Remote Port USB 2.0 -CAT5 4-Port

User Guide

Power
Host

BLACK BOX®
☎ 724-746-5500

Remote Port
USB 2.0 -CAT5

Local Unit

Power   Host

FEDERAL COMMUNICATIONS COMMISSION
AND
CANADIAN DEPARTMENT OF COMMUNICATIONS
RADIO FREQUENCY INTERFERENCE STATEMENT

Class A Digital Device. This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Caution:
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To meet FCC requirements, shielded cables and power cords are required to connect this device to a personal computer or other Class A certified device.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation 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 radioélectrique publié par le ministère des Communications du Canada.

Normas Oficiales Mexicanas (NOM)
Electrical Safety Statement

INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.

2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.

3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.

4. Todas las instrucciones de operación y uso deben ser seguidas.

5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc.

6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.

7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.

8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.

9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.

10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.

11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.

13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.

14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.

15. En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.

16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.

17. Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.

18. Servicio por personal calificado deberá ser provisto cuando:

    A: El cable de poder o el contacto ha sido dañado; u

    B: Objectos han caído o líquido ha sido derramado dentro del aparato; o

    C: El aparato ha sido expuesto a la lluvia; o

    D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o

    E: El aparato ha sido tirado o su cubierta ha sido dañada.

Contents

1. Specifications

Range	100 meters over CAT5 (or better) UTP
USB device support	High-speed devices (480 Mb/s) (USB 2.0) Full speed devices (12 Mb/s) (USB 2.0 & 1.1) Low speed devices (1.5 Mb/s) (USB 2.0 & 1.1)
USB hub support	Any single chain can include up to 4 USB hubs plus one Remote Port USB 2.0 -CAT5 4-Port, in any order
USB host support	EHCI (USB 2.0) and OHCI/UHCI (USB 1.1)
Maximum USB devices supported (Incl. USB Hubs)	14 USB Devices including any additional USB hubs connected to the Remote Unit
AC adapter(s) **Use only the AC adapter provided**	Input: 100/240 V AC, 50 – 60 Hz Output: 5 V DC, 1.5 A
AC adapter connector	1.7mm centre-positive jack
Power available to USB device at Remote Unit	500 mA
USB cable length (Local Unit to Host computer)	0.15 meters (0.49 ft)
Local Unit connector (upstream)	1 x USB Type A connector
Local Unit connector (downstream)	1 x RJ45
Remote Unit connector (upstream)	1 x RJ45
Remote Unit conector (downstream)	4 x USB Type A port
Local Unit dimensions	44 mm x 87 mm x 24 mm (1.72" x 3.43" x 0.95")
Local Unit weight	0.20 kg (0.44 lbs)
Local Unit power consumption	500 mA Maximum
Remote Unit dimensions	110 mm x 69 mm x 28 mm (4.33" x 2.72" x 1.10")
Remote Unit weight	0.05 kg (0.11 lbs)
Remote Unit power consumption	Approx. 500 mA (No Load). 2.5A (Full load)
System shipping weight	0.65 kg (1.42 lbs)
Operating temperature range	0°C – 50°C
Regulatory testing	FCC Class A, IC, CE Class A
ESD Rating	EMC EN-61000-4-2 4kV Contact, 8kV Air

2. Introduction

The instructions in this guide assume a general knowledge of computer installation procedures, familiarity with cabling requirements, and some understanding of USB devices.

NOTE
Notes provide additional information that could be useful.

CAUTION
Cautions provide important information about an operational requirement.

2.1   Product Contents

Your Remote Port USB 2.0 -CAT5 4-Port is packaged with:

- Remote Port USB 2.0 -CAT5 4-Port User Guide
- Local Unit
- Remote Unit
- Remote Unit AC power adapter (1)

To complete the installation, you will also require the following items that are not included with the product:

- USB 1.1 or 2.0 compatible computer (Host computer) with a USB compliant operating system
- USB 1.1 or 2.0 compatible device
- CAT5 Unshielded Twisted Pair (UTP) cable with two RJ45 connectors (if using surface cabling),
  OR, CAT5 cabling with two information outlets and two CAT5 patch cords with RJ45 connectors (if using premise cabling)

NOTE
The maximum length of the CAT5 UTP cable, including patch cords, must not exceed 100 meters

An additional AC power adapter may be purchased for the Local Unit unit in the event that your USB port can not supply the required 500mA current. Please contact an Black Box Sales representative for further details (See Page 16)

All references to CAT5 cable in this document represent the minimum requirement. CAT6 or better or STP cable may be substituted.

