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Owner's Manual

HDMI Over Cat5 Matrix Switch

Models: B126-2X2, B126-4X4

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Package Contents

- B126-2X2 or B126-4X4 Local Transmitter Unit
- External Power Supply
(Input: 100-240V, 50/60Hz, 0.5A Output B126-2X2: 5V, 2A;
Output B126-4X4: 5V, 3A)
- 3.5 mm to DB9 Adapter Cable
- Mounting Hardware
- Remote Control
- Owner's Manual

Product Features

- Share multiple HDMI sources between multiple monitors
- Allows any input to be routed to any output; or the same input to be routed to multiple outputs
- Transmits the signal over one Cat5e/6 cable to a remote monitor up to 175 ft. away
- A B126-Series remote receiver is needed at each monitor
- For longer distances: Use a B126-1A0 or B126-1A0-WP-1 active remote receiver to extend a 1080p @ 60Hz signal up to 125 ft. from the transmitter (or a 1080i @ 60Hz signal up to 175 ft. from the transmitter)
- For shorter distances: Use a B126-1P0 or B126-1P0-WP-1 passive remote receiver to extend a 1080p @ 60Hz signal up to 50 ft. from the transmitter (or a 1080i @ 60Hz signal up to 75 ft. from the transmitter)
- Use 24AWG, Solid Wire Cat5e/6 cable, such as Tripp Lite's N202-Series, to achieve maximum distance and resolution
- Further expand the range and number of monitors by adding B126-110 remote repeater units

Product Features

- Add up to three repeaters on each channel of the matrix switch, for a total of 4 displays per channel (An active remote receiver should be the last unit in a channel)
- A 1080p @ 60Hz signal can be extended up to 125 ft. for each repeater added into a channel (or up to 175 ft. for a 1080i @ 60Hz signal)
- Switch between inputs via pushbuttons, remote control, or RS232 serial
- HDCP-compatible
- Mounting hardware included
- Plug-and-play; no software or drivers required
- Compatible with all operating systems
- Compliant with the Federal Trade Agreements Act (TAA) for GSA Schedule purchases

Optional Accessories:

- B126-1A0 or B126-1A0-WP-1 – Active Remote Receiver Units
- B126-1P0 or B126-1P0-WP-1 – Passive Remote Receiver Units
- B126-110 HDMI Over Cat5 Extender – Remote Repeater Unit
- N202-Series Cat6 24AWG, Solid Wire Patch Cables
- P568-Series High-Speed HDMI Cables
- P520-006 RS-232 Serial Extension Cable

Mounting

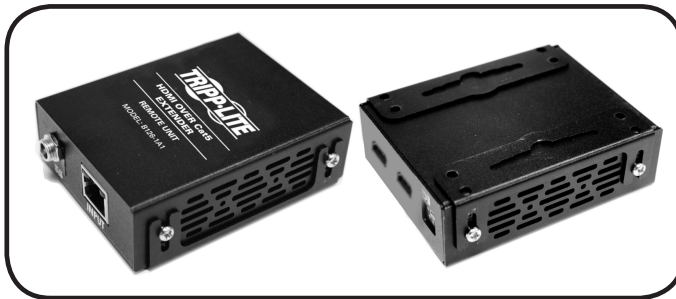
The B126-2X2 and B126-4X4 come with mounting hardware that allows them to be mounted in a variety of ways. The following images show the different ways the included mounting brackets can be attached for different mounting methods.

Note: The images below show a B126-1A1 HDMI over Cat5 Receiver Unit, but the mounting hardware installation is the same for the B126-2X2 and B126-4X4.

