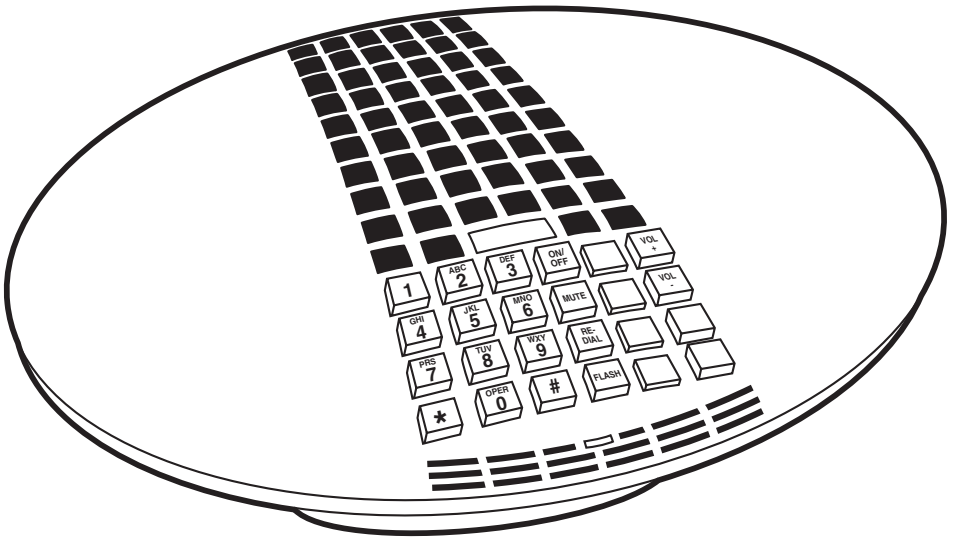




Voice Conferencing System



**CUSTOMER
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FEDERAL COMMUNICATIONS COMMISSION AND INDUSTRY CANADA RADIO FREQUENCY INTERFERENCE STATEMENTS

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 is likely to 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 party responsible for compliance could void the user's authority to operate the equipment.

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 Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

TRADEMARKS USED IN THIS MANUAL

UL is a registered trademark of Underwriters Laboratories, Incorporated.

Any other trademarks mentioned in this manual are acknowledged to be the property of the trademark owners.

FEDERAL COMMUNICATIONS COMMISSION AND CANADIAN DEPARTMENT OF COMMUNICATIONS TELEPHONE EQUIPMENT STATEMENTS

1. The Federal Communications Commission (FCC) has established rules which permit this device to be directly connected to the telephone network. Standardized jacks are used for these connections. This equipment should not be used on party lines or coin lines.
2. If this device is malfunctioning, it may also be causing harm to the telephone network; this device should be disconnected until the source of the problem can be determined and until the repair has been made. If this is not done, the telephone company may temporarily disconnect service.
3. The telephone company may make changes in its technical operations and procedures; if such changes affect the compatibility or use of this device, the telephone company is required to give adequate notice of changes.
4. If the telephone company requests information on what equipment is connected to their lines, inform them of:
 - a. The telephone ringer that this unit is connected to.
 - b. The ringer equivalence number.
 - c. The USOC jack required: RJ-11C.
 - d. The FCC registration number.

Items (b) and (d) are indicated on the label. The ringer equivalence number (REN) is used to determine how many devices can be connected to your telephone line. In most areas, the sum of the RENs of all devices on any one line should not exceed five (5.0). If too many devices are attached, they may not ring properly.

5. In the event of an equipment malfunction, all repairs should be performed by Black Box or an authorized agent. It is the responsibility of users requiring service to report the need for service to the supplier or to an authorized agent.

The Canadian Department of Communications label identifies certified equipment. This certification means that the equipment meets certain telecommunications-network protective, operation, and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single-line individual service may be extended by means of a certified connector assembly (extension cord). The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility—in this case, Black Box. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION:

Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

The LOAD NUMBER (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices, subject only to the requirement that the total of the load numbers of all the devices does not exceed 100.

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 conectado 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 física 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 líneas de energía.
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 objetos líquidos 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: Objetos 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.