Use only the AC adapters suppied with te Remote Port USB 2.0 USB CAT5. Use of substitute adapters may cause permanent damage to the system and will void the warranty
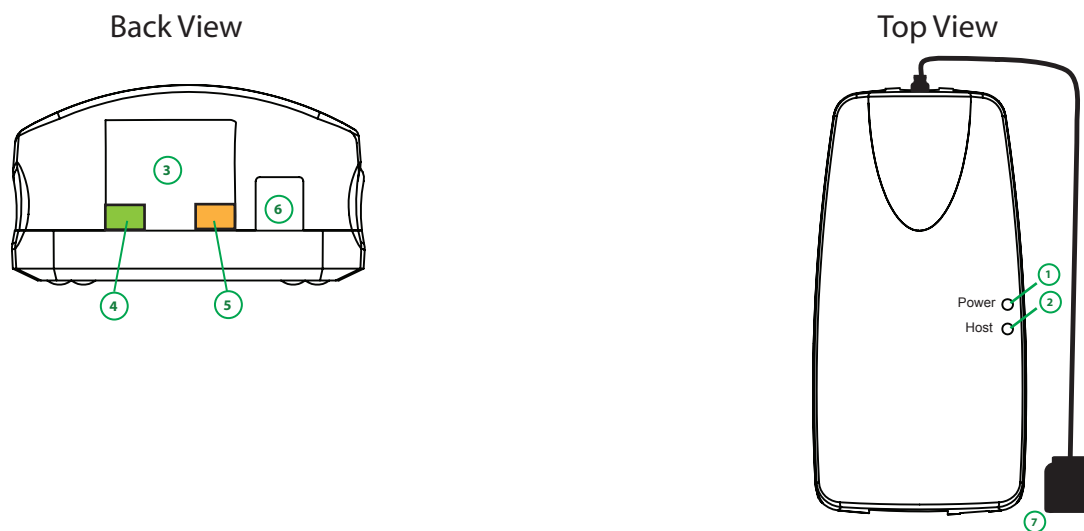
2.2 About the Remote Port USB 2.0 -CAT5 4-Port

The Remote Port USB 2.0 breaks the five-meter distance barrier for the connection of USB peripheral devices and allows users to enjoy the benefits of USB technology beyond the desktop. With the Remote Port USB 2.0, USB devices can be located up to 100 meters from the host computer. In addition, the Remote Port USB 2.0 can supply power to remote low-power and some high-power USB devices.

The product is composed of two individual units, the Local Unit and the Remote Unit.

2.2.1 The Local Unit

The Local Unit connects to the computer using the attached USB cable. Power for this unit is provided by the USB on the Host computer.
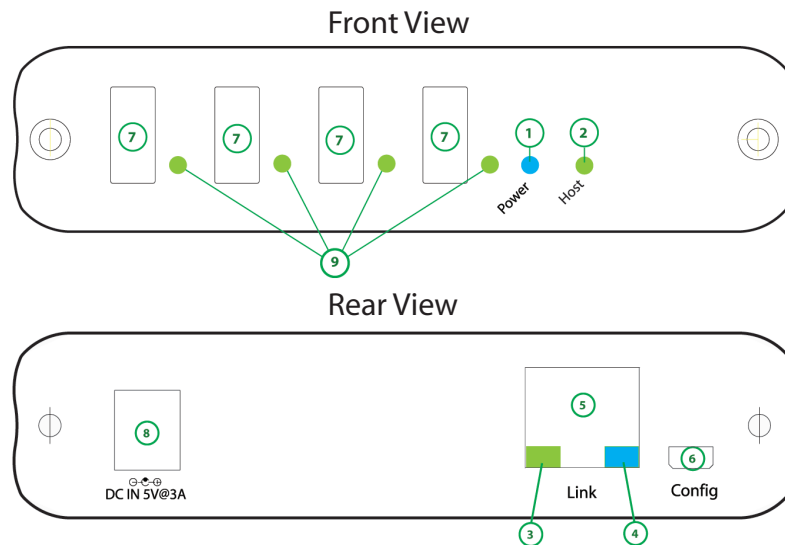
Back View   Top View

ITEM	TYPE	DESCRIPTION
1	Power LED (Blue)	LED turns on when power is supplied. Off when no power is supplied.
2	Host LED (Green)	LED turns on when Remote Port USB 2.0 -CAT5 4-Port is installed properly.
3	Link Port (RJ45)	Accepts RJ45 connector for CAT 5 cabling (or better).
4	Link LED (Green) on RJ45	Indicates connectivity between Local Unit and Remote Unit. LED turns on when link between Local Unit and Remote Unit is established. Off when there is no link between Local Unit and Remote Unit.
5	Activity LED (Amber) on RJ45	Indicates activity on RJ45 port. LED blinks intermittently when data is transmitted between Local Unit and Remote Unit.
6	Power/Config port	Manufacturer use only.
7	USB Type A connector	Used to connect the Local Unit unit to the Host computer.