Wallmount 1



Wallmount 2



19" Rackmount



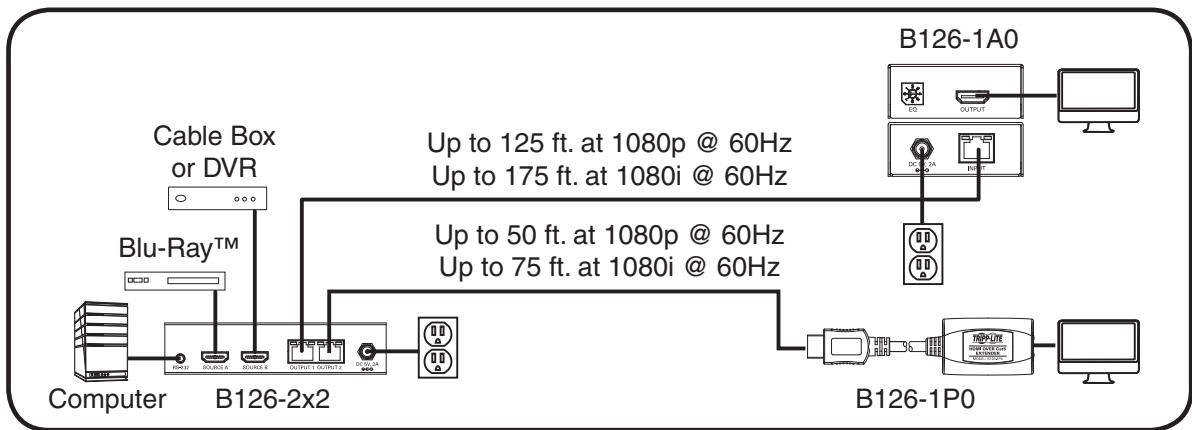
Pole Mount



Standard Installation

Note:

1. Test to make sure that the entire installation works properly before pulling cables through ceilings/walls.
2. 24AWG, Solid Wire Cat5e/6 cable, such as Tripp Lite's N202-Series, is required to achieve maximum distance and resolution.
3. The diagram below shows a B126-2X2 installation, but installation will be the same for the B126-4X4, except for the number of ports.
4. The back panel of the B126-4X4 contains an IR port which has been capped off. This port is intended for future use, and does not currently function.



- 1** Make sure all devices being connected are turned off.
- 2 Optional:** Connect the 3.5 mm to DB9 adapter to the RS232 serial port on the switch, and then to the DB9 serial port on the computer you will be using to control it with.
- 3** Connect the first HDMI source to the port on the switch marked *Source A*.
- 4** Repeat step 3 to connect additional HDMI sources to the remaining ports.
- 5** Connect the external power supply to the switch and plug it into a Tripp Lite Surge Suppressor, Power Distribution Unit (PDU), or Uninterruptible Power Supply (UPS). When receiving power, the following LEDs will illuminate: The Green *Power* LED, The Orange *Source* LEDs (for the *Source* ports that have devices connected to them), and the Green RJ45 *Output* LEDs. A Green LED will also illuminate to indicate the source that is being transmitted to each *Output* port.
- 6** Using Cat5e/6 cable, connect the RJ45 port marked *Output 1* to a B126-Series remote receiver unit.