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1. Specifications

Compliance —	FCC Part 15 Class A, Part 68; DOC class/MDC classe A; ETL certified
Registration Numbers —	FCC: CQQUSA-21128-NT-T; DOC/MDC: 17386160A
Ringer Equivalency Number —	0.6 Bels
Load Number —	9
Interfaces —	Main module: Proprietary; Power-interface module: Telco and proprietary
Dial Type —	DTMF (touchtone)
Operation —	2-wire balanced, non-bias full duplex
Sampling —	16-bit codec
Frequency Response —	300 to 3400 Hz
Acoustic Noise Suppression —	Proprietary noise-floor reduction circuitry
Impedance —	600 ohms nominal, transformer-isolated
Surge Protection —	Built in; meets requirements for FCC, ETL, UL®, and CSA certification; additional surge protection is recommended

VOICE CONFERENCING SYSTEM

Speaker —	4" (10.2-cm) full-range
Maximum Volume —	Greater than 90 decibels (measured at 1 ft. [30 cm])
User Controls —	20-key hot keypad (only 18 keys are functional)
Indicators —	(2) LEDs on main module
Connectors —	Main module: (1) Bottom-mounted RJ-45 female; Power-interface module: (3): (2) Bottom-mounted: (1) RJ-45 female, (1) RJ-12 (6-wire RJ-11) female; (1) Rear-mounted NEMA 5-15P power plug
Leads/Signals Supported —	On RJ-45 connectors: Pins 1 (+16 VDC), 3 (tip), 4 (ring), 6 (ground), 8 (voice communication); On RJ-11 connectors: All pins/signals
Temperature —	Operating: 32 to 122° F (0 to 50° C); Storage: -4 to 176° F (-20 to 80° C)
Humidity —	8 to 80% noncondensing
MTBF —	254,000 hours
Power —	From UL, CSA certified wallmount power-interface module: Input: 115 VAC, 47 to 63 Hz; Output: +16 VDC on Pin 1 of modular cable to main module; Consumption: 25 watts
Size —	3"H x 13"W x 13"D (7.6 x 33 x 33 cm)
Weight —	Net: 3 lb. (1.4 kg); Shipping: 6 lb. (2.7 kg)

2. Introduction

Congratulations on purchasing the Voice Conferencing System.

A significant step forward in the evolution of hands-free calling, the VCS provides the ultimate in clear, natural audio conferencing through any analog telephone line.

2.1 Overview

With the Voice Conferencing System, you can conduct an audio conference with the interactive qualities and audio characteristics of a face-to-face meeting over an ordinary phone line. The VCS's electronics are robust and sensitive enough to support approximately 20 participants in an average-size (20' x 20' or 6 x 6 m) conference room.

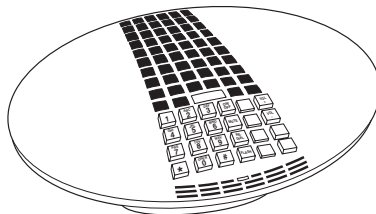
The VCS contains a full-function dial pad and electronic ringer (it can be a standalone phone). You can place and answer calls, mute and un-mute the microphones, and adjust the loudspeaker volume with simple easy-to-use keys.

Using state-of-the-art technology, including the manufacturer's patented "sound-sculpturing" process, the VCS continuously monitors and compensates for changing room acoustics. This assures optimum performance and clear audio in all types of conference rooms.

2.2 The Complete Package

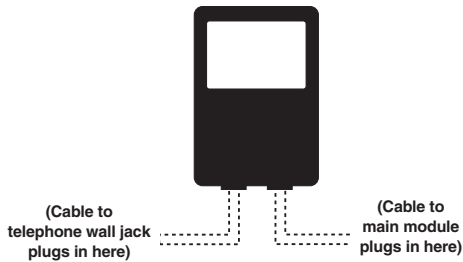
(1) Main Module

The main module, shown below, contains microphones, a loudspeaker, and various controls and indicators. Place it on a conference-room table or an office desk.

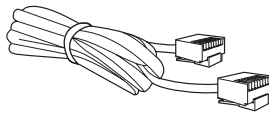


(1) Power-Interface Module

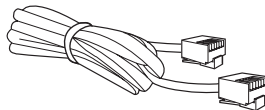
The power-interface module has a U.S.-standard three-prong 120-VAC power plug that can be plugged into any 110-VAC outlet. It provides the main module with power and a connection to an analog phone line.

*(1) 8-Conductor Cable*

Use the included 25' (7.6-m) 8-conductor cable to connect the VCS's main module to its power-interface module. (This is the cable with RJ-45 connectors—the larger of the two types of modular connectors—on both ends.)