2.2.2   The Remote Unit

The Remote Unit provides a USB Type A port for standard USB devices. The Remote Unit allows you to connect one USB device directly. Additional devices may be connected by attaching USB hubs to the Remote Unit.

The Remote Unit is powered by an external AC adapter and can supply up to 500mA to the USB port.

Front View

Rear View

ITEM	TYPE	DESCRIPTION
1	Power LED (Blue)	LED turns on when power is supplied. Off when no power is supplied.
2	Host LED (Green)	LED turns on when Remote Port USB 2.0 -CAT5 4-Port is installed properly.
3	Link Port (RJ45)	Accepts RJ45 connector for CAT 5 cabling (or better).
4	Link LED (Green) on RJ45	Indicates connectivity between Local Unit and Remote Unit. LED turns on when link between Local Unit and Remote Unit is established. Off when there is no link between Local Unit and Remote Unit.
5	Activity LED (Amber) on RJ45	Indicates activity on RJ45 port. Blinks intermittently when data is transmitted between Local Unit and Remote Unit.
6	Power/Config port	Connects to the AC power adapter.
7	Device Port (USB Type A port)	USB device connection.

NOTE

The Power/Config port on the Remote Unit can only be used with the included Remote Port USB 2.0 -CAT5 4-Port AC adapter. No USB devices can be connected or used on the port.

2.2.3   Network Cabling

The Local Unit and Remote Unit are interconnected by up to 100 meters of CAT5 Unshielded Twisted Pair (UTP) cabling. The UTP cabling must have a straight-through conductor configuration, with no crossovers, and must be terminated with 8-conductor RJ45 connectors at both ends. The combined length of any patch cords using stranded conductors must not exceed 10 meters.

All 2.0 & 1.1 Devices

USB 2.0 over 100m
(UTP, Cat 5, Cat 6)
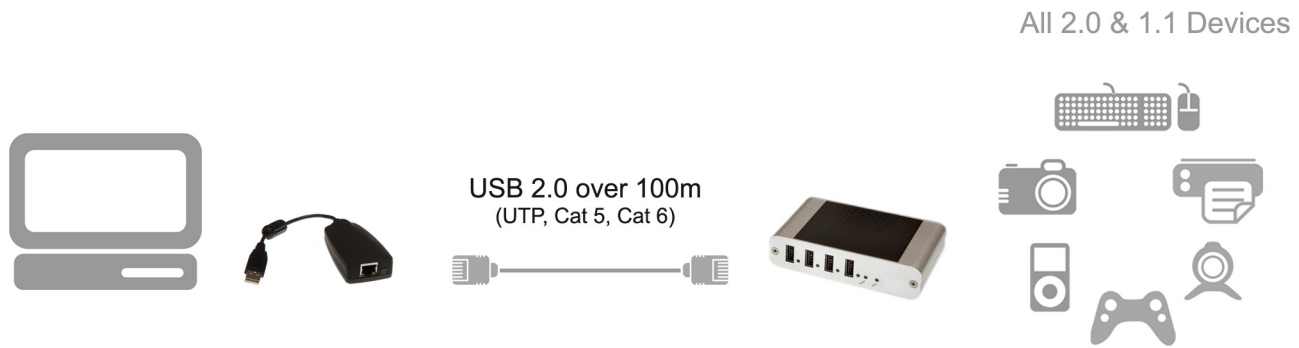
NOTE

CAT5 UTP cabling is the standard data communications cable installed in most commercial and some residential buildings. The cables used for "horizontal" circuits are of solid-conductor construction.

2.2.4   USB Cables

USB cables have two distinct connectors. The Type A connector is used to connect the cable from a USB device to the Type A port on a computer or hub. The Type B connector is used to attach the USB cable to a USB device.

USB Type A
port

USB Type A
connector

USB Type B
port

USB Type B
connector
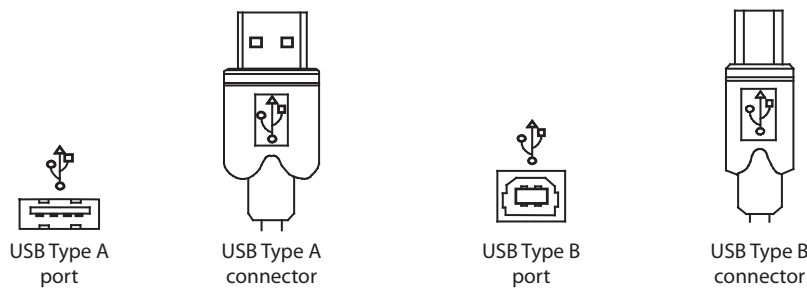
2.2.5   Compatibility

The Remote Port USB complies with USB 2.0 specifications governing the design of USB devices. However, Black Box does not guarantee that all USB devices are compatible with the Remote Port USB.