Standard Installation

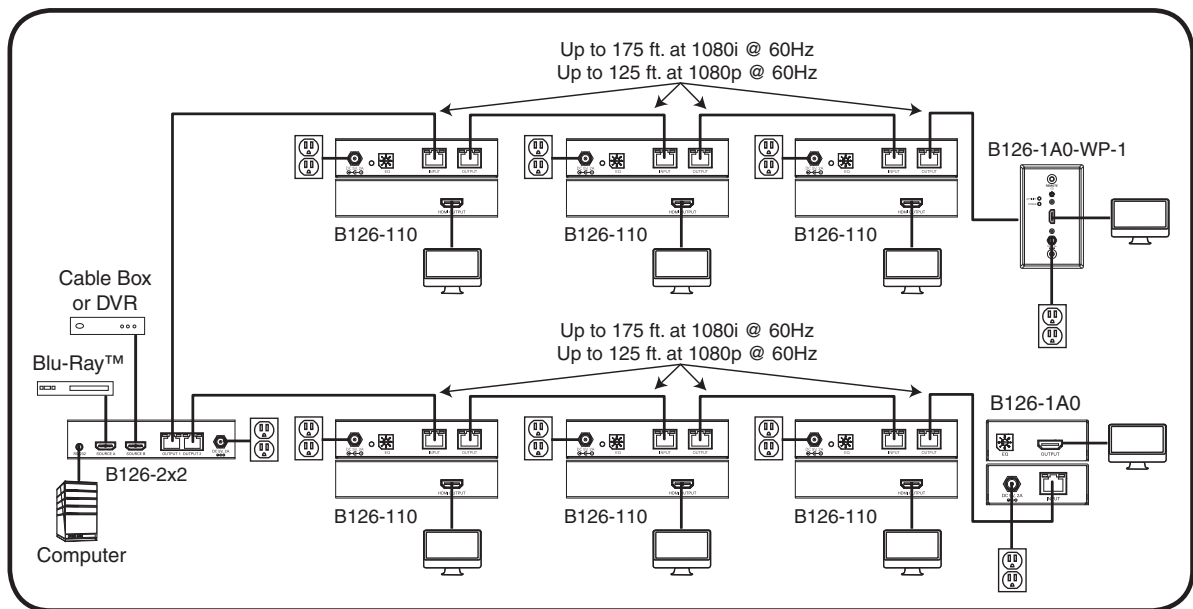
- 7** Repeat step 6 to connect additional B126-Series remote receiver units to the remaining ports.
- 8** **B126-1A0 and B126-1A0-WP-1 only:** Connect the external power supply to the active remote receiver unit, and plug it into a Tripp Lite Surge Suppressor, PDU or UPS. When receiving power, the Green RJ45 LED on the B126-1A0, and the Green *Power* LED on the B126-1A0-WP-1, will illuminate.
- 9** Repeat step 8 for each additional active remote receiver unit in the installation.
- 10** Connect the remote receiver unit to a monitor using a Tripp Lite P568-Series High-Speed HDMI cable. If you have a B126-1P0, connect its built-in HDMI connector to a monitor. When connected to and receiving power from a monitor, the Green RJ45 LED on the B126-1P0, and the Green *Power* LED on the B126-1P0-WP-1, will illuminate.
- 11** Repeat step 10 for each additional remote receiver unit in the installation.
- 12** Turn on the power to the connected devices. The Orange RJ45 LEDs on the B126-2X2, B126-4X4 and B126-1A0, and the Orange *Activity* LED on the B126-1A0-WP-1, will illuminate. The video image should now be displayed on the connected monitors.
- 13** B126-1A0 and B126-1A0-WP-1 only: If necessary, use the *Equalization* control to adjust the video image.
Note: An improper Equalization setting can cause the monitor not to display an image at all. Try each setting until an acceptable image is displayed.
- 14** Press the switch next to each set of *Output* LEDs to switch the source being displayed on the corresponding *Output* monitor. You can also use the included remote control to switch between sources. As with the switch next to the *Output* LEDs, press the button on the remote control of the desired *Output* port to switch the source being displayed.
Note: The same 4 button remote control comes with both the B126-2X2 and B126-4X4. Buttons 3 and 4 will not be used for the B126-2X2.

See the *RS232 Serial Control* section in this manual for details on controlling the switch using Terminal Emulation Software.

Remote Repeater Installation

Note:

1. Test to make sure that the entire installation works properly before pulling cables through ceilings/walls.
2. 24AWG, Solid Wire Cat5e/6 cable, such as Tripp Lite's N202-Series, is required to achieve maximum distance and resolution.
3. The diagram below shows a B126-2X2 installation, but installation will be the same for the B126-4X4, except for the number of ports.
4. The back panel of the B126-4X4 contains an IR port which has been capped off. This port is intended for future use, and does not currently function.



