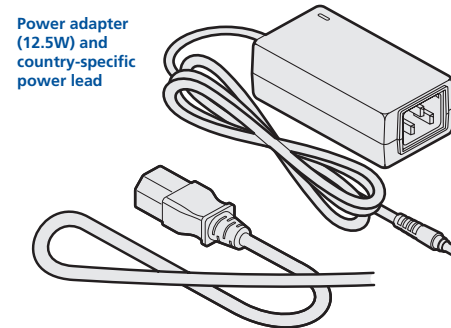
AdderLink Infinity RX unit



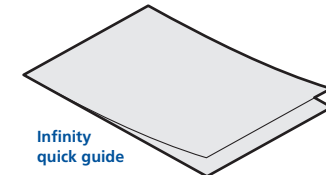
CD-ROM



Four self-adhesive rubber feet



Power adapter (12.5W) and country-specific power lead



Infinity quick guide

INSTALLATION

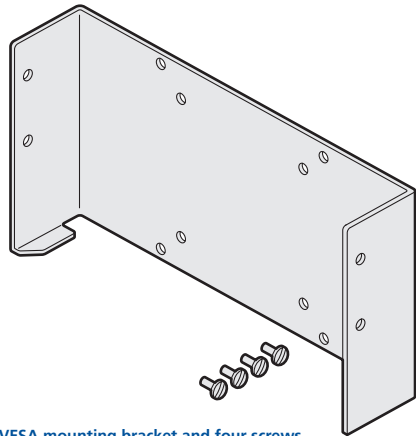
CONFIGURATION

OPERATION

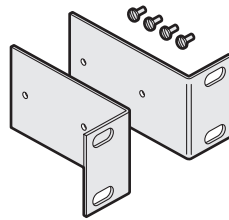
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# What you may additionally need

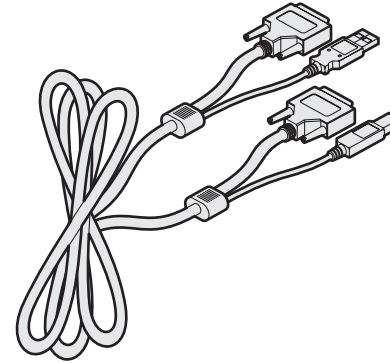
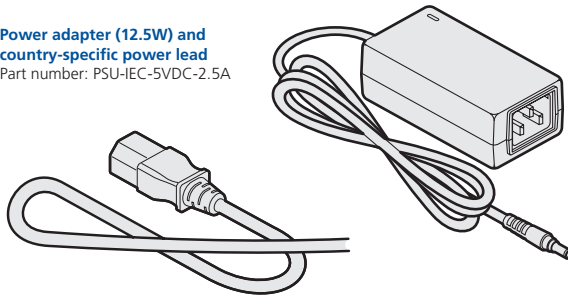


**VESA mounting bracket and four screws**  
(can also be used to secure to walls and other surfaces)  
Part number: RMK4V

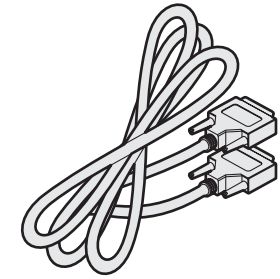


**Two 19" rack-mount brackets and four screws**  
Part numbers:  
One unit per 1U rack slot: RMK4S  
Two units per 1U rack slot: RMK4D

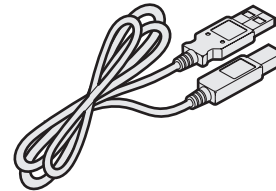
**Power adapter (12.5W) and country-specific power lead**  
Part number: PSU-IEC-5VDC-2.5A



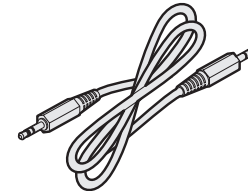
**Combined DVI-D and USB (USB type A to B) cable**  
Part numbers: VSCD3 (1.8m length)  
VSCD4 (5m length)



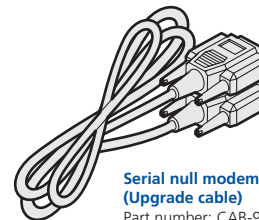
**Single link DVI-D to DVI-D video cable**  
Part number: VSCD1



**USB cable 2m (type A to B)**  
Part number: VSC24



**Audio cable 2m (3.5mm stereo jacks)**  
Part number: VSC22



**Serial null modem cable 2m (Upgrade cable)**  
Part number: CAB-9F/9F-NULL-MODEM

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# Installation

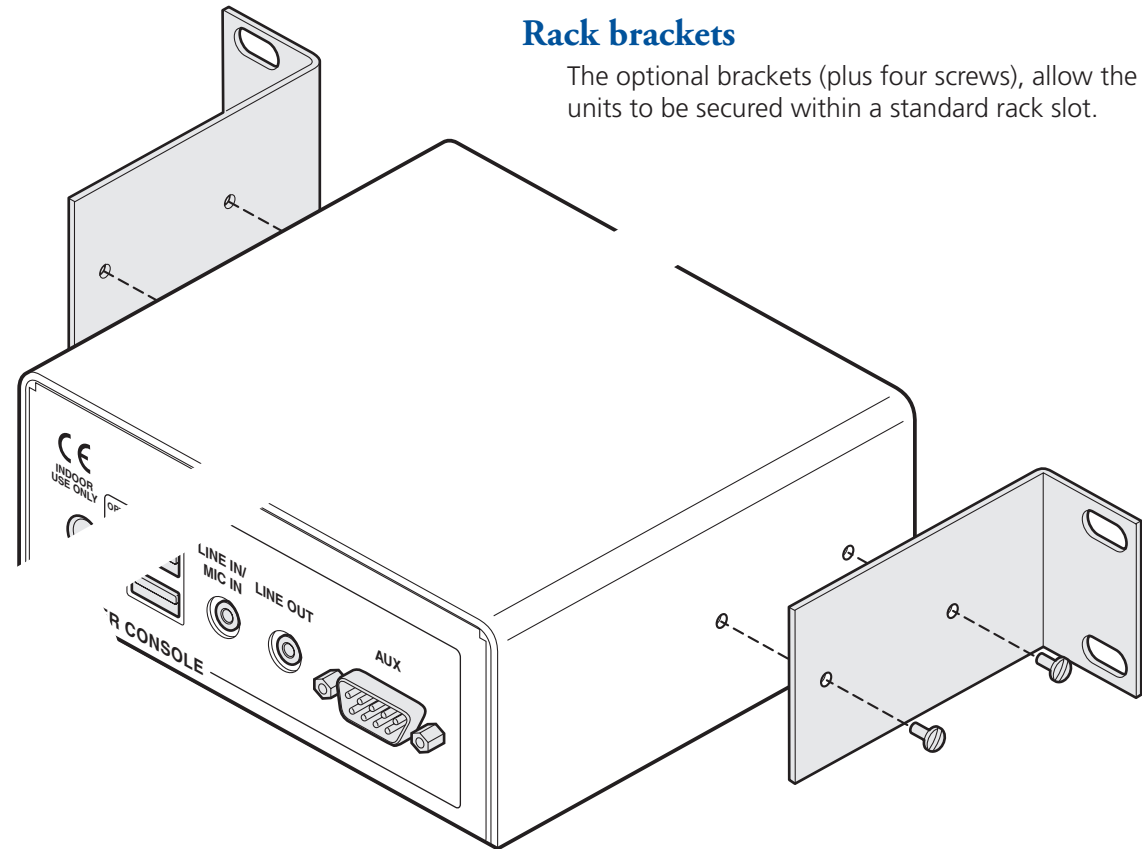
## Mounting

There are three main mounting methods for transmitter and receiver units:

- The supplied four self-adhesive rubber feet
- Optional rack brackets
- Optional [VESA mounting bracket](#)

## Connections

*Note: The Infinity units and their power supplies generate heat when in operation and will become warm to the touch. Do not enclose them or place them in locations where air cannot circulate to cool the equipment. Do not operate the equipment in ambient temperatures exceeding 40°C. Do not place the products in contact with equipment whose surface temperature exceeds 40°C.*



## Rack brackets

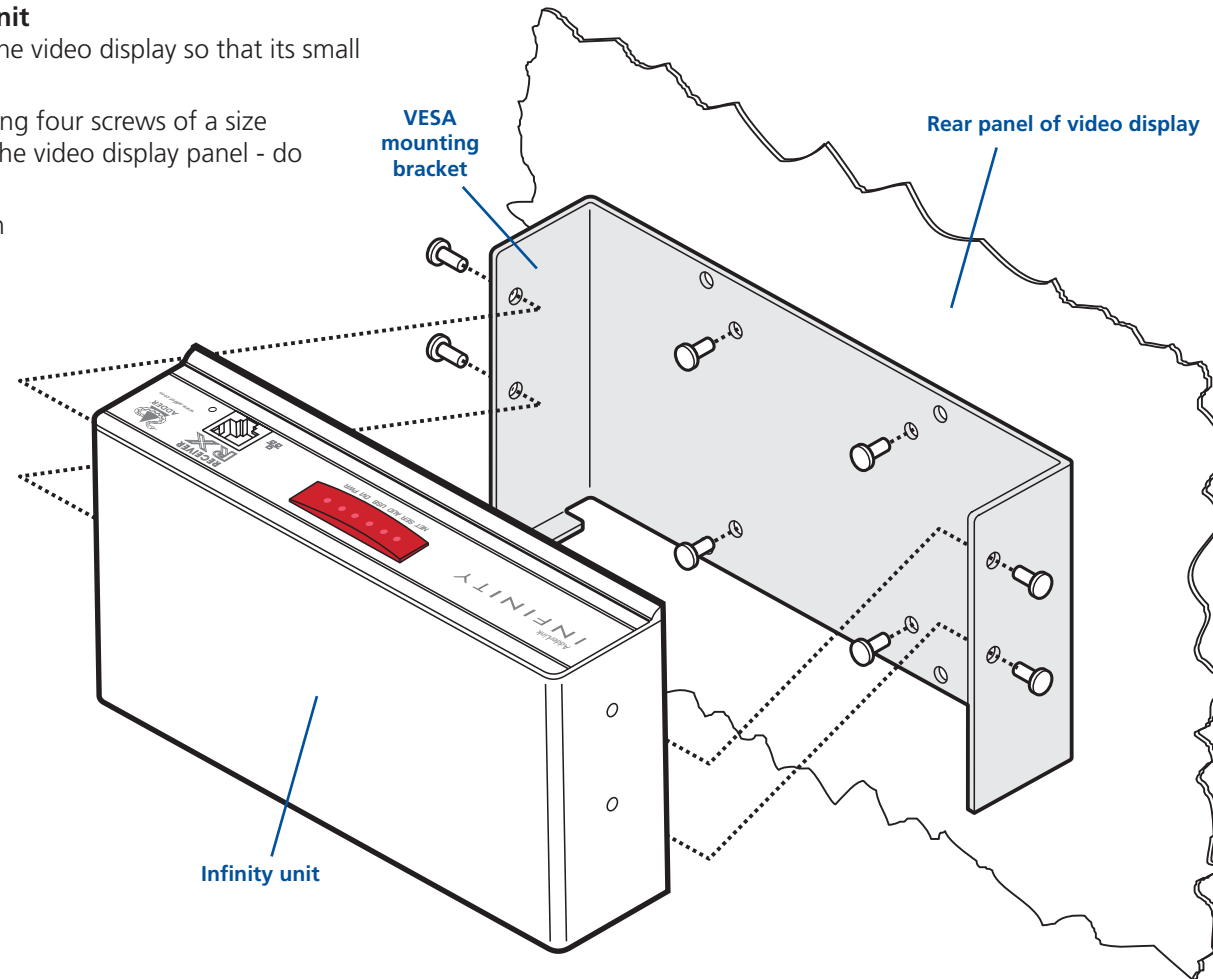
The optional brackets (plus four screws), allow the units to be secured within a standard rack slot.

## Using the VESA mounting bracket

The optional mounting bracket conforms to the VESA mounting standard and so can be used to mount an Infinity unit directly to the rear of most video display units. The bracket can also be fixed directly to a wall or other solid surface using appropriate screws or bolts.

### To fit the mounting bracket and Infinity unit

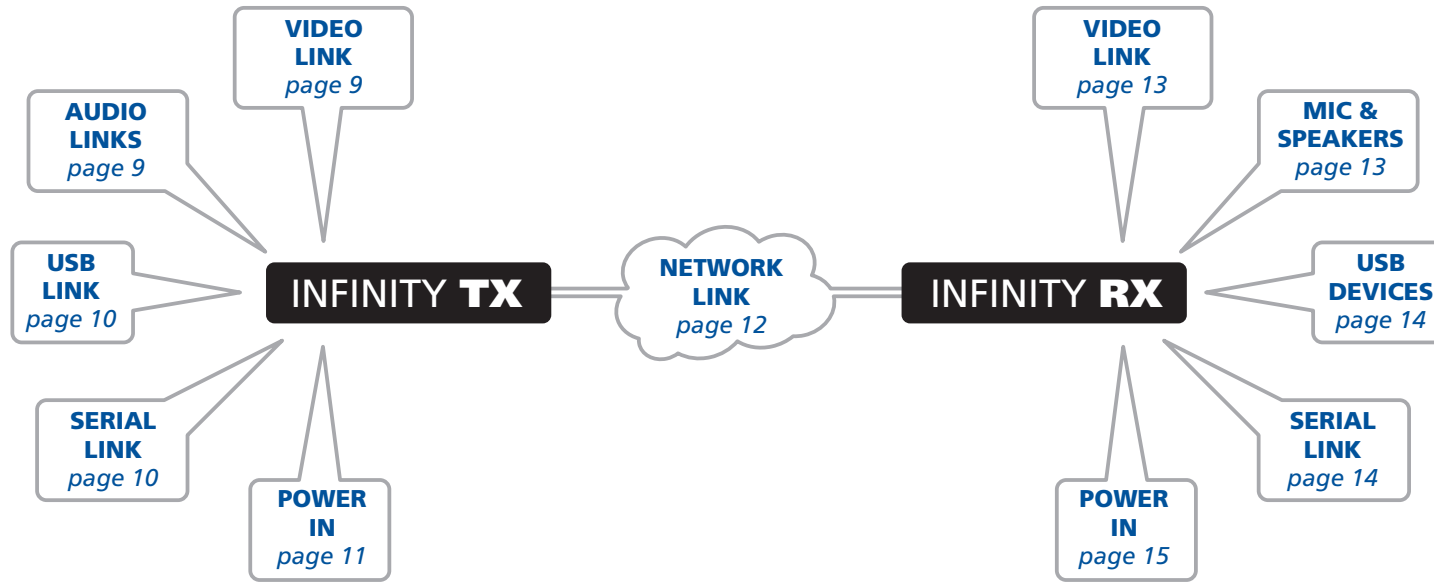
- 1 Orientate the bracket against the rear of the video display so that its small folded-in tabs are lowermost.
- 2 Attach the bracket to the video display using four screws of a size appropriate to the threaded holes within the video display panel - do not overtighten.
- 3 Place the Infinity unit into the bracket with its base facing towards the video display and the front panel of the Infinity unit facing upwards.
- 4 Secure the Infinity unit to the bracket using the four supplied screws - do not overtighten.