*(1) 6-Conductor Cable*

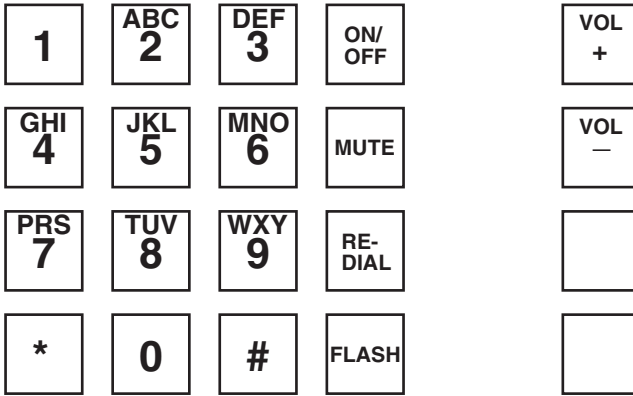
Use the included 10' (3-m) 6-conductor cable to connect the power-interface module to an analog phone line. (This is the cable with RJ-11 connectors—the smaller of the two types of modular connectors—on both ends.)



The complete package also includes (1) copy of this manual.

2.3 The Keypad Keys and Their Functions

The Voice Conferencing System has a standard dial keypad, as shown in the illustration below. (The keys that are not labeled are reserved for future use.) The keypad is “hot,” meaning that the VCS will go off hook automatically when you start dialing—you don’t have to press the ON/OFF button first. See **Chapter 4** for more information on functions.



ON/OFF: Press this key to either begin a call by “going off hook” (that is, by “picking up the phone”) or end a call by “going on hook” (that is, by “hanging up”). When the VCS is on hook, the two LEDs on the main module are solid red. When it is off hook, the LEDs are solid green.

MUTE: Press this key for privacy. The LEDs will flash red and the microphones will be turned off. When you are ready to resume discussion with the party at the other end of the line, press this key to un-mute the microphones. The LEDs will stop flashing red and will shine solid green.

REDIAL: Press this key to redial the last number dialed.

FLASH: Press this key to generate a “switch-hook flash.”

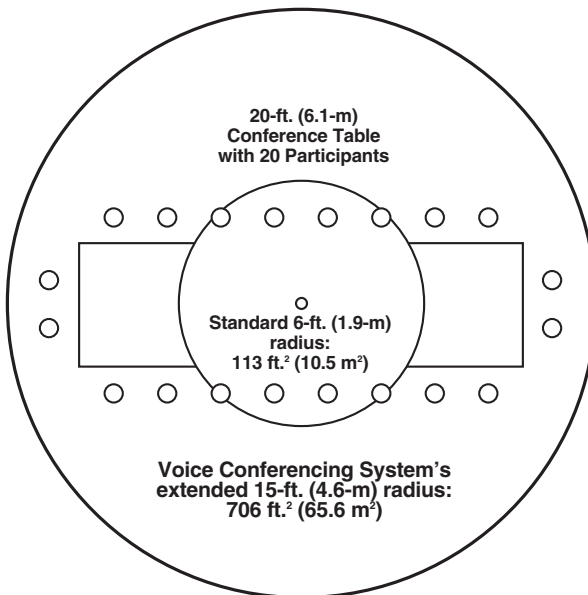
VOLUME UP: During a call, press this key to increase the loudspeaker volume.

VOLUME DOWN: During a call, press this key to decrease the loudspeaker volume.

2.4 Other Features

The Voice Conferencing System has an abundance of top-of-the-line features, including:

- Built-in non-bias full-duplex operation. This means that people at the remote end, especially if they are on handsets, will be able to hear what's going on in the local room even when they are interrupted, not just when they interrupt.
- Extended pickup range (microphone sensitivity) and automatic gain control. These give the VCS the largest coverage area of any single conference unit. People speaking, even in low tones, as far away from the unit as 15 to 20 feet (4.6 to 6.1 m) can be heard clearly by those at the remote location. Everyone can talk calmly and naturally, without raising their voices. The illustration below shows the difference between the standard conferencing unit's coverage and that of the VCS: The VCS covers an area more than six times as large.



- 16-bit codec input and output sampling that gives you the same accurate, lifelike sound you would get from a good CD player. This level of sound quality rivals that of a face-to-face meeting and simply can't be achieved by conference phones with 8- or 12-bit codecs.
- Proprietary “noise-floor reduction” circuitry. Most conference phones do what is called “summing the noise floor,” which means they add to speakers' voices or other foreground sound all the sound they pick up in the background—for example, air conditioning, side comments, chair movements, paper shuffling, and pencil tapping—and send the total package across the line to the remote site. This often means that remote listeners have trouble hearing a local-site speaker over the background noise. By contrast, the VCS suppresses background noise so that the foreground sound is crisp and clear.