- 1** Make sure all devices being connected are turned off.
- 2 Optional:** Connect the 3.5 mm to DB9 adapter to the RS232 serial port on the switch, and then to the DB9 serial port on the computer you will be using to control it with.
- 3** Connect the first HDMI source to the port on the switch marked *Source A*.
- 4** Repeat step 3 to connect additional HDMI sources to the remaining ports.

Remote Repeater Installation

- 5** Connect the external power supply to the switch and plug it into a Tripp Lite Surge Suppressor, PDU, or UPS. When receiving power, the following LEDs will illuminate: The Green *Power* LED, the Orange *Source* LEDs (for the *Source* ports that have devices connected to them), and the Green RJ45 *Output* LEDs. A Green LED will also illuminate to indicate the source that is being transmitted to each *Output* port.
- 6** Using Cat5e/6 cable, connect the RJ45 port marked *Output 1* to the RJ45 input port of a B126-110 remote repeater unit.
- 7** Connect a monitor to the HDMI output port on the repeater using a Tripp Lite P568-Series High-Speed HDMI cable.
- 8** Connect the external power supply to the repeater and plug it into a Tripp Lite Surge Suppressor, PDU or UPS. The Green *Power* LED and the Green RJ45 LEDs illuminate to indicate the unit is receiving power.

Add up to three repeaters per channel, for a total of 4 displays (*an active remote receiver should be the last unit in a channel*). To connect additional repeaters, proceed to step 9. To finish your installation with a B126-1A0 or B126-1A0-WP-1 receiver, proceed to step 12.

- 9** Using Cat5e/6 cable, connect the RJ45 output port on the first repeater to the RJ45 input port on a second repeater.
- 10** Connect a monitor to the HDMI output port on the repeater using a Tripp Lite P568-Series High-Speed HDMI cable.
- 11** Connect the external power supply to the repeater and plug it into a Tripp Lite Surge Suppressor, PDU or UPS. The Green *Power* LED and the Green RJ45 LEDs illuminate to indicate the unit is receiving power.

To add a third repeater, repeat steps 9 through 11. To finish your installation with a B126-1A0 or B126-1A0-WP-1 receiver, proceed to step 12.

Remote Repeater Installation

- 12** Using Cat5e/6 cable, connect the RJ45 output port on the last repeater to the RJ45 input port on a B126-1A0 or B126-1A0-WP-1 receiver.
- 13** Connect a monitor to the HDMI output port on the receiver using a Tripp Lite P568-Series High-Speed HDMI cable.
- 14** Connect the external power supply to the active remote receiver unit, and plug it into a Tripp Lite Surge Suppressor, PDU, or UPS. When receiving power, the Green RJ45 LED on the B126-1A0, and the Green *Power* LED on the B126-1A0-WP-1, will illuminate.

Repeat steps 6 through 14 for the remaining *Output* ports on the switch.

- 15** Turn on power to the connected devices. The Orange RJ45 LEDs on the B126-2X2, B126-4X4, B126-110, and B126-1A0, and the Orange *Activity* LED on the B126-1A0-WP-1, will illuminate. The video image should now be displayed on the connected monitors.
- 16** If necessary, use the *Equalization* control on the repeater and receiver units to adjust the video image.

Note: An improper Equalization setting can cause the monitor not to display an image at all. Try each setting until an acceptable image is displayed.

- 17** Press the switch next to each set of *Output* LEDs to switch the source being displayed on the corresponding *Output* monitor. You can also use the included remote control to switch between sources. As with the switch next to the *Output* LEDs, press the button on the remote control of the desired *Output* port to switch the source being displayed.