# Connections

Installation involves linking the Infinity TX unit to various ports on the host computer, while the Infinity RX unit is attached to your peripherals:



*Click a connection to see details*

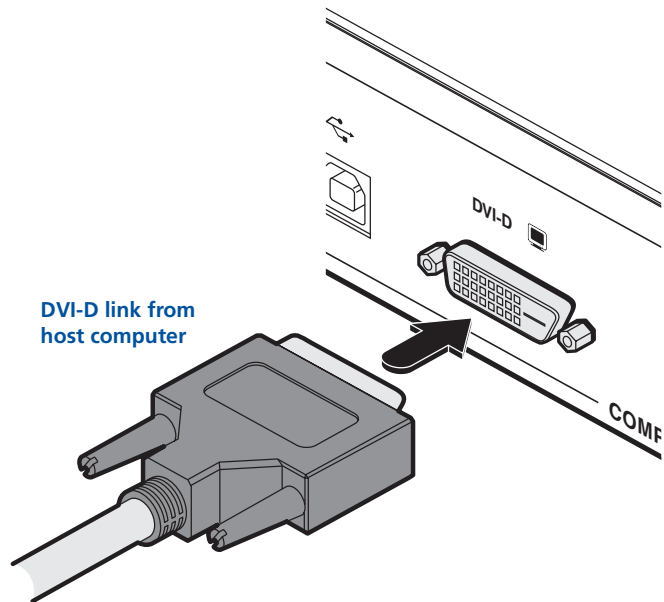
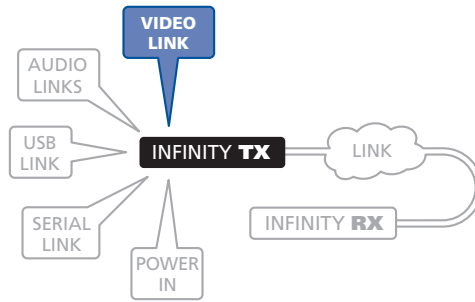
- INSTALLATION
- CONFIGURATION
- OPERATION
- FURTHER INFORMATION
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## TX video link

The AdderLink Infinity units support DVI digital video signals and so use DVI-D video connectors.

### To make a video link

- 1 Wherever possible, ensure that power is disconnected from the AdderLink Infinity and the host computer.
- 2 Connect a digital video link cable to the DVI-D socket on the TX unit rear panel:



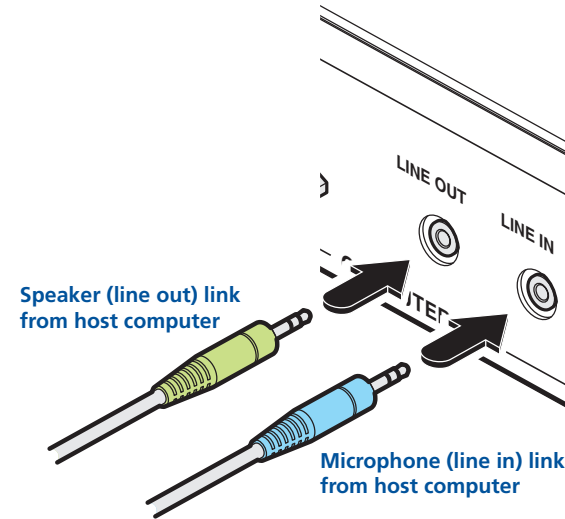
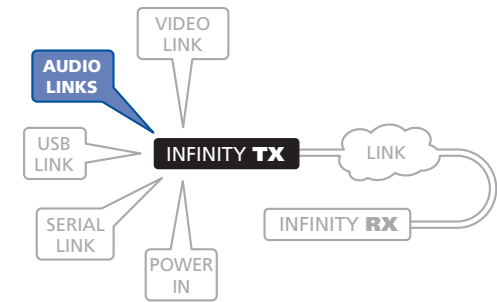
- 3 Connect the plug at the other end of the cable to the corresponding video output socket of the host computer.

## TX audio links

The AdderLink Infinity units support two way stereo digital sound so that you can use a remote microphone as well as speakers.

### To make audio links

- 1 Connect an audio link cable between the LINE OUT socket on the TX unit rear panel and the speaker output (line out) socket of the host computer.



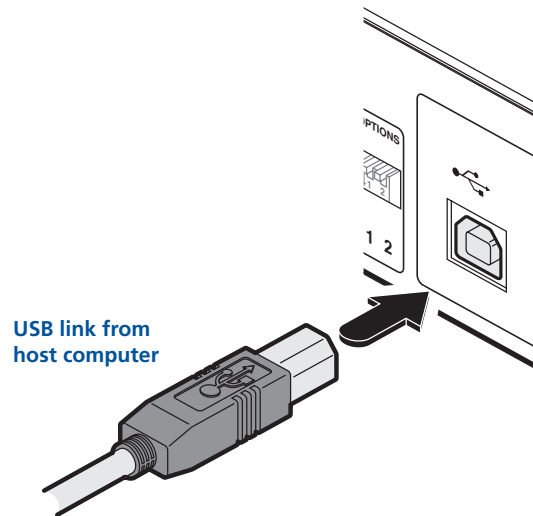
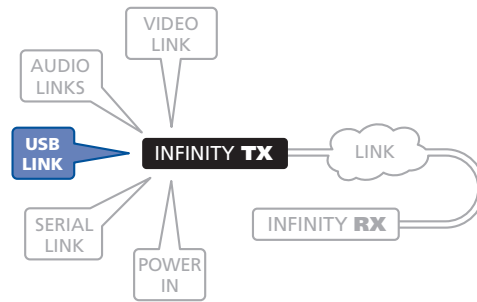
- 2 [Where a microphone is to be used]: Connect a second audio link cable between the LINE IN socket on the TX unit rear panel and the LINE IN socket of the host computer.

## TX USB link

The Infinity units acts as USB 2.0 hubs and so can provide four sockets at the RX unit with only a single connection at the TX unit.

### To make a USB link

- 1 Connect the squarer of the two connectors on a USB cable to the USB port on the TX unit rear panel.



- 2 Connect the other, more rectangular connector of the cable to a vacant USB socket on the host computer.

## TX AUX port

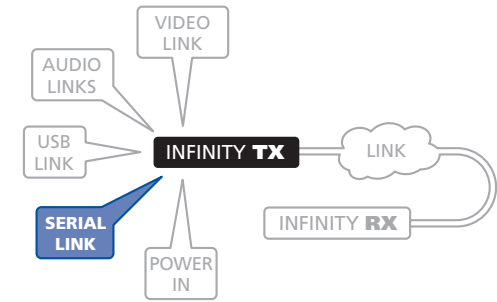
**The AUX port connection is not required for normal operation.**

This is an RS232 serial port which is used when performing an initial setup or firmware upgrade using the Start-of-Day configuration utility. Your computer needs to have a suitable terminal emulator program, such as Windows HyperTerminal.

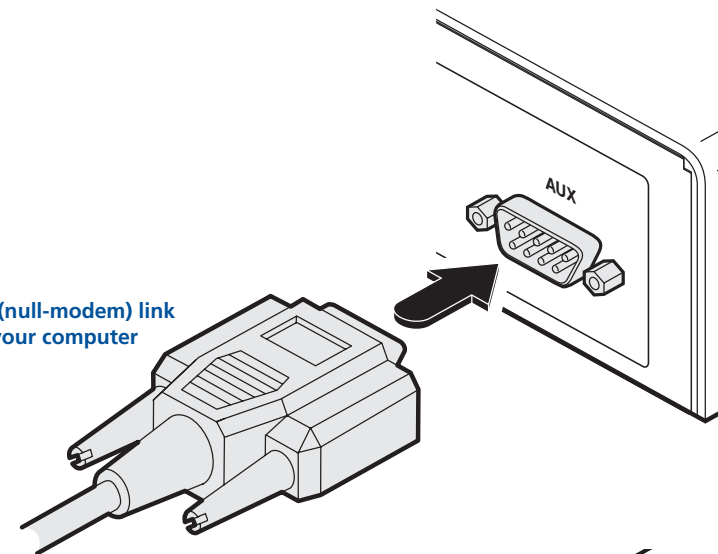
See [Infinity Start-of-Day configuration utility](#) for details.

### To connect the AUX port (not required for normal operation)

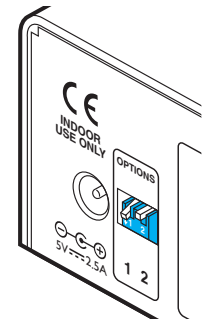
- 1 Ensure that power is removed from the Infinity unit.
- 2 Connect a suitable serial 'null-modem' cable (see [Appendix 4](#) for pin-out) between a vacant serial port on your computer and the AUX port on the right hand side of the Infinity rear panel.



Serial (null-modem) link from your computer



- 3 On the rear panel, click option switch 1 to the ON (down) position.
- 4 Power up the Infinity unit and your computer. You are now ready to use the Start-of-Day configuration utility ([Infinity Start-of-Day configuration utility](#)) or perform an upgrade ([Performing an upgrade](#)).

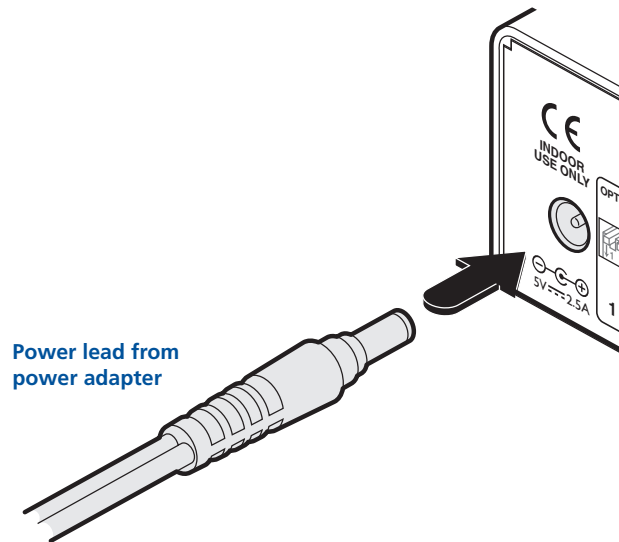
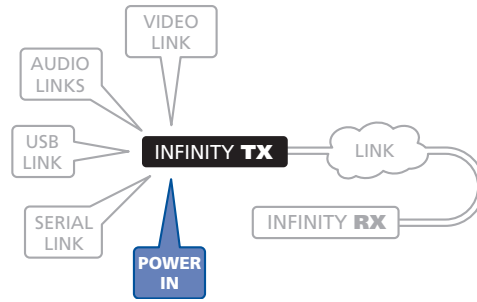


## TX power in

Each Infinity unit is supplied with a standard power supply. When all other connections have been made, connect and switch on the power supply unit

### To apply power in

- 1 Attach the output lead from the power adapter to the 5V socket on the rear panel of the unit.



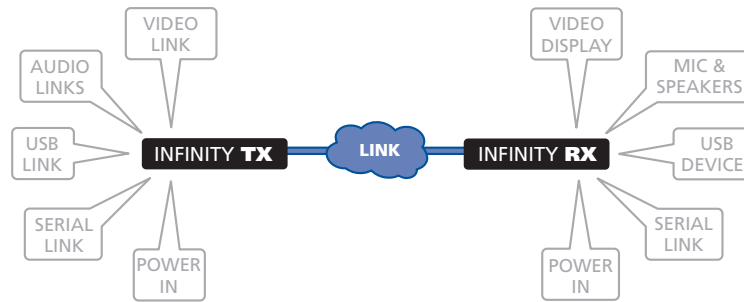
**Note:** Ensure that Option switches 1 and 2 are both in the 'off' (up) position to enable normal operation of the unit.

- 2 Connect the IEC connector of the supplied country-specific power lead to the socket of the power adapter.
- 3 Connect the power lead to a nearby main supply socket.

*Note: Both the unit and its power supply generate heat when in operation and will become warm to the touch. Do not enclose them or place them in locations where air cannot circulate to cool the equipment. Do not operate the equipment in ambient temperatures exceeding 40°C. Do not place the products in contact with equipment whose surface temperature exceeds 40°C.*

## TX/RX network link

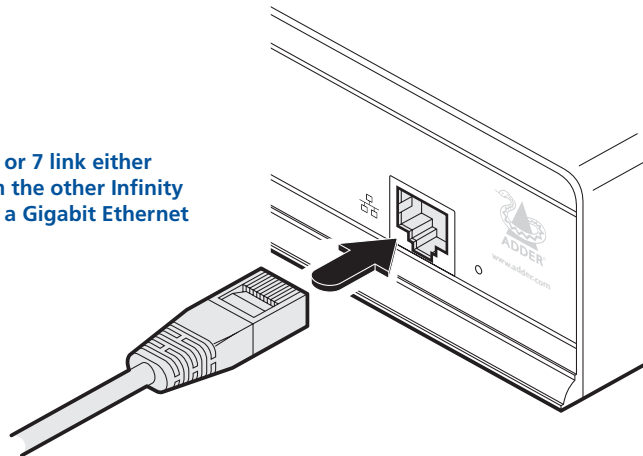
The Infinity units can be either connected directly to each other or via a Gigabit Ethernet network. For direct links, the length of cable should not exceed 100 metres (328 feet). Network cables used for connections may be category 5, 5e, 6 or 7 twisted-pair cable. The Infinity TX unit has an autosensing capability on its network interface, so for direct point-to-point connections, no 'crossover' Ethernet cable is required.



### To link Infinity units

- 1 Connect a CAT 5, 5e, 6, or 7 cable to the socket on the front panel of the Infinity unit.