3. Installation

3.1   Before You Begin

Before you can install the Remote Port USB 2.0 -CAT5 4-Port, you need to prepare your site.

1. Determine where the computer is to be located and set up the computer.
2. Determine where you want to locate the USB device(s).
3. If you are using surface cabling, the Remote Port USB 2.0 -CAT5 4-Port supports a maximum distance of 100 meters.

    OR

If you are using premise cabling, ensure CAT5 cabling is installed between the two locations, with CAT5 information outlets located near both the computer and the USB device(s).

3.2   Installing the Local Unit

1. Place the Local Unit near the computer.
2. Plug the USB Type A connector on the Local Unit into a USB port on the computer.

NOTE

Use only the AC adapters supplied with the Remote Port USB 2.0 -CAT5 4-Port. Use of substitute adapters may cause permanent damage to the system and will void the warranty.

3.3   Installing the Remote Unit

1. Place the Remote Unit near the USB device(s).
2. Plug the power adapter into a suitable AC outlet.
3. Connect the power adapter to the Remote Unit.

NOTE

Use only the AC adapters supplied with the Remote Port USB 2.0 -CAT5 4-Port. Use of substitute adapters may cause permanent damage to the system and will void the warranty.

3.4 Connecting the Local Unit to the Remote Unit

NOTE

To ensure proper operation, we recommend that only CAT5, or better, Unshielded Twisted Pair (UTP) cabling be used to connect the Local Unit to the Remote Unit. The UTP cabling must have a straight-through conductor configuration with no crossovers, and must be terminated with 8 conductor RJ45 connectors at both ends. The combined length of any patch cords using stranded conductors must not exceed 10 meters.

3.4.1 With Surface Cabling

1. Plug one end of the CAT5 cabling (not included) into the Link port (RJ45) on the Local Unit.
2. Plug the other end of the CAT5 cabling into the Link port (RJ45) on the Remote Unit.

3.4.2 With Premise Cabling

1. Plug one end of a CAT5 patch cord (not included) into the Link port (RJ45) on the Local Unit.
2. Plug the other end of the patch cord into the CAT5 information outlet near the Host computer.
3. Plug one end of the 2nd CAT5 patch cord (not included) into the Link port (RJ45) on the Remote Unit.
4. Plug the other end of the 2nd patch cord into the CAT5 information outlet near the USB device.

NOTE

The maximum length of the CAT5 cable, including patch cords, must not exceed 100 meters. The combined length of any patch cords using stranded conductors must not exceed 10m.

3.5 Checking the Installation

1. On the Local Unit and Remote Units, check that the Power, Host and Link LEDs are on and that the Activity LED is blinking. If the Link LED and Activity LED are permanently off then the cabling between the Local Unit and Remote Unit is not installed properly or is defective.

2. For Windows users (2000, XP, or Vista) open Device Manager to confirm that the Remote Port USB 2.0 has installed correctly. Expand the entry for Universal Serial Bus controllers by clicking the + sign. If the Remote Port USB 2.0 has been installed correctly you should find it listed as a Generic USB Hub.

3. For Mac OS X users open the System Profiler to confirm that the Remote Port USB 2.0 has installed correctly. In the left hand column under Hardware, select "USB" and inspect the right hand panel. If the Remote Port USB 2.0 has been installed correctly you should find it listed as a Hub under the USB High-Speed Bus/USB Bus.

4. If the Remote Port USB 2.0 is not detected correctly or fails to detect please consult the Troubleshooting Guide.

NOTE

To open System Profiler in OS X:
Open the Finder, select Applications, then open the Utilities folder and double click on the System Profiler icon.

To open Device Manager in Windows 2000 or XP:
Right click "My Computer" then select: Properties >> Hardware tab >> Device Manager button

To open Device Manager in Windows Vista:
Open the Start menu, right click on "Computer" then select: Manage >> Device Manager

3.6   Connecting a USB Device

1. Install any software required to operate the USB device(s). Refer to the documentation for the USB
    device(s), as required.
2. Connect the USB device to the Device port on the Remote Unit.
3. Check that the Device is detected and installed properly in the operating system.