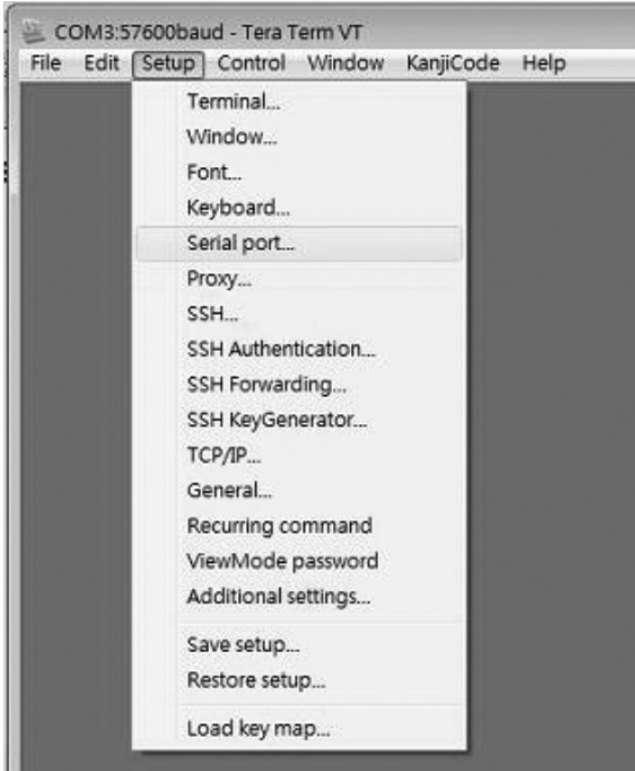
Note: The same 4 button remote control comes with both the B126-2X2 and B126-4X4. Buttons 3 and 4 will not be used for the B126-2X2.

See the *RS232 Serial Control* section in this manual for details on controlling the switch using Terminal Emulation Software.

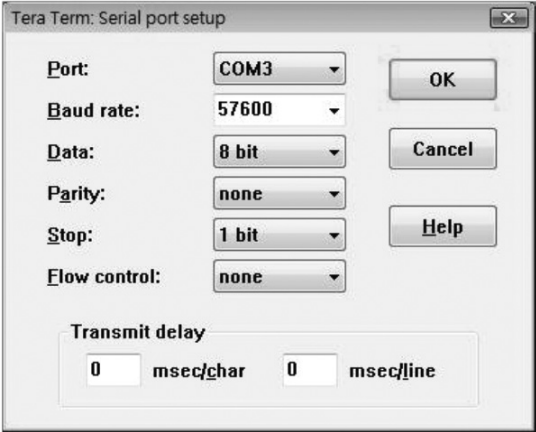
RS232 Serial Control

Before using RS232 Serial Control, you must first go into you Terminal Emulation Software and update the COM port settings.

- 1** Go to the *Setup* drop-down menu and select the *Serial Port* option.

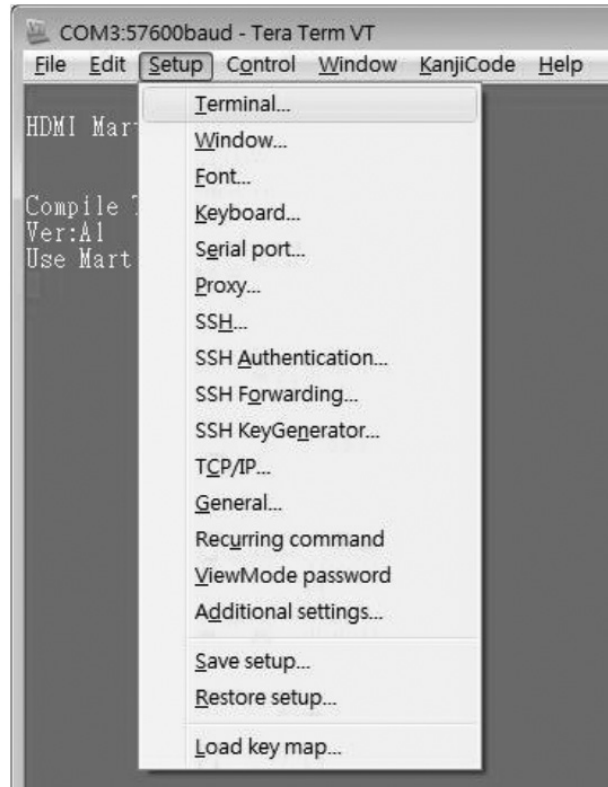


- 2** Select the COM port that is being used, and update the remaining settings as follows: Baud Rate (57600), Data (8 bit), Parity (none), Stop (1 bit), Flow Control (none).