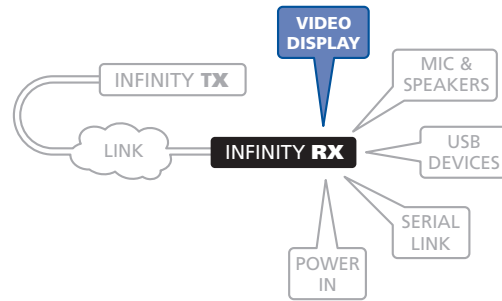
CAT 5, 5e, 6, or 7 link either directly from the other Infinity unit or from a Gigabit Ethernet switch



- 2 Connect the other end of the cable either to the other Infinity unit or to a Gigabit Ethernet switch, as appropriate.
- 3 [For connections via a network] repeat steps 1 and 2 for the other Infinity unit.

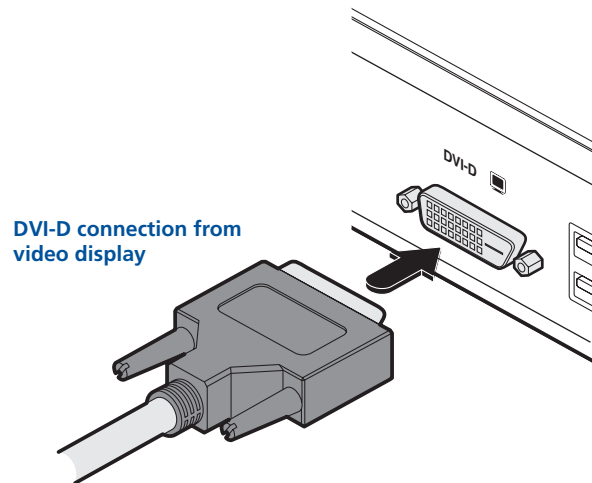
## RX video display

The Infinity unit supports a single DVI-D (no analogue signals) video display via the socket on the rear panel. See [Appendix 5 – Supported video modes](#) for details.



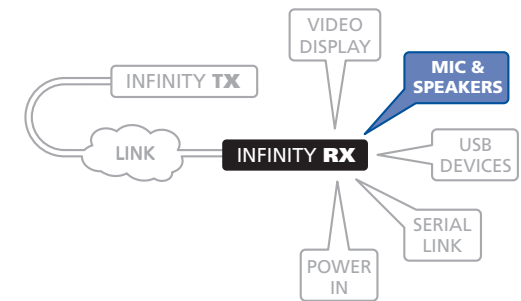
### To connect a digital DVI video display

- 1 Connect the lead from the video display to the DVI-D socket on the rear panel of the Infinity unit.



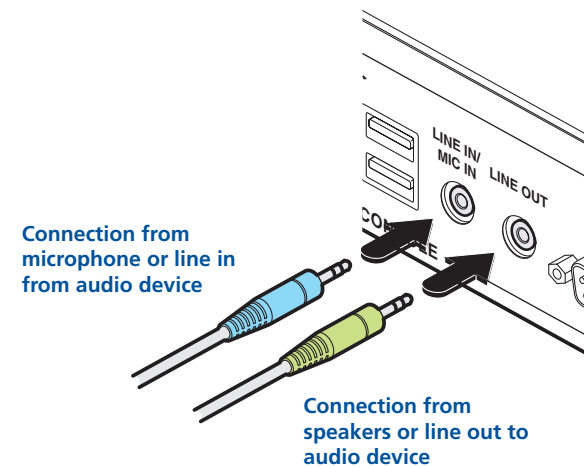
## RX microphone & speakers

The Infinity unit can support a microphone as well as speakers providing the necessary connections have been made between the Infinity TX unit and the host computer.



### To connect a microphone (or line in) and/or speakers

- 1 Connect the lead from a mono microphone or, alternatively, a line in connection from an audio device to the 3.5mm socket labelled **LINE IN/MIC IN** on the rear panel.
- 2 Connect the lead from stereo speakers or, alternatively, a line out connection from an audio device to the 3.5mm socket labelled **LINE OUT** on the rear panel.

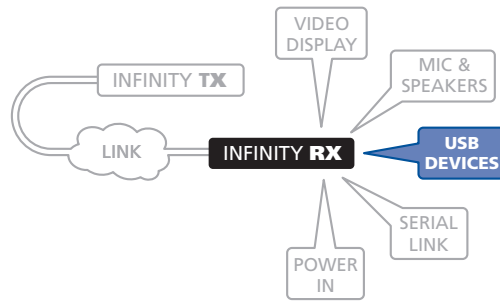


- 3 Once the unit has been fully connected and powered on, access the [RX System Configuration page](#) to check that the *Audio Input Type* setting matches the connection that you have made to the port: *line*, *mic* or *mic boost* (the latter provides +20dB gain).



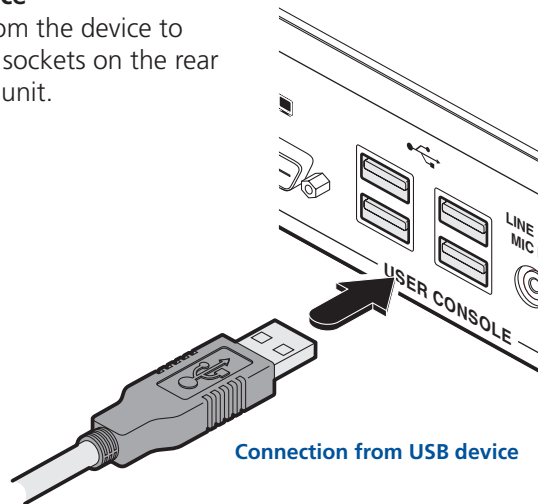
## RX USB devices

The Infinity RX unit has four USB ports to which peripherals may be connected. The ports are interchangeable. To connect more than four peripherals, one or more USB hubs may be used. The total current that may be drawn from the USB ports is 1.2A, which should be sufficient for a keyboard, mouse (no more than 100mA each) and any two other devices (500mA maximum each). If more power for USB devices is required, use a powered USB hub.



### To connect a USB device

- 1 Connect the lead from the device to any of the four USB sockets on the rear panel of the Infinity unit.



### Supported USB Devices

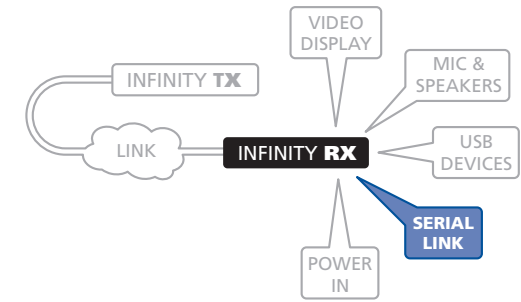
USB devices are supported using True Emulation technology. This means that the signals of each USB peripheral are emulated to the computer so that full functionality is available, subject to the following limitations:

- Keyboards, mice and other HID devices are supported.
- Storage devices (i.e. flash drives, USB hard disks, CD-ROM drives) are supported, but they may operate more slowly than with a direct connection.
- Isochronous devices (including microphones, speakers, webcams and TV receivers) are not currently supported.
- Many other devices (such as printers, scanners, serial adapters and specialist USB devices) will work, but due to the huge variety of devices available, successful operation cannot be guaranteed.

## RX AUX port

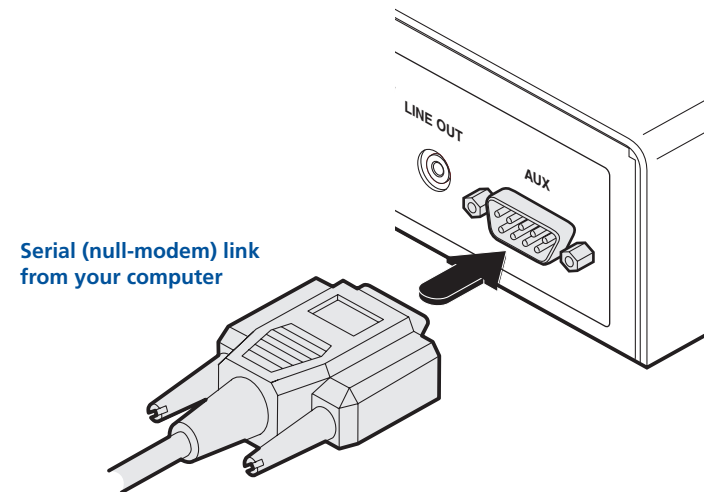
**The AUX port connection is not required for normal operation.**

This is an RS232 serial port which is used when performing an initial setup or firmware upgrade using the Start-of-Day configuration utility. Your computer needs to have a suitable terminal emulator program, such as Windows HyperTerminal. See [Infinity Start-of-Day configuration utility](#) for details.

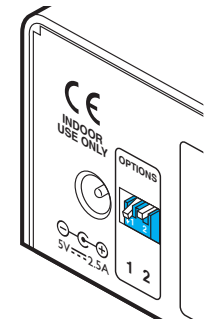


### To connect the AUX port (not required for normal operation)

- 1 Ensure that power is removed from the Infinity unit.
- 2 Connect a suitable serial 'null-modem' cable (see [Appendix 4](#) for pin-out) between a vacant serial port on your computer and the AUX port on the right hand side of the Infinity rear panel.



- 3 On the rear panel, click option switch 1 to the ON (down) position.
- 4 Power up the Infinity unit and your computer. You are now ready to use the Start-of-Day configuration utility ([Infinity Start-of-Day configuration utility](#)) or perform an upgrade ([Performing an upgrade](#)).

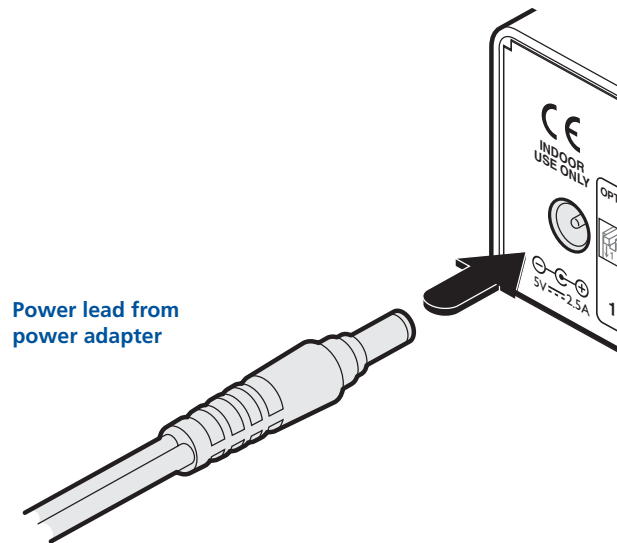
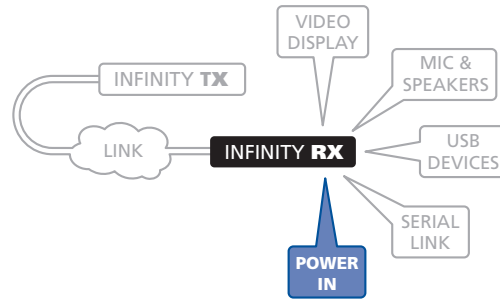


## RX power in

Each Infinity unit is supplied with a standard power supply. When all other connections have been made, connect and switch on the power supply unit

### To apply power in

- 1 Attach the output lead from the power adapter to the 5v socket on the rear panel of the unit.



**Note:** Ensure that Option switches 1 and 2 are both in the 'off' (up) position to enable normal operation of the unit.

- 2 Connect the IEC connector of the supplied country-specific power lead to the socket of the power adapter.
- 3 Connect the power lead to a nearby main supply socket.

*Note: Both the unit and its power supply generate heat when in operation and will become warm to the touch. Do not enclose them or place them in locations where air cannot circulate to cool the equipment. Do not operate the equipment in ambient temperatures exceeding 40°C. Do not place the products in contact with equipment whose surface temperature exceeds 40°C.*



# Configuration

## Initial configuration

The AdderLink Infinity units are designed to be as flexible as possible, and this principle extends also to their configuration.

- Where an Infinity TX and an Infinity RX are directly linked to each other, no configuration action is required, provided that they have their factory default settings in place. If the standard settings have been changed in a previous installation, you merely need to perform a factory reset on each unit:
- Where Infinity units are connected via network links, you will need to specify their network address details. This can be done using a computer system temporarily linked to each Infinity unit, in either of two ways:
  - Using a direct serial port connection and the [Infinity Start-of-Day configuration utility](#).
  - Using a network connection and the [Infinity browser-based configuration utility](#). This configuration utility also allows numerous other settings to be altered.

*Note: For basic one-to-one installations, the factory default addresses may be acceptable for immediate use within your network without the need to use a configuration utility or change their values:  
TX unit (192.168.16.129), RX unit (192.168.16.127).*

### Configuring network switches to ensure efficient operation

With IP Multicast there is a risk that network segments can get saturated with data that is not destined for any device on that segment. Unless some intelligence is applied, it's possible for a naive IP switch to pass multicast data onto every port on the switch. This can lead to performance degradation and wasted network bandwidth. Fortunately, however, modern switches employ a technique known as IGMP Snooping (Internet Group Management Protocol) which enables them to be selective about where they route multicast IP traffic - routing it only through switch ports which contain devices that are specifically interested in such traffic.

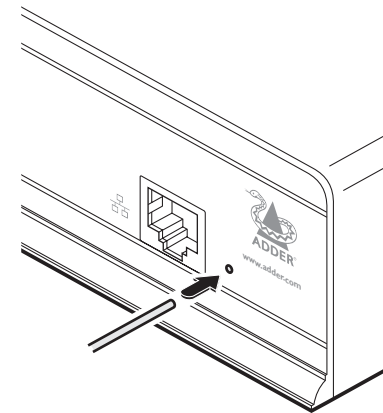
IGMP Snooping can significantly reduce the amount of traffic generated by Infinity TX units that are configured for multicast operation. It is beyond the scope of this document to detail how to enable and configure IGMP snooping for particular Gigabit IP Switches. However, we strongly recommend that when deploying an Infinity Network you should select IP switches that support IGMP snooping, and this snooping should be enabled and appropriately configured.

## Manual factory reset

A factory reset returns an Infinity TX or RX unit to its default configuration. You can perform factory resets using either of the two configuration utilities or by using this direct manual method.

### To perform a manual factory reset

- 1 Remove power from the Infinity unit.
- 2 Use a narrow implement (e.g. a straightened-out paper clip) press and hold the reset button adjacent to the front panel network socket. Power on the unit and then release the reset switch.



**Use a straightened-out paper clip to press the reset button while powering on the unit**

After roughly eight seconds, when the factory reset has completed, five of the front panel indicators will flash for a period of three seconds to indicate a successful reset operation.

- 3 Remove and then re-apply power to start the unit in its default configuration.