4. Troubleshooting

4.1   Problems, Causes and Solutions

The following table provides troubleshooting tips. The topics are arranged in the order in which they should be executed in most situations. If you are unable to resolve the problem after following these instructions, please contact technical support for further assistance.

SYMPTOM	CAUSE	SOLUTION
All LEDs on Local Unit are off.	The Local Unit is not receiving enough power from the USB port or the (optional) Local Unit AC adapter.	1. Ensure that the USB Type A connector from Local Unit to Host computer is properly inserted directly in a USB port. 2. Move the Local Unit USB Type A connector to another USB port on the Host computer.
All LEDs on Remote Unit are off	The Remote Unit is not receiving power from the AC adapter	1. Ensure that the AC power adapter is properly connected to the Remote Unit. 2. Check that the AC adapter is connected to a live source of electrical power.
Link LEDs on Local Unit and Remote Unit are off.	There is no connection between the Local Unit and Remote Unit.	1. Ensure that a CAT5 cable (or better) with straight-through conductors is connected between the Local Unit and Remote Unit. 2. If the CAT5 cable is defective, connect a short CAT5 patch cord between the Local Unit and Remote Unit to determine if the original CAT5 cable is defective.
Remote Port USB 2.0 units were working but the Host LED on Remote Unit is suddenly blinking	The Remote Unit is in suspend mode. The operating system may put the Remote Port USB 2.0 in suspend mode when the computer is put into a Suspend/Standby state or when no USB devices are attached.	1. Recover/Resume the operating system from Suspend/Standby mode (see your operating System's documentation). 2. Attach a USB device to the Remote Port USB 2.0.

SYMPTOM	CAUSE	SOLUTION
Link LED on Local Unit is on, Host LED on Local Unit is off	• The Host computer is not powered on. • The Local Unit is not connected to the computer (when used with the optional Local Unit AC adapter) • The computer does not support USB hubs. • The Remote Port USB 2.0 is malfunctioning	1. Disconnect all USB devices from the Remote Unit. 2. Disconnect the Local Unit from the computer. 3. Disconnect the Remote Unit from the AC power adapter. 4. Reconnect the Local Unit to the computer. 5. Reconnect the Remote Unit to the AC power adapter. 6. In the Universal Serial Bus controllers section of device Manager, check that the Remote Port USB 2.0 is recognised as a "Generic USB Hub".
All LEDs on both the Local Unit unit and Remote Unit unit are on but the USB device does not operate correctly or is detected as an "Unknown Device" in the operating system.	• The USB device is malfunctioning. • The computer does not recognise the USB device. • The application software for the device is not operating. • The Remote Port USB 2.0 -CAT5 4-Port is malfunctioning.	1. Disconnect the Remote Port USB 2.0 -CAT5 4-Port from the computer. 2. Connect the USB device directly to the USB port on the computer. 3. If the device does not operate properly, consult the user documentation for the device. 4. Update your system BIOS, chipset or USB Host controller drivers from your System/Mother board manufacturer's website. 5. If the device operates properly when directly connected to the computer, connect another device (of a different type) to the Remote Port USB 2.0 -CAT5 4-Port. Connect the Remote Port USB 2.0 -CAT5 4-Port to the computer. 6. If the second device does not operate, the Remote Port USB 2.0 -CAT5 4-Port may be malfunctioning. Contact technical support for assistance. 7. If the second device does operate properly, the first device may not be compatible with the Remote Port USB 2.0 -CAT5 4-Port.

| USB device is attached to Remote Unit USB port but Remote Unit device LED is off. | • A USB device must have the appropriate driver installed on the computer operating system.

• The USB device is drawing more current than allowed by USB specification (>500mA). | 1. Install the required USB device driver on the computer operating system prior to attaching the USB device to the Remote Unit unit. Please see your USB device manufacturer's website for details.

2. Consult your USB device documentation and power your USB device with the additional, USB device manufacturer supplied, power supply (if available). |

4.2   Calling Black Box

If you determine that your Remote Port USB -CAT5 is malfunctioning, do not attempt to alter or repair the unit. It contains no user-serviceable parts. Contact Black Box at 724-746-5500. Before you do, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- the nature and duration of the problem,
- when the problem occurs,
- the components involved in the problem,
- any particular application that, when used, appears to create the problem or make it worse.

4.2.1   Shipping and Packaging

If you need to transport or ship your Remote Port USB -CAT5:

- Package it carefully. We recommend that you use the original container.
- If you are shipping the Remote Port USB for repair, make sure you include everything that came in the original package. Before you ship, contact Black Box to get a Return Authorization (RA) number.

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NETWORK SERVICES