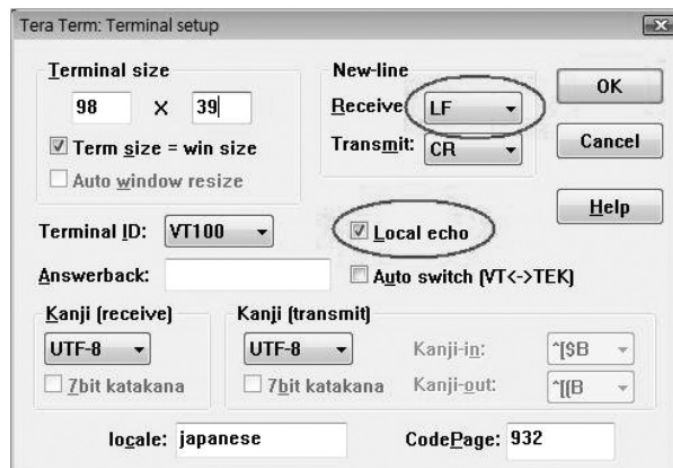


RS232 Serial Control

- 3 Next, you will need to configure your software to allow input control. Go to the *Setup* drop-down menu and select the *Terminal* option.



- 4 Update the following settings; Receive (LF), Local Echo (enable). The remaining settings can stay as they are.



RS232 Serial Control

- 5** Once these settings are updated, the Terminal Emulation Software will recognize the switch, allowing you to enter commands to control it with. The following table lists the available commands.

Command	Action
sw[x] [n]	Switches the source being displayed on the selected output. [x] is the output (1, 2, 3, or 4) and [n] is the desired source (A, B, C, or D). For example, a command of sw1 A would display source A on output 1.
PWD	Turns power to the switch on/off.
STE	Displays the current output state, showing which source is being displayed on each output.

Troubleshooting

If you are unable to get an acceptable image after following the installation instructions, try the troubleshooting tips below.

- 1** Are the external power supplies that came with the product connected and plugged into a working power source? For the product to function properly, it must be connected to and receiving power from the external power supply.
- 2** Was the power to the connected devices turned off prior to installation? If not, restart them.
- 3** Have you adjusted the Equalization setting on the repeater and/or receiver units? There are built-in Equalization adjustment knobs on every repeater and active receiver, which can be adjusted to obtain the best picture quality. Use the mini screwdriver included with the product to adjust this setting until an acceptable image is displayed.

***Note:** An improper Equalization setting can cause the monitor not to display an image at all. Try each setting until an acceptable image is displayed.*

- 4** What resolution are you trying to reach? Tripp Lite's HDMI over Cat5 extenders are tested to support up to 1080p @ 60Hz video resolution. See the *Product Features* section or the installation diagrams in this manual for details on max distance and resolution when using the repeater and the different receivers. The shorter the extension distance, the higher the resolution you will be able to obtain. If you are not able to get an acceptable image after adjusting the Equalization setting, try lowering your computer's video resolution or adjusting the refresh rate.
- 5** What type of cabling are you using? Inferior cabling can result in poor performance, so it is important that you use cables that can support the video resolution you are trying to obtain. To achieve maximum distance and resolution, 24AWG solid wire UTP cable must be used. Tripp Lite's N202-Series Cat6 cables are made with 24AWG solid wire, as are the N022-01K-GY (Cat5) and N222-01K-GY bulk cables. Also, the HDMI cables you are using must support the resolution you are trying to obtain. Inexpensive, low quality HDMI cables may not support the maximum resolution. It is recommended that you use Tripp Lite's P568-Series High-Speed HDMI cables, as they have been tested to work with the B126-Series extender products.