## Infinity Start-of-Day configuration utility

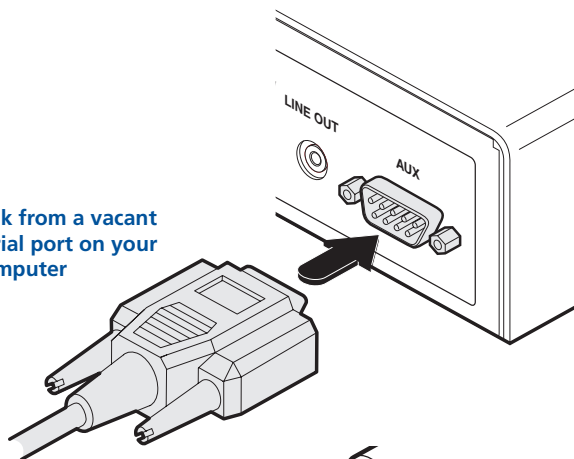
The Start-of-Day configuration utility is useful when you are not able to make a network connection between your computer and an Infinity unit in order to use the more comprehensive [browser-based configuration utility](#). The rudimentary Start-of-Day configuration utility requires a direct serial port link between your computer and the Infinity unit and allows you to perform only the following functions:

- View/edit the IP network address and netmask for the Infinity unit,
- Perform a firmware upgrade,
- Perform a factory reset.

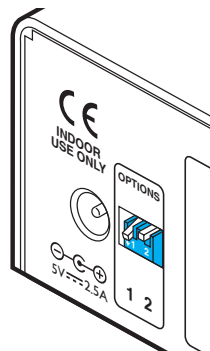
### To connect a computer system via the AUX port

- 1 Ensure that power is removed from the Infinity unit.
- 2 Connect a suitable serial 'null-modem' cable (see [Appendix 4](#) for pin-out) between a vacant serial port on your computer and the AUX port on the right hand side of the Infinity rear panel.

Link from a vacant serial port on your computer



- 3 On the rear panel, click option switch 1 to the ON (down) position.



- 4 Power up the Infinity unit and your computer. You are now ready to use the Start-of-Day configuration utility.

### To use the Start-of-Day configuration utility

- 1 On the connected computer, run a suitable terminal emulator application, such as Windows HyperTerminal.
- 2 Within the terminal emulator, ensure that the serial port settings are configured as follows: **115200 baud, no parity bits, 8 data bits, 1 stop bit**. Within the terminal emulator console, you should see a screen similar to the following:

```
System Configuration (type "help" for help)
System Information:
  Unit type:      TX
  IP address:    192.168.16.101
  Netmask:      255.255.255.0
  Gateway:      192.168.16.1
  MAC address:  00:0F:58:01:3A:9F
  Build no:     1.0.9890:9893M
  Built by:     snm
  Built on:     "Tue Sep 09 14:17:35 BST 2009"
Type 'help' for help
% >
```

- To see a summary of valid commands, type **help** and press Enter.
- To view the current **IP address** for the unit, type **ip** and press Enter.
- To change the IP address, type **ip nnn.nnn.nnn.nnn** and press Enter, (where *nnn* represents each octet of the appropriate address).

```
% >ip
IP Address set to 192.168.16.101
% > ip 192.168.16.109
```

Here the IP address is first requested and then changed.

- To view the current **netmask** for the unit, type **netmask** and press Enter.
- To change the mask, type **netmask nnn.nnn.nnn.nnn** and press Enter, (where *nnn* represents each octet of the appropriate mask).

```
% >netmask
Netmask set to 255.255.255.0
% > netmask 255.255.0.0
```

Here the netmask is first requested and then changed.

- To view the current gateway address, type **gateway** and press Enter.
- To change the gateway, type **gateway nnn.nnn.nnn.nnn** and press Enter, (where *nnn* represents each octet of the appropriate address).

```
% >gateway
Gateway set to 192.168.16.1
% > gateway 192.168.16.2
```

Here the gateway address is first requested and then changed.

- 3 When you have completed your settings (changes are saved as they are made), remove power from the Infinity unit; on the rear panel click option switch 1 to the OFF (up) position and disconnect the serial lead.

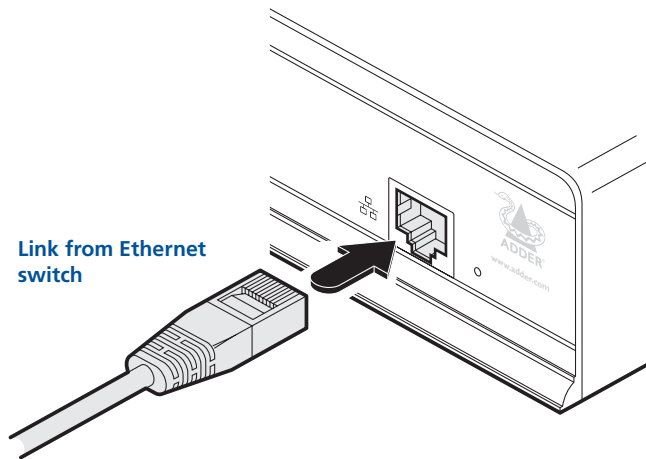
## Infinity browser-based configuration utility

The browser-based configuration utility within all TX and RX units requires a network connection between the Infinity unit and a computer. This configuration utility allows you to perform all of the following functions:

- View/edit the IP network address and netmask,
- Configure separate IP network addresses for video, audio and USB,
- Configure multicast settings (on RX units),
- Configure video bandwidth settings (on TX units),
- View the current video output (on TX units),
- Perform a firmware upgrade,
- Perform a factory reset.

### To connect a computer system for browser-based configuration

- 1 Connect a suitable network cable to the Ethernet port on the front panel of the Infinity unit.



- 2 Connect the other end of the link cable to a network switch.
- 3 Similarly, link your computer to the same, or different, switch located on the same network. *Note: A Gigabit connection is not essential for configuration purposes.*
- 4 If not already switched on, power up your computer and the Infinity unit. You are now ready to use the browser-based configuration utility.

### To access the browser-based configuration utility

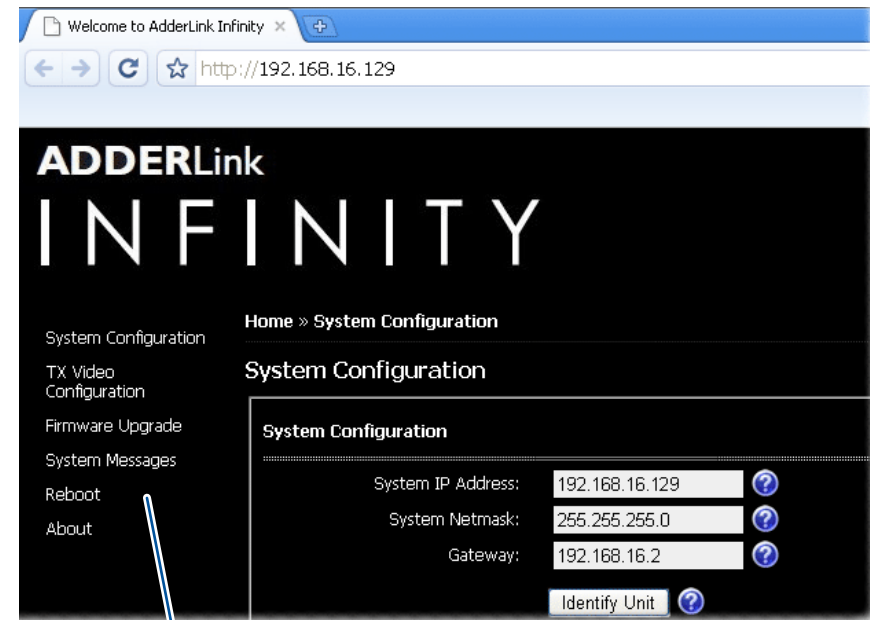
- 1 Temporarily connect the Infinity unit and a computer via a network, as discussed above.
- 2 Run a web browser on your computer and enter the IP address of the Infinity unit, e.g. <http://192.168.16.129>

The default settings are as follows:

- **TX units** - IP address: **192.168.16.129** Netmask: 255.255.255.0
- **RX units** - IP address: **192.168.16.127** Netmask: 255.255.255.0

Where the address of a unit is not known, either use the [Start-of-Day configuration utility](#) to discover it, or perform a [manual factory reset](#) to restore the default address.

The opening page of the Infinity configuration utility should be displayed:



Use the menu options to choose the required configuration page

The configuration utilities for the TX and RX units contain different options and will be covered separately in the remainder of this section:

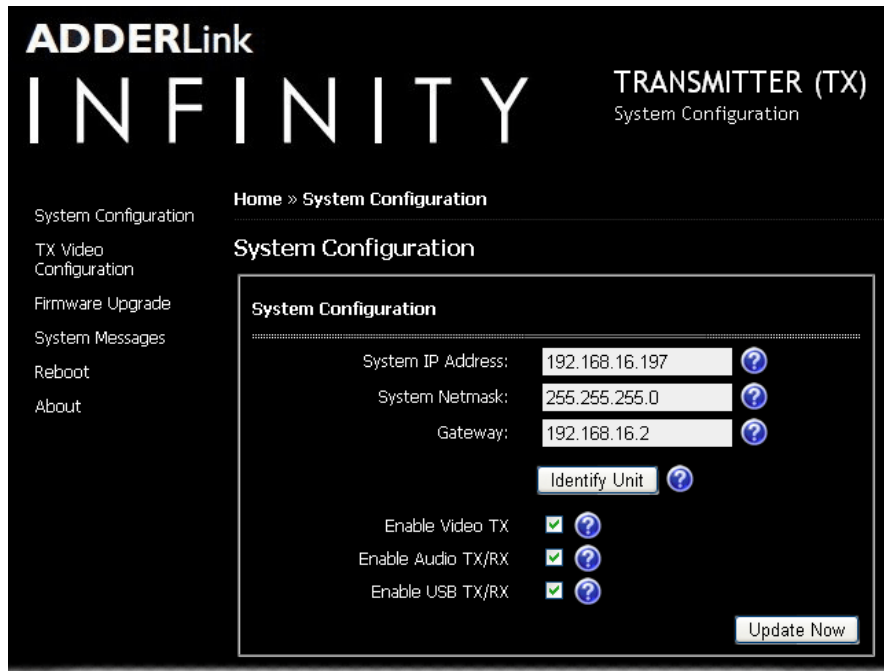
- [TX \(transmitter\) unit configuration.](#)
- [RX \(receiver\) unit configuration.](#)

## TX (transmitter) unit configuration

In the Infinity system, the majority of configuration settings are dictated by the [RX units](#). Therefore, the local TX unit setup (using its browser-based configuration utility) is concerned only with three main factors: Its IP address details, the data streams to enable/disable and video signal optimisation. Other TX unit pages, such as [System Messages](#), [Firmware Upgrades](#) and [Reboot](#) are generally not used or altered during the majority of installations and are discussed elsewhere in this guide.

### Using the System Configuration page

- 1 Display the TX unit [System Configuration](#) page.
- 2 Ensure that the IP address and netmask for the TX unit are correct. Their default settings are 192.168.16.129 and 255.255.255.0 respectively. Where changes are necessary, enter the new values and click the Update Now button. You will need to declare the System IP Address that is set here to the sole (or multicast master) [RX unit](#) linked to the TX unit.
- 3 Check that the data streams (Video TX, Audio TX/RX and USB TX/RX) are enabled (ticked) or disabled (unticked) as appropriate. There are similar options within the Infinity RX unit configuration and it is important that the settings in both units are the same. If one of these options is ticked in one unit but unticked in the other, then that data stream will remain disabled. If you make a change, remember to click the Update Now button.



### Using the TX Video Configuration page

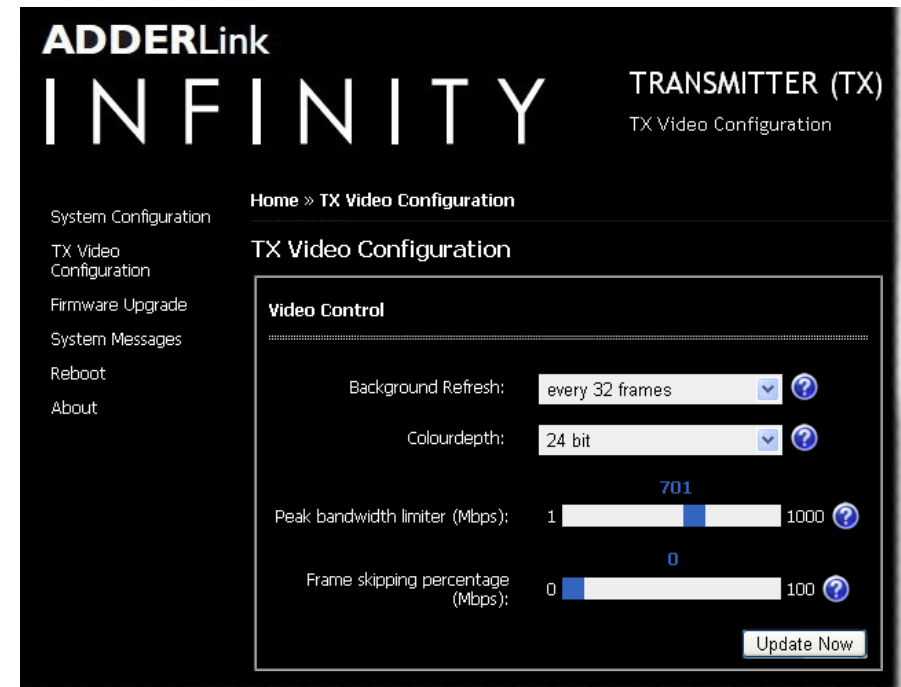
*Note: Where the Infinity system is connected to a Gigabit Ethernet network with sufficient available bandwidth, there should be no need to alter the default settings on this page.*

- 1 Display the TX unit [System Configuration](#) page and then change to the TX Video Configuration page.
- 2 Make changes to the controls as necessary. There is no single combination of adjustments that will suit all installations, but generally:
  - If colour quality is important, then leave *Colourdepth* at 24 bits and adjust other controls,
  - If moving video images are being shown frequently, then leave *Frame Skipping* at a low percentage and instead reduce the *Peak bandwidth limiter* and *Colourdepth*.
  - Where screens are quite static, try decreasing the *Background Refresh* setting and increasing the *Frame Skipping* setting.

Make changes one at a time, in small steps, and view typical video images so that you can attribute positive or negative results to the appropriate control.

See [TX Video Configuration](#) for individual explanations of the controls.

- 3 Click Update Now to apply each setting change.



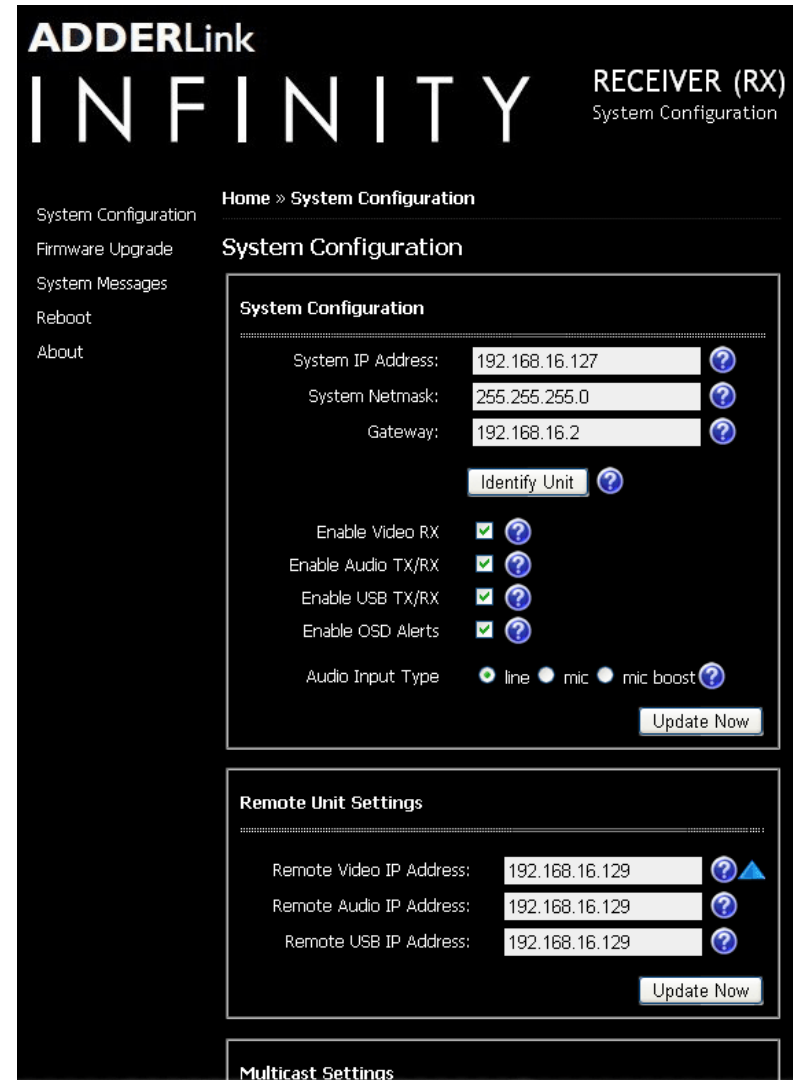
## RX (receiver) unit configuration

In the Infinity system, it is the RX unit (receiver) that determines where and how data signals are sent (and received) by the [TX unit](#). Although numerous Infinity topologies (one-to-one, one-to-many, many-to-one, etc.) are made possible by the Infinity system, they are all dependent on two underlying modes of operation: either *Unicast* or *Multicast* transmission. Where multicast transmission is not invoked for video and/or audio data, operation will be automatically served by unicast network transmission technologies.

The RX unit setup (using the System Configuration page of its browser-based configuration utility) is concerned with four main factors: Its own IP address details, the data streams to enable/disable, the IP address of the TX unit and multicast transmission details. Other pages, such as [System Messages](#), [Firmware Upgrades](#) and [Reboot](#) are generally not used or altered during the majority of installations and are discussed elsewhere in this guide.

### Configuring the RX unit

- 1 Display the RX unit [System Configuration](#) page.
- 2 In the System Configuration section, ensure that the System IP address and System Netmask for this RX unit are correct. Their default settings are 192.168.16.127 and 255.255.255.0 respectively. Where changes are necessary, enter the new values and click the Update Now button. The System IP Address that is set here will be sent to the TX unit as the destination for transmitted data (when operating in unicast mode). The Gateway entry is only necessary when the TX unit is located on a separate network to the RX unit.
- 3 Check that the data streams (Video RX, Audio TX/RX and USB TX/RX) are enabled (ticked) or disabled (unticked) as appropriate. There are similar options within the Infinity TX unit configuration; If one of these options is ticked in one unit but unticked in the other, then that data stream will remain disabled. If you make a change, click the Update Now button.
- 4 If necessary, alter the Audio Input Type to match your audio input. The *line* option is for a stereo line input, *mic* and *mic boost* are for mono microphones, the latter benefiting from a +20dB gain boost.
- 5 In the Remote Unit Settings section, enter the IP address for the TX unit that will be supplying the video, audio and USB data streams. Most often all three streams are supplied by the same TX unit, so a single IP address can be used. However, it is possible to receive them from different locations, in which case, click the blue arrow to reveal the three separate video, audio and USB addresses. The default setting for all of these three entries are the standard IP address that is factory set within every TX unit (192.168.16.129). If any changes are made, click the Update Now button to save and activate them.

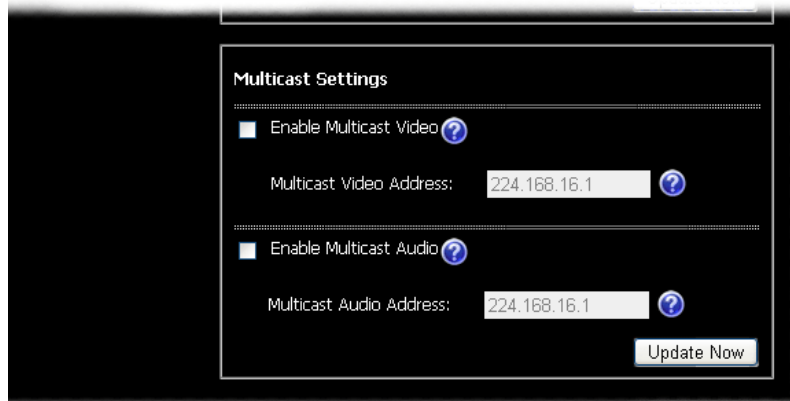


The screenshot shows the ADDERLink INFINITY RECEIVER (RX) System Configuration page. The page has a dark theme with white text. At the top, it says "ADDERLink INFINITY RECEIVER (RX) System Configuration". Below this, there is a navigation menu with options: System Configuration, Firmware Upgrade, System Messages, Reboot, and About. The main content area is titled "System Configuration" and contains several sections:

- System Configuration:** This section includes input fields for "System IP Address" (192.168.16.127), "System Netmask" (255.255.255.0), and "Gateway" (192.168.16.2). There is an "Identify Unit" button and a list of checkboxes for "Enable Video RX", "Enable Audio TX/RX", "Enable USB TX/RX", and "Enable OSD Alerts", all of which are checked. Below these is a radio button selection for "Audio Input Type" with options "line", "mic", and "mic boost". An "Update Now" button is at the bottom right of this section.
- Remote Unit Settings:** This section includes input fields for "Remote Video IP Address", "Remote Audio IP Address", and "Remote USB IP Address", all set to 192.168.16.129. A blue arrow icon is next to the Remote Video IP Address field. An "Update Now" button is at the bottom right of this section.
- Multicast Settings:** This section is partially visible at the bottom of the screenshot.

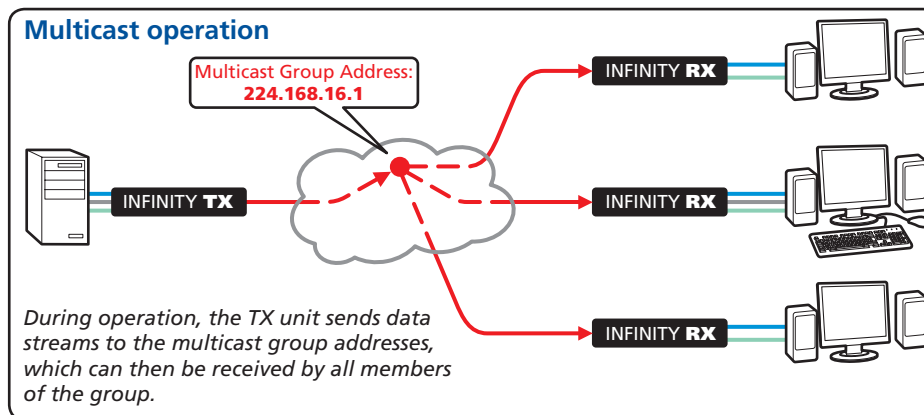
continued

- 6 For installations that will include more than one RX unit, for either video or audio or both, then you need to configure the Multicast Settings section.



The Video and Audio sub-sections are configured in exactly the same way:

- First, tick the Enable Multicast Video / Enable Multicast Audio check box.
- Next, enter an appropriate Multicast Address for the Video/Audio data stream(s). The set of IP addresses between 224.0.0.0 and 239.255.255.255 are specifically reserved for multicast operations. Within a private enterprise network, you merely need to choose a location that is currently unused. However, if your link will pass through public networks, then attention must be given to finding an address within these limits that is not already reserved for special use. The IANA (Internet Assigned Numbers Authority) website: [iana.org](http://iana.org) provides a list of publically reserved addresses.



The address that you enter will be used by the RX unit to 'listen-in' on the data stream from the TX unit. This same IP address needs to be set on every RX unit that will similarly receive the data stream. The video and audio multicast addresses must be different.

- Click the Update Now button to save  
Repeat the IP addressing and multicast configuration steps for all RX units that will be part of the one-to-many installation.  
For most installations, the successful implementation of these configuration steps will result in a correctly working system.



# Performing an upgrade

AdderLink Infinity units are fully upgradeable via flash upgrade. Such upgrades require a computer system to either be attached via a network link or directly to the AUX port of the Infinity unit.

**Warning: During the upgrade process, ensure that power is not interrupted as this may leave the unit in an inoperable state.**

## To upgrade via network link

- 1 Download the latest upgrade file from the Adder Technology website.  
*Note: There are separate upgrade files for TX and RX units.*
- 2 Temporarily connect the Infinity unit and a computer via a network (see [Infinity browser-based configuration utility](#) section for details).
- 3 Run a web browser on your computer and enter the IP address of the Infinity unit to be upgraded, e.g. <http://192.168.16.127> or <http://192.168.16.129>
- 4 Click the Firmware Upgrade link. Within the Firmware Upgrade page, click the Choose File button. In the subsequent file dialog, locate the downloaded upgrade file - check that the file is correct for the unit being upgraded.



- 5 Click the Upgrade Now button. A progress bar will be displayed (however, if your screen is connected to the unit being upgraded then video may be interrupted) and the indicators on the front panel will flash while the upgrade is in progress.
- 6 The indicators should stop flashing in less than one minute, after which the unit will automatically reboot itself. The upgrade process is complete.

## Finding the latest upgrade files

Firmware files for the AdderLink Infinity units are available from the *Technical Support > Updates* section of the Adder Technology website ([www.adder.com](http://www.adder.com)).

## To upgrade via the AUX port

- 1 Download the latest upgrade file from the Adder Technology website.  
*Note: There are separate upgrade files for TX and RX units.*
- 2 Ensure that power is removed from the Infinity unit.
- 3 Connect a 'null-modem' serial cable between your computer and the AUX port on the rear panel of the Infinity unit (see [Infinity Start of Day configuration utility](#) section for details).
- 4 On the rear panel of the Infinity unit, click switch 1 to the ON (down) position.
- 5 Apply power to the Infinity unit.
- 6 On the connected computer, run a suitable terminal emulator application, that supports the Zmodem protocol, such as Windows HyperTerminal.
- 7 Within the terminal emulator, ensure that the serial port settings are configured as follows: **115200 baud, no parity bits, 8 data bits, 1 stop bit** (115200, N, 8, 1). Within the terminal emulator console, you should see the Start-of-Day opening screen.
- 8 Type **upgrade** and press Enter. You will be asked to transfer the binary upgrade file using the Zmodem protocol.
- 9 If using Windows Hyperterminal: Click the Transfer menu and select the Send File option. In the subsequent file dialog, select Zmodem from the protocol list. Then, click the Browse button and locate the downloaded upgrade file - check that the file is correct for the unit being upgraded.
- 10 Click the Send button to begin the file transfer. The indicators on the front panel will flash while the upgrade is in progress. When the indicators stop flashing (after less than one minute) it is safe to reboot the unit and the upgrade will be complete.
- 11 Remove power from the unit, disconnect the serial cable and, on the rear panel of the Infinity unit, return switch 1 to its OFF (up) position.
- 12 Re-apply power to start the upgraded system.

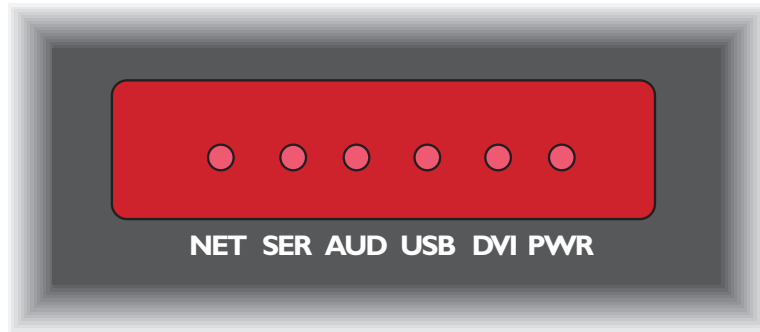


# Operation

In operation, many AdderLink Infinity installations require no intervention once configured. The TX and RX units take care of all connection control behind the scenes so that you can continue to work unhindered.

## Front panel indicators

The six front panel indicators on each unit provide a useful guide to operation:



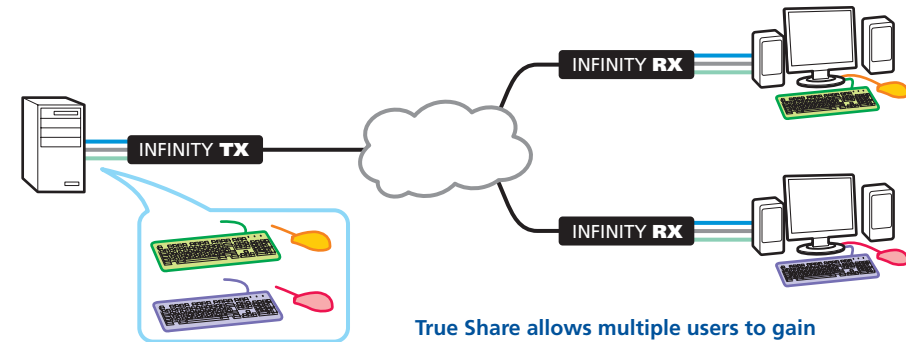
### Indicators

These six indicators clearly show the key aspects of operation:

- **NET** On when valid network link is present. Flashes when the unit is in error.
- **SER** On when the AUX (serial) port is enabled and active.
- **AUD** On when audio is enabled and active.
- **USB** On when USB is enabled and active.
- **DVI** On when DVI video is enabled and active.
- **PWR** Power indicator.