Troubleshooting

- 6** Test your cables to ensure they are working properly. For example, connect your HDMI cables between a source and monitor that you know works to see if the cable is functioning. For Cat5e/6 cable, connect it between a computer and a network to verify that it establishes a network connection.
- 7** Do you have any patch panels or other devices in between the transmitter, repeater, and receiver units? Tripp Lite's HDMI over Cat5 extender products were designed to be connected directly from the transmitter to the repeater and/or receiver via UTP cable. The more connection points that are in between the source and the remote monitor, the more likely it will be that signal degradation will occur, causing poor performance. If you have a patch panel or other device in between, it should be removed from the installation.
- 8** Check your cabling for any damages that may have occurred during installation. If a cable connector is loosened from pulling through ceilings/walls, or the cable jacket is damaged causing the wiring to be exposed, you will not be able to achieve maximum performance.
- 9** Are the transmitter, repeater, and/or receiver located in an area that exposes them to higher temperatures? If the product is overheated, it will not function properly.
- 10** If you are having trouble getting your Terminal Emulation Software to recognize the switch, you may need to shut down your installation and start from the beginning. The 3.5 mm to DB9 adapter cable must be connected first; otherwise the switch will not be recognized.
- 11** If you are still having trouble getting your Terminal Emulation Software to recognize the switch, check to make sure that your serial settings are set according to the instructions in the *RS232 Serial Control* section of this manual.

Warranty & Warranty Registration

1-Year Limited Warranty

TRIPP LITE warrants its products to be free from defects in materials and workmanship for a period of one (1) year from the date of initial purchase. TRIPP LITE's obligation under this warranty is limited to repairing or replacing (at its sole option) any such defective products. To obtain service under this warranty, you must obtain a Returned Material Authorization (RMA) number from TRIPP LITE or an authorized TRIPP LITE service center. Products must be returned to TRIPP LITE or an authorized TRIPP LITE service center with transportation charges prepaid and must be accompanied by a brief description of the problem encountered and proof of date and place of purchase. This warranty does not apply to equipment which has been damaged by accident, negligence or misapplication or has been altered or modified in any way.

EXCEPT AS PROVIDED HEREIN, TRIPP LITE MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Some states do not permit limitation or exclusion of implied warranties; therefore, the aforesaid limitation(s) or exclusion(s) may not apply to the purchaser.

EXCEPT AS PROVIDED ABOVE, IN NO EVENT WILL TRIPP LITE BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF THIS PRODUCT, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. Specifically, TRIPP LITE is not liable for any costs, such as lost profits or revenue, loss of equipment, loss of use of equipment, loss of software, loss of data, costs of substitutes, claims by third parties, or otherwise.

FCC Notice, Class B

This device complies with 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.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. 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 communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Any changes or modifications to this equipment not expressly approved by Tripp Lite could void the user's authority to operate this equipment.

Warranty & Warranty Registration

WARRANTY REGISTRATION

Visit www.tripplite.com/warranty today to register the warranty for your new Tripp Lite product. You'll be automatically entered into a drawing for a chance to win a FREE Tripp Lite product!*

* No purchase necessary. Void where prohibited. Some restrictions apply. See website for details.

WEEE Compliance Information for Tripp Lite Customers and Recyclers (European Union)



Under the Waste Electrical and Electronic Equipment (WEEE) Directive and implementing regulations, when customers buy new electrical and electronic equipment from Tripp Lite they are entitled to:

- Send old equipment for recycling on a one-for-one, like-for-like basis (this varies depending on the country)
- Send the new equipment back for recycling when this ultimately becomes waste

WARNING

Use of this equipment in life support applications where failure of this equipment can reasonably be expected to cause the failure of the life support equipment or to significantly affect its safety or effectiveness is not recommended. Do not use this equipment in the presence of a flammable anesthetic mixture with air, oxygen or nitrous oxide.

Tripp Lite follows a policy of continuous improvement. Product specifications are subject to change without notice.



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