## True Share

The Infinity system allows two or more users (each connected to separate Infinity RX units) to share access to a computer system (linked to an Infinity TX unit). This is called *True Share* and provides an efficient way to distribute resources between users who may be widely dispersed.



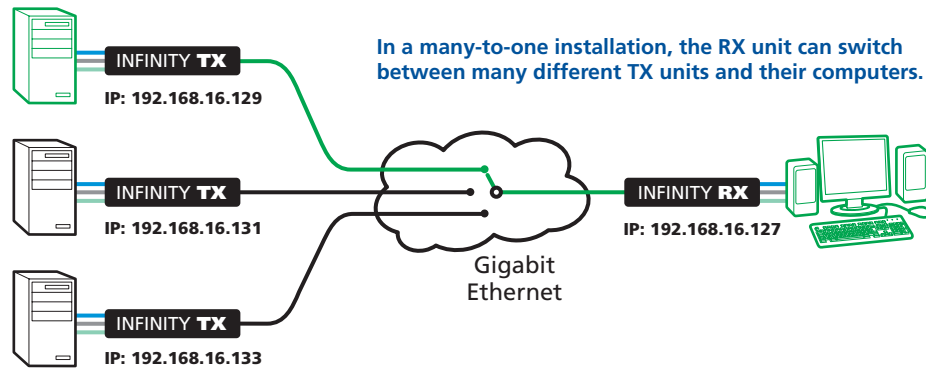
During operation, every user has equal and concurrent access rights to the computer. Arbitration between the actions of different users is handled by the computer's operating system.

True Share is not limited to handling the signals from keyboards and mice. True Share acts as a complete virtual USB hub that can accept up to twelve USB devices concurrently, each of which could be attached to a different RX unit.



# Many-to-one control

When using Infinity units in a many-to-one configuration, the RX unit can switch between the various TX units that are connected to different computer systems.



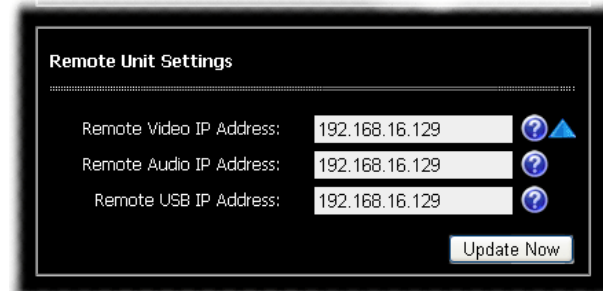
## To switch between systems

- 1 Run a web browser and enter the IP address of your local Infinity RX unit, (e.g. <http://192.168.16.127>) - this can be done through the remote computer that you are using via the Infinity system, provided that it is linked via its own connection to the network.

- 2 In the System Configuration page, within the Remote Unit Settings section, change the current IP address to the address of the new TX unit.



*Note: If you need to connect video, audio and USB to separate TX units, click the blue arrow to reveal the individual video, audio and USB IP addresses.*



- 3 Click the Update Now button. The chosen connection(s) will be broken with the current TX unit and initiated with the newly selected TX unit(s).

# Further information

This chapter contains a variety of information, including the following:

- Getting assistance - see right
- [Specifications](#)
- Appendices
  - Appendix 1 - [TX configuration utility](#)
  - Appendix 2 - [RX configuration utility](#)
  - Appendix 3 - [Addresses and net masks](#)
  - Appendix 4 - [Cable specifications](#)
  - Appendix 5 - [Supported video modes](#)
- [Safety information](#)
- [Warranty](#)
- [Radio frequency energy statements](#)

## Getting assistance

- Adder Technology website – [www.adder.com](http://www.adder.com)  
Check the Support section of our website for the latest solutions and driver files.
- Email – [support@adder.com](mailto:support@adder.com)
- Fax      in the UK:     **01954 780081**  
            in the US:     **+1 888 275 1117**
- Phone    in the UK:     **01954 780044**  
            in the US:     **+1 888 932 3337**



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## Specifications

Casing (w x h x d):	198mm (7.92") x 44mm (1.76") x 120mm (4.8")
Construction:	1U compact case, robust metal design
Weight:	0.75kg (1.65lbs)
Mount kits:	Rack mount - single or dual units per 1U slot. VESA monitor / wall mount chassis.
Power to adapter:	100-240VAC 50/60Hz, 0.4A,
Power to unit:	5VDC 12.5W
Operating temp:	0°C to 40°C (32°F to 104°F)
Approvals:	CE, FCC



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# Appendix 1 - TX configuration utility

This section covers the browser-based configuration utility for the Infinity TX (transmitter) unit. The TX utility has six pages, titled as follows:

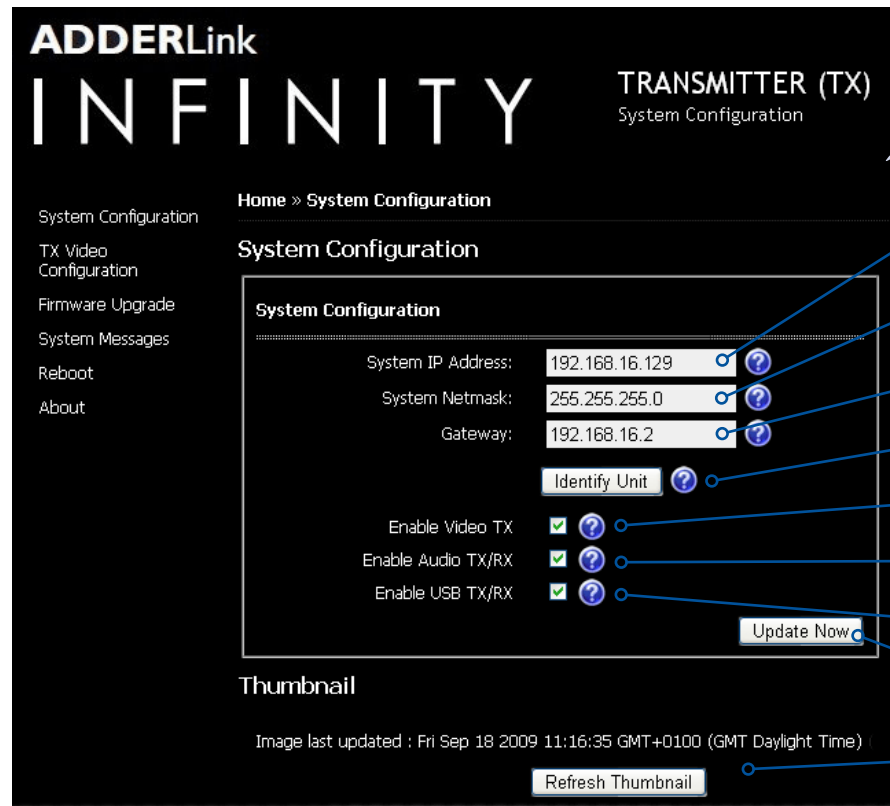
- System Configuration - Sets address and data stream options,
- [TX Video Configuration](#) - Allows you to optimize for slow connections,
- [Firmware Upgrade](#) - Handles the updating of internal software,
- [System Messages](#) - Options for handling status messages from the unit,
- [Reboot](#) - Cold restart and factory reset options,
- [About](#) - Version details and support information.

## TX System Configuration page

This page allows you to set the IP address and netmask for the unit and also to determine which of its data streams should be enabled. The page also provides a thumbnail preview of the video output which is useful for troubleshooting purposes.

**To get here**

- 1 If not already connected, temporarily [connect the Infinity unit and a computer via a network](#).
- 2 Run a web browser and enter the IP address of the Infinity TX unit. Default: **http://192.168.16.129**  
If the address is unknown, either use the [Start-of-Day configuration utility](#) to discover it, or perform a [manual factory reset](#).
- 3 If necessary, click the System Configuration link.



- System IP Address**  
Enter the IP address that you wish to use for this transmitter unit. The default address is: 192.168.16.129.
- System Netmask**  
Enter the netmask that you wish to use for this transmitter unit. The default netmask is: 255.255.255.0.
- Gateway**  
Necessary only when RX units may be placed on a different network.
- Identify unit**  
Click to flash the front panel indicators (useful when numerous units are mounted together).
- Enable Video TX**  
When ticked, the TX will send video on condition that the similar option is ticked at the RX unit.
- Enable Audio TX/RX**  
When ticked, the TX will use audio on condition that the similar option is ticked at the RX unit.
- Enable USB TX/RX**  
When ticked, the TX will use USB on condition that the similar option is ticked at the RX unit.
- Update Now**  
Click to save your changes and, where necessary, communicate those changes to other units.
- Thumbnail**  
Displays the video image currently being received at the DVI input port. Click the Refresh Thumbnail button to refresh.



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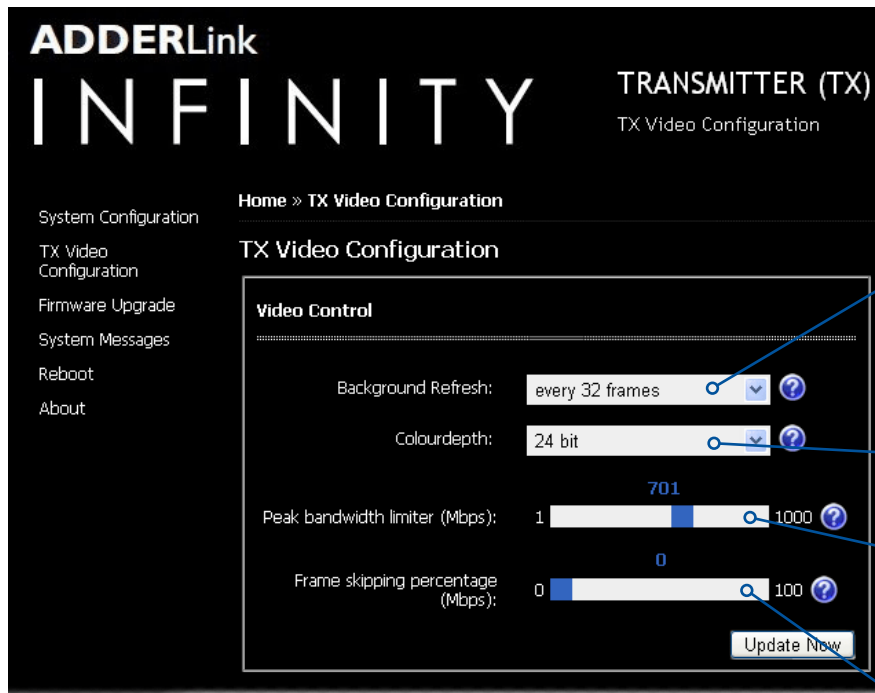
INDEX

## TX Video Configuration page

This page contains four controls which allow you to optimize video transmission for use with network links that may not be able to offer full bandwidth availability. Where bandwidth is plentiful, you should not need to alter the default settings. See [Using the TX Video Configuration page](#) for tips on optimization of these controls.

### To get here

- 1 If not already connected, temporarily [connect the Infinity unit and a computer via a network](#).
- 2 Run a web browser and enter the IP address of the Infinity TX unit. Default: **http://192.168.16.129**  
If the address is unknown, either use the [Start-of-Day configuration utility](#) to discover it, or perform a [manual factory reset](#).
- 3 Click the TX Video Configuration link.



### Background Refresh

The TX unit sends portions of the video image only when they change. In order to give the best user experience, the TX unit also sends the whole video image, at a lower frame rate, in the background. The Background Refresh parameter controls the rate at which this background image is sent. The default value is 'every 32 frames', meaning that a full frame is sent in the background every 32 frames. Reducing this to 'every 64 frames' or more will reduce the amount of bandwidth that the TX unit consumes. On a high-traffic network this parameter should be reduced in this way to improve overall system performance. Options: every 32 frames, every 64 frames, every 128 frames, every 256 frames or disabled.

### Colourdepth

This parameter determines the number of bits required to define the colour of every pixel. The maximum (and default) value is '24 bit'. By reducing the value you can significantly reduce bandwidth consumption, at the cost of video colour reproduction. Options: 24 bit, 16 bit or 8 bit.

### Peak bandwidth limiter

The TX unit will employ a 'best effort' strategy in sending video and other data over the IP network. This means it will use as much of the available network bandwidth as necessary to achieve optimal data quality, although typically the TX unit will use considerably less than the maximum available. In order to prevent the TX unit from 'hogging' too much of the network capacity, you can reduce this setting to place a tighter limit on the maximum bandwidth permissible to the TX unit. Range: 1 to 1000.

### Frame skipping percentage

Frame Skipping involves 'missing out' video frames between those captured by the TX unit. For video sources that update only infrequently or for those that update very frequently but where high fidelity is not required, frame skipping is a good strategy for reducing the overall bandwidth consumed by the system. Range: 0 to 100%.

## TX Firmware Upgrade page

This page allows you to choose and then implement a suitable firmware upgrade for the unit. Take care to ensure that the firmware file is named (TX) for the unit being upgraded.

### To get here

- 1 If not already connected, temporarily [connect the Infinity unit and a computer via a network](#).
- 2 Run a web browser and enter the IP address of the Infinity TX unit. Default: **http://192.168.16.129**  
If the address is unknown, either use the [Start-of-Day configuration utility](#) to discover it, or perform a [manual factory reset](#).
- 3 Click the Firmware Upgrade link.

ADDERLink  
INFINITY TRANSMITTER (TX)  
Firmware Upgrade

Home » Firmware Upgrade  
Firmware Upgrade

Upgrade  
Please specify an upgrade firmware file.

Filename

#### Choose File

Click to display a file dialog so that you may locate an appropriate firmware upgrade file.

#### Upgrade Now

When the firmware upgrade file has been selected, click this button to begin the upgrade process.



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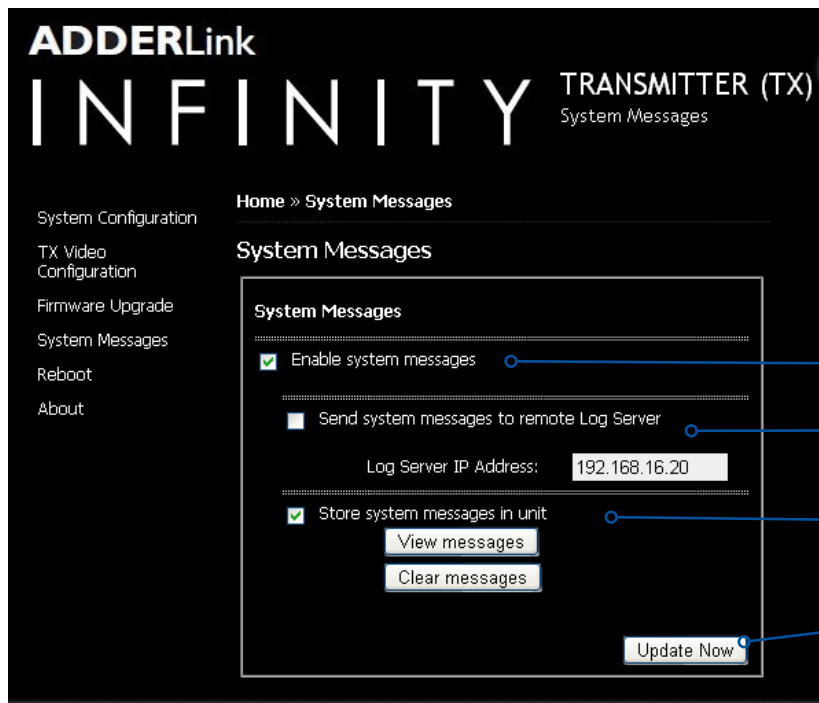
INDEX

## TX System Messages page

This page allows you to determine how to handle status and error messages that are produced by the Infinity unit. You can choose to store the messages locally within the unit, send them to a named server or disable them completely.

### To get here

- 1 If not already connected, temporarily [connect the Infinity unit and a computer via a network](#).
- 2 Run a web browser and enter the IP address of the Infinity TX unit.  
Default: **http://192.168.16.129**  
If the address is unknown, either use the [Start-of-Day configuration utility](#) to discover it, or perform a [manual factory reset](#).
- 3 Click the Systems Messages link.



#### Enable system messages

Tick to allow the creation of status and error messages by the unit.

#### Send system messages to remote Log Server

Choose this option to send the system messages to a remote server via the network. Provide the IP address of a suitable server here also.

#### Store system messages in unit

When ticked, this option will store system messages within the memory of the unit. Click the View messages button to view the list.

#### Update Now

Click to save and implement any changes that you make.



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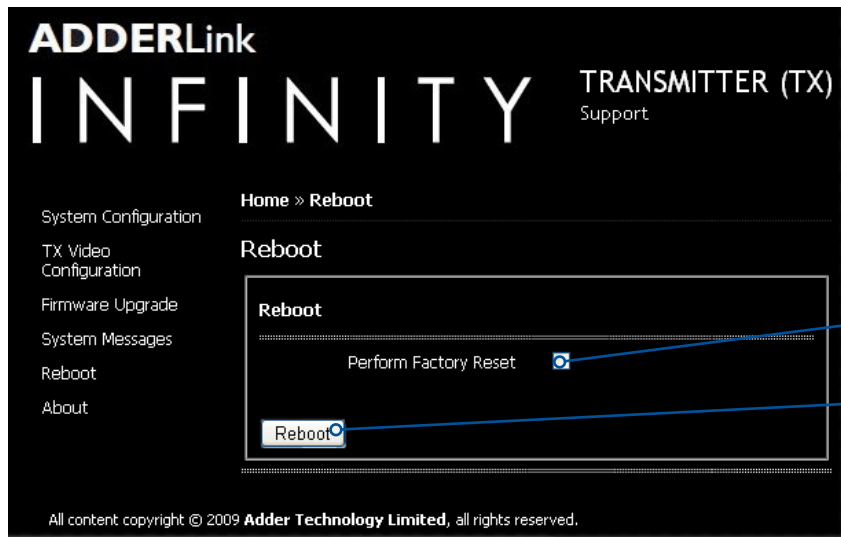
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## TX Reboot page

This page allows you to perform a cold boot procedure (as if power had been removed and reinstated) on the unit, remotely if necessary. You also have the option of restoring factory default settings (such as the standard IP addresses and video settings, etc.).

### To get here

- 1 If not already connected, temporarily [connect the Infinity unit and a computer via a network](#).
- 2 Run a web browser and enter the IP address of the Infinity TX unit.  
Default: **http://192.168.16.129**  
If the address is unknown, either use the [Start-of-Day configuration utility](#) to discover it, or perform a [manual factory reset](#).
- 3 Click the Reboot link.



### Perform Factory Reset

Tick this box if you need to restore all of the standard factory default settings to the unit as part of the reboot procedure.

### Reboot

Click to commence the cold reboot procedure.



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## TX Support page

This page provides useful build number details for support purposes and also provides contact details for Adder technical support.

### To get here

- 1 If not already connected, temporarily [connect the Infinity unit and a computer via a network](#).
- 2 Run a web browser and enter the IP address of the Infinity TX unit.  
Default: **http://192.168.16.129**  
If the address is unknown, either use the [Start-of-Day configuration utility](#) to discover it, or perform a [manual factory reset](#).
- 3 Click the About link.

**ADDERLink**  
**INFINITY** TRANSMITTER (TX)  
Support

Home » Support

Support

**System Information**

Build number 1.0.9790:9803M

Built on Mon Sep 21 10:59:33 BST 2009

Built by snm

**Getting Help**

Contact [support@adder.com](mailto:support@adder.com) or visit <http://www.adder.com> for help

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### System Information

Provides build number details which may be requested during support calls.



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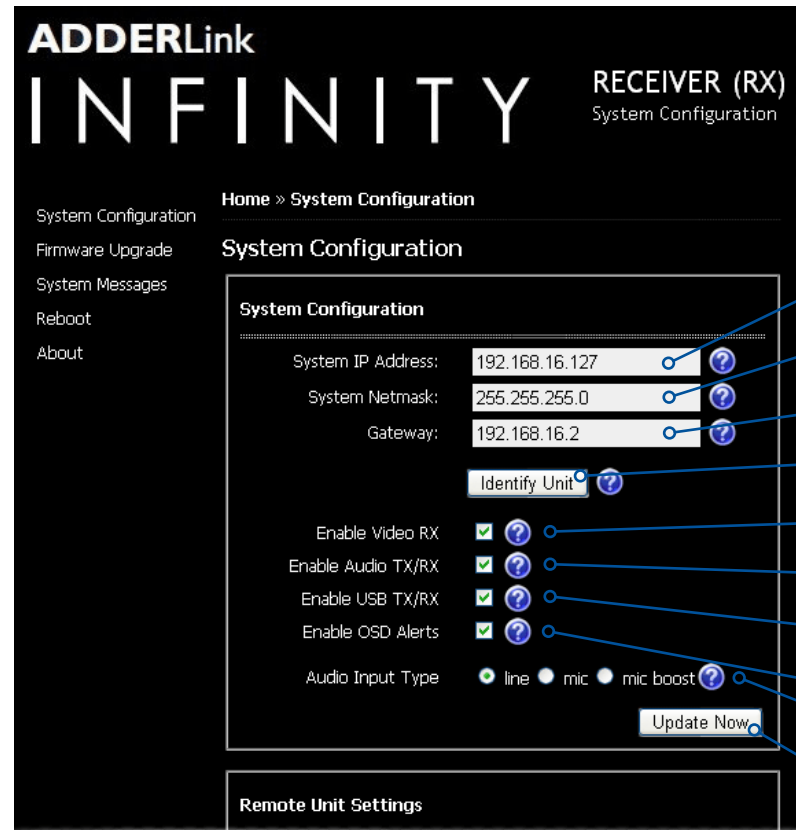
## Appendix 2 - RX configuration utility

This section covers the browser-based configuration utility for the Infinity RX (receiver) unit. The RX utility has five pages, titled as follows:

- System Configuration - Contains various important options,
- [Firmware Upgrade](#) - Handles the updating of internal software,
- [System Messages](#) - Options for handling status messages from the unit,
- [Reboot](#) - Cold restart and factory reset options,
- [About](#) - Version details and support information.

### RX System Configuration page

This page allows you to set the IP address and netmask for the unit, determine which of its data streams should be enabled and also configure multicast operation settings.



#### To get here

- 1 If not already connected, temporarily [connect the Infinity unit and a computer via a network](#).
- 2 Run a web browser and enter the IP address of the Infinity RX unit. Default: **http://192.168.16.127**  
If the address is unknown, either use the [Start-of-Day configuration utility](#) to discover it, or perform a [manual factory reset](#).
- 3 Click the System Configuration link.

#### System IP Address

Enter the IP address that you wish to use for this receiver unit. The default address is: 192.168.16.127.

#### System Netmask

Enter the netmask that you wish to use for this receiver unit. The default netmask is: 255.255.255.0.

#### Gateway

Necessary only when the TX units is placed on a different network.

#### Identify unit

Click to flash the front panel indicators (useful when numerous units are mounted together).

#### Enable Video RX

When ticked, the RX will request video (the similar option at the TX unit must also be ticked).

#### Enable Audio TX/RX

When ticked, the RX will use audio on condition that the similar option is ticked at the TX unit.

#### Enable USB TX/RX

When ticked, the RX will use USB on condition that the similar option is ticked at the TX unit.

#### Enable OSD Alerts

When ticked, the RX unit will show status messages on the attached monitor display.

#### Audio Input Type

Choose 'line' for stereo line input, 'mic' for mono microphone or 'mic boost' for a mono microphone that requires extra gain (+20dB).

#### Update Now

Click to save your changes and, where necessary, communicate those changes to other units.

See [next page](#) for lower half of this screen.



## RX System Configuration page (lower half)

The lower section of the page is concerned with IP addresses for the remote TX unit and also multicast settings.

See [previous page](#) for upper half of this screen.

### To get here

- 1 If not already connected, temporarily [connect the Infinity unit and a computer via a network](#).
- 2 Run a web browser and enter the IP address of the Infinity RX unit.  
Default: **http://192.168.16.127**  
If the address is unknown, either use the [Start-of-Day configuration utility](#) to discover it, or perform a [manual factory reset](#).
- 3 If necessary, click the System Configuration link.

The screenshot shows the lower half of the RX System Configuration page. At the top, there is a section for 'Audio Input Type' with radio buttons for 'line', 'mic', and 'mic boost', and an 'Update Now' button. Below this is the 'Remote Unit Settings' section, which contains three input fields: 'Remote Video IP Address' (192.168.16.129), 'Remote Audio IP Address' (192.168.16.129), and 'Remote USB IP Address' (192.168.16.129). Each field has a help icon and a blue arrow icon. An 'Update Now' button is at the bottom of this section. The 'Multicast Settings' section follows, with two checkboxes: 'Enable Multicast Video' and 'Enable Multicast Audio', both of which are currently unchecked. Below each checkbox is an input field for the corresponding multicast address, both set to '224.168.16.1'. Each address field has a help icon. An 'Update Now' button is at the bottom of this section. Blue lines connect the text labels on the right to the corresponding elements in the screenshot.

### Remote Unit Settings

This section is initially presented as a single field: 'Remote Unit IP Address' where a common IP address for a single TX unit can be declared. If separate TX units for video, audio and USB need to be configured, click the blue arrow to reveal the three separate fields.

Click the Update Now button to save and implement any changes.

### Enable Multicast Video

Tick this option to sign up this RX unit to receive a multicast video data stream from the network location listed below.

### Multicast Video Address

Defines the network address where the video data stream can be found. Valid entries are 224.0.0.0 to 239.255.255.255 inclusive. The default address is: 224.168.16.1

### Enable Multicast Audio

Tick this option to sign up this RX unit to receive a multicast audio data stream from the network location listed below.

### Multicast Audio Address

Defines the network address where the audio data stream can be found. Valid entries are 224.0.0.0 to 239.255.255.255 inclusive. The default address is: 224.168.16.1



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## RX Firmware Upgrade page

This page allows you to choose and then implement a suitable firmware upgrade for the unit. Take care to ensure that the firmware file is named (RX) for the unit being upgraded.

### To get here

- 1 If not already connected, temporarily [connect the Infinity unit and a computer via a network](#).
- 2 Run a web browser and enter the IP address of the Infinity RX unit. Default: **http://192.168.16.127**  
If the address is unknown, either use the [Start-of-Day configuration utility](#) to discover it, or perform a [manual factory reset](#).
- 3 Click the Firmware Upgrade link.

ADDERLink  
INFINITY  
RECEIVER (RX)  
Firmware Upgrade

Home > Firmware Upgrade  
Firmware Upgrade

Upgrade  
Please specify an upgrade firmware file.  
Filename

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#### Choose File

Click to display a file dialog so that you may locate an appropriate firmware upgrade file.

#### Upgrade Now

When the firmware upgrade file has been selected, click this button to begin the upgrade process.



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## RX System Messages page

This page allows you to determine how to handle status and error messages that are produced by the Infinity unit. You can choose to store the messages locally within the unit, send them to a named server or disable them completely.

### To get here

- 1 If not already connected, temporarily [connect the Infinity unit and a computer via a network](#).
- 2 Run a web browser and enter the IP address of the Infinity RX unit.  
Default: **http://192.168.16.127**  
If the address is unknown, either use the [Start-of-Day configuration utility](#) to discover it, or perform a [manual factory reset](#).
- 3 Click the Systems Messages link.

The screenshot shows the 'System Messages' configuration page for the ADDERLink INFINITY RECEIVER (RX). The page has a dark theme with white text. On the left, there is a navigation menu with links: System Configuration, Firmware Upgrade, System Messages (highlighted), Reboot, and About. The main content area is titled 'System Messages' and contains the following settings:

- Enable system messages
- Send system messages to remote Log Server  
Log Server IP Address: 192.168.16.20
- Store system messages in unit  
View messages  
Clear messages
- Update Now

#### Enable system messages

Tick to allow the creation of status and error messages by the unit.

#### Send system messages to remote Log Server

Choose this option to send the system messages to a remote server via the network. Provide the IP address of a suitable server here also.

#### Store system messages in unit

When ticked, this option will store system messages within the memory of the unit. Click the View messages button to view the list.

#### Update Now

Click to save and implement any changes that you make.



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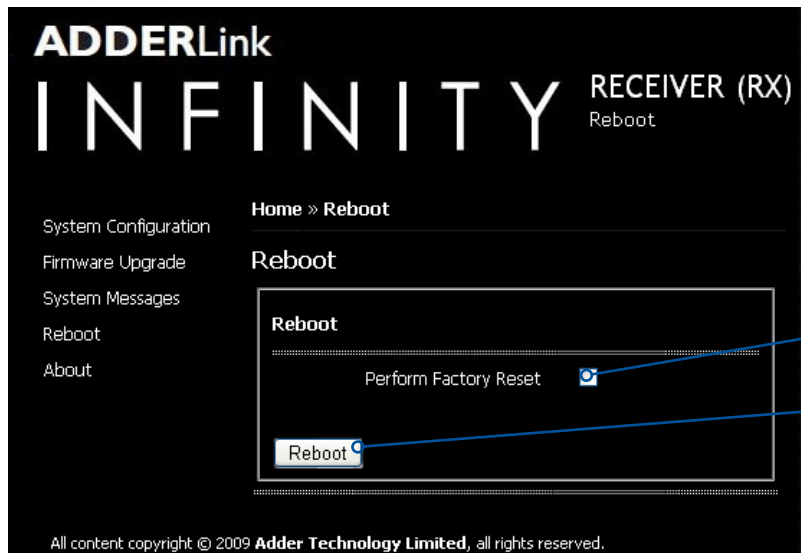
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## RX Reboot page

This page allows you to perform a cold boot procedure (as if power had been removed and reinstated) on the unit, remotely if necessary. You also have the option of restoring factory default settings (such as the standard IP addresses and video settings, etc.).

### To get here

- 1 If not already connected, temporarily [connect the Infinity unit and a computer via a network](#).
- 2 Run a web browser and enter the IP address of the Infinity RX unit.  
Default: **http://192.168.16.127**  
If the address is unknown, either use the [Start-of-Day configuration utility](#) to discover it, or perform a [manual factory reset](#).
- 3 Click the Reboot link.



#### Perform Factory Reset

Tick this box if you need to restore all of the standard factory default settings to the unit as part of the reboot procedure.

#### Reboot

Click to commence the cold reboot procedure.



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## RX Support page

This page provides useful build number details for support purposes and also provides contact details for Adder technical support.

### To get here

- 1 If not already connected, temporarily [connect the Infinity unit and a computer via a network](#).
- 2 Run a web browser and enter the IP address of the Infinity RX unit.  
Default: **http://192.168.16.127**  
If the address is unknown, either use the [Start-of-Day configuration utility](#) to discover it, or perform a [manual factory reset](#).
- 3 Click the About link.

**ADDERLink**  
**INFINITY** RECEIVER (RX)  
Support

Home » Support

Support

System Information

Build number 1.0.9789  
Built on Thu Sep 17 17:12:56 BST 2009  
Built by snm

Getting Help

Contact [support@adder.com](mailto:support@adder.com) or visit <http://www.adder.com> for help

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### System Information

Provides build number details for the unit, which may be requested during support calls.



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## Appendix 3 – Addresses and net masks

IP address and network masks are closely linked in the quest for one device to find another across disparate network links.

### IP addresses

As a rough analogy, consider how you use the telephone system. The phone number for Adder Technology in the UK is **0044 (0)1954 780044**. This number consists of three distinct parts:

- **0044** connects from another country to the UK
- **(0)1954** selects the main telephone exchange in the Bar Hill area of Cambridgeshire, and
- **780044** is the unique code for Adder Technology within Bar Hill.

The important parts of the whole number depend on where you are. If you were based in the same local area as Adder Technology, there would be no point in dialling out of the UK, or even out of the area. The only part of the whole number that you are interested in is the final part: 780044.

In a similar way to the various parts of the telephone number, the four sections (or *Octets*) of every IP address have different meanings or “weights”. Consider the following typical IP address:

**192.168.142.154**

**192** is the most global part of the number (akin to the *0044* of the phone number) and **154** is the most local (similar to the *780044* unique local code of the phone number).

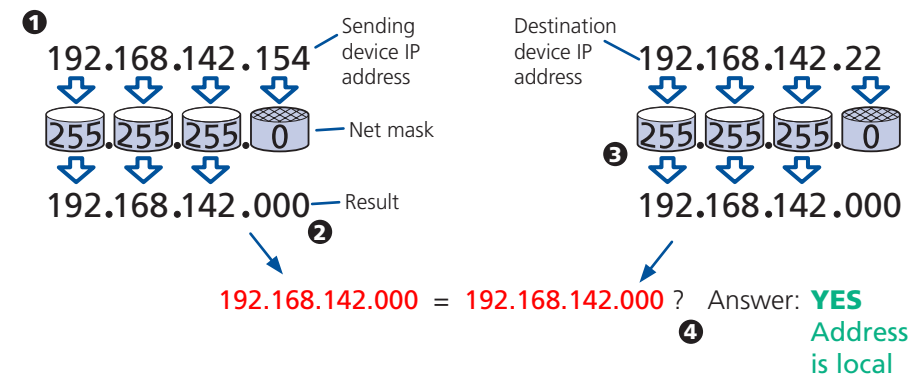
When two network devices communicate with each other, they always “dial the whole number” regardless of their respective locations in a network. However, they still need to know whether the other device is local to them or not, and this is where the net mask comes into play.

### Net masks

The net mask (or sub-net mask) informs a device as to its own position within a network. From this it can determine whether any other device is within the same local network or is situated further afield.

Taking the telephone number analogy given in the IP address section, in order to use the telephone system efficiently, it is vital for you to know your location relative to the person you are calling. In this way you avoid dialling unnecessary numbers.

When one network device needs to talk to another, the first thing that it will do is a quick calculation using its own IP address, the other device’s IP address and its own net mask. Suppose a device with address **192.168.142.154** and net mask **255.255.255.0** needed to communicate with a device at address **192.168.142.22**. The sending device would perform several calculations:



- 1 The net mask is used to determine the local and global parts of the sender’s IP address. Where there is 255 in the mask, the corresponding address slips through, where there is a 0, it is blocked.
- 2 Where the net mask was 0, the corresponding part of the result is also zero - this section is now known to be the local part of the IP address.
- 3 The same process is carried out for the destination address, again using the sender’s net mask. Now the local parts of both addresses have been equalised to zero, because their values are not important in determining whether they are both in the same local network.
- 4 The results of the two net mask operations are now compared, if they match, the destination is local. If not, then the sender will still use the same full destination IP address but will also flag the message to go via the local network gateway and out into the wider world.

The reason for doing this? It makes the network, as a whole, much more efficient. If every message for every recipient was shoved straight out onto the Internet, the whole thing would grind to a halt within seconds. Net masks keep local traffic just that - local.

[Want to know more?](#)





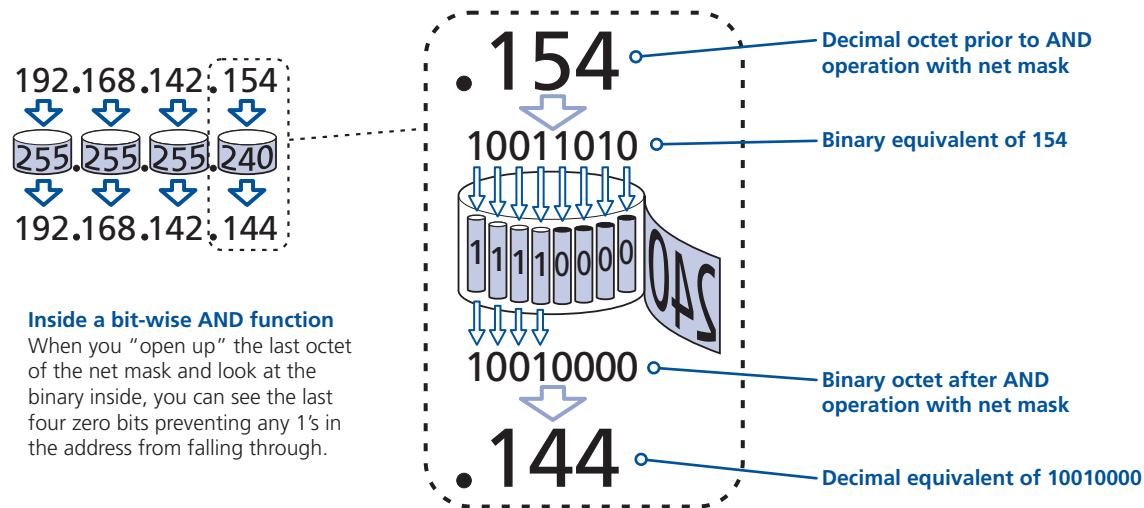
## Net masks - the binary explanation

To really understand the operation of a net mask it is necessary to delve deeper into the life blood of computers – *binary*; this is native digital, where everything is either a 1 (one) or 0 (zero), on or off, yes or no.

The net mask operation described on the [previous page](#) is known as a ‘bit-wise AND function’. The example of 255.255.255.0 is handy because the last octet is completely zero and is “clean” for illustrative purposes. However, actual net mask calculations are carried out, not on whole decimal numbers, but bit by bit on binary numbers, hence the term ‘bit-wise’. In a real local network, a net mask might be 255.255.255.240. Such an example would no longer be quite so clear, until you look at the net mask in its binary form:

11111111.11111111.11111111.11110000

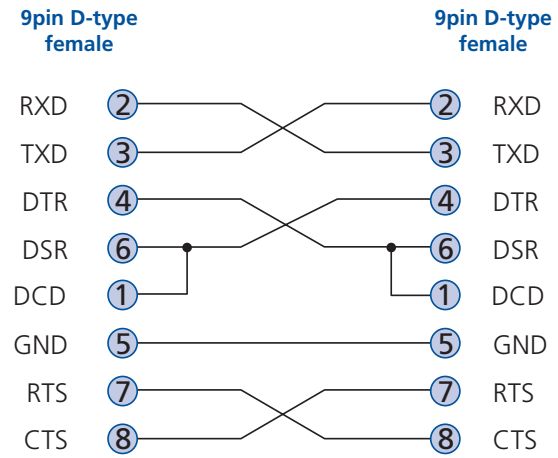
In this case, the four zeroes at the end of the net mask indicate that the local part of the address is formed by only the last four bits. If you use the diagram from the previous example and insert the new net mask, it will have the following effect on the final result:



Thus, when 154 is *bit-wise ANDed* with 240, the result is 144. Likewise, any local address from 192.168.142.144 through to 192.168.142.159 would produce exactly the same result when combined with this net mask, hence they would all be local addresses. However, any difference in the upper three octets or the upper four bits of the last octet would slip through the mask and the address would be flagged as not being local.

# Appendix 4 – Cable and connector specifications

## RS232 'null-modem' cable



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## Appendix 5 – Supported video modes

The following video modes are supported and can be automatically configured by the Infinity units. If a recognised video mode cannot be found, the Infinity TX unit will gradually change some of the key parameters to discover whether a video lock can be achieved. All display timings, except for 1920 x 1200 mode, use VESA GTF (Generalized Timing Formula) timings

vesa 720 x 400 @ 85Hz  
vesa 640 x 480 @ 60Hz  
vesa 640 x 480 @ 72Hz  
vesa 640 x 480 @ 75Hz  
vesa 640 x 480 @ 85Hz  
vesa 800 x 600 @ 56Hz  
vesa 800 x 600 @ 60Hz  
vesa 800 x 600 @ 72Hz  
vesa 800 x 600 @ 75Hz  
vesa 800 x 600 @ 85Hz  
vesa 1024 x 768 @ 60Hz  
vesa 1024 x 768 @ 70Hz  
vesa 1024 x 768 @ 75Hz  
vesa 1024 x 768 @ 85Hz  
vesa 1152 x 864 @ 75Hz  
vesa 1280 x 960 @ 60Hz  
vesa 1280 x 1024 @ 60Hz  
vesa 1280 x 1024 @ 75Hz  
vesa 1600 x 1200 @ 60Hz  
vesa 720 x 400 @ 70Hz\*  
sun 1152 x 900 @ 66Hz  
sun 1152 x 900 @ 76Hz  
sun 1280 x 1024 @ 67Hz  
apple 640 x 480 @ 67Hz  
apple 832 x 624 @ 75Hz  
apple 1152 x 870 @ 75Hz  
1920 x 1200 @ 60Hz

\* Not actually a VESA mode but a common DOS/BIOS mode



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## Warranty

Adder Technology Ltd warrants that this product shall be free from defects in workmanship and materials for a period of two years from the date of original purchase. If the product should fail to operate correctly in normal use during the warranty period, Adder will replace or repair it free of charge. No liability can be accepted for damage due to misuse or circumstances outside Adder's control. Also Adder will not be responsible for any loss, damage or injury arising directly or indirectly from the use of this product. Adder's total liability under the terms of this warranty shall in all circumstances be limited to the replacement value of this product.

If any difficulty is experienced in the installation or use of this product that you are unable to resolve, please contact your supplier.

## Safety information

- For use in dry, oil free indoor environments only.
- Warning - live parts contained within power adapter.
- No user serviceable parts within power adapter - do not dismantle.
- Plug the power adapter into a socket outlet close to the module that it is powering.
- Replace the power adapter with a manufacturer approved type only.
- Do not use the power adapter if the power adapter case becomes damaged, cracked or broken or if you suspect that it is not operating properly.
- If you use a power extension cord with the units, make sure the total ampere rating of the devices plugged into the extension cord does not exceed the cord's ampere rating. Also, make sure that the total ampere rating of all the devices plugged into the wall outlet does not exceed the wall outlet's ampere rating.
- Do not attempt to service the units yourself.



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## Radio Frequency Energy

A Category 5 (or better) twisted pair cable must be used to connect the units in order to maintain compliance with radio frequency energy emission regulations and ensure a suitably high level of immunity to electromagnetic disturbances.

All other interface cables used with this equipment must be shielded in order to maintain compliance with radio frequency energy emission regulations and ensure a suitably high level of immunity to electromagnetic disturbances.

## European EMC directive 89/336/EEC

This equipment has been tested and found to comply with the limits for a class A computing device in accordance with the specifications in the European standard EN55022. These limits are designed to provide reasonable protection against harmful interference. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions may cause harmful interference to radio or television reception. However, there is no guarantee that harmful interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment on and off, the user is encouraged to correct the interference with one or more of the following measures: (a) Reorient or relocate the receiving antenna. (b) Increase the separation between the equipment and the receiver. (c) Connect the equipment to an outlet on a circuit different from that to which the receiver is connected. (d) Consult the supplier or an experienced radio/TV technician for help.

## FCC Compliance Statement (United States)

This equipment generates, uses and can radiate radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a class A computing device in accordance with the specifications in Subpart J of part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area may cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference. Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

## Canadian Department of Communications RFI statement

This equipment does not exceed the class A limits for radio noise emissions from digital apparatus set out in the radio interference regulations of the Canadian Department of Communications.

*Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le règlement sur le brouillage radioélectriques publié par le ministère des Communications du Canada.*



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