Also, the VCS has raised microphones that are less likely to pick up background noise or to be accidentally covered with paper or other foreign objects.

- And, finally, a four-inch (10.2-cm) speaker that you can turn up loud enough for *everyone* in the room to hear that quiet person at the other end. At top volume, the VCS is capable of amplifying output to a maximum of over 90 decibels, which would be almost as loud as a lawn mower.

3. Installation

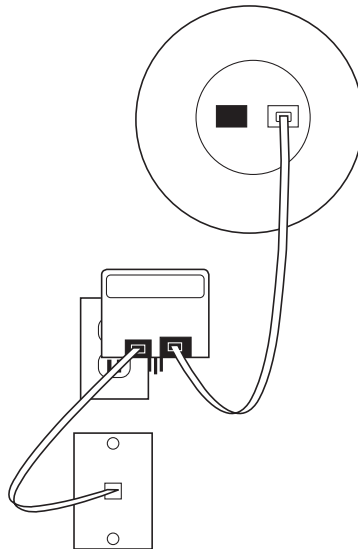
CAUTION!

When you install or modify telephone wiring, always follow basic safety precautions to reduce the risk of fire, electrical shock, and injury. These precautions should include the following:

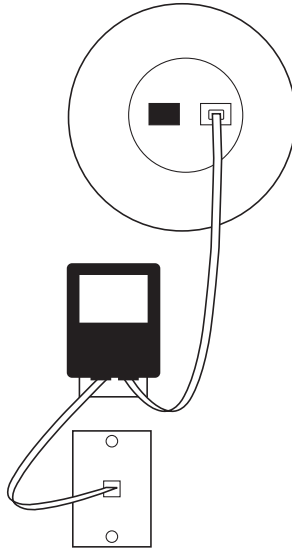
- Never install telephone wiring during a lightning storm.
- Never install a telephone jack in a wet location unless the jack is specifically designed for this.
- Never touch uninsulated telephone wires or terminals unless the line has been disconnected at the network interface.

To install the Voice Conferencing System, take these steps:

1. Place the VCS's main module on a conference table or desk.
2. Plug one end of the 8-conductor cable (the cable with the larger RJ-45 connectors) into the open socket on the bottom of the VCS's main module. Plug the other end into the larger socket (labeled "TO BASE UNIT") on the bottom of the power-interface module. Refer to the illustration below.



3. Plug one end of the 6-conductor cable (the remaining cable) into the power-interface module's smaller socket (labeled "TO TEL LINE"). Plug the other end of this cable into a standard telephone wall jack. Refer to the illustration on the previous page.
4. Plug the power-interface module's power plug into a standard 110-VAC power outlet, as shown below.



When the Voice Conferencing System is plugged in correctly, the two LEDs on the main module will be solid red. This indicates that the Voice Conferencing System is receiving power. If the LEDs do not light, make sure that the power-interface module is securely plugged into a working outlet—check the outlet by plugging a lamp into it if necessary—and that the modular cable with the RJ-45 connectors is securely plugged into both the main module and the power-interface module.

When both LEDs light, the Voice Conferencing System should be ready for continuous operation.

4. Operation

4.1 Placing, Answering, and Ending Calls

To place a call from the Voice Conferencing System, either just begin dialing directly from the keypad or press the ON/OFF key before you dial. (The VCS goes off hook automatically when you start dialing if you haven't already pressed the ON/OFF key.) The two LEDs on the VCS's main module will turn from red to green, indicating that the Voice Conferencing System is off hook.

A square icon with a black border containing the text "ON/OFF" in a bold, sans-serif font.

NOTE

If you press the ON/OFF key but don't hear a dial tone, make sure the VCS's LEDs are lit. If they aren't, make sure the power-interface module is securely plugged into a working outlet (check the outlet by plugging a lamp into it if necessary). Whether or not the LEDs are lit, make sure the modular cables are plugged securely into the main module, the power-interface module, and a working wall jack (check the phone line with a regular phone if necessary).

To answer a call, press the ON/OFF key and begin your conversation. The LEDs will turn from solid red to solid green.

When you want to end the call, press the ON/OFF key and your call will be disconnected. The LEDs will turn from solid green back to solid red.

4.2 Generating a Switch-Hook Flash (Adding a Third Party to a Call)

To generate a 500-millisecond "switch-hook flash," press the FLASH key while a call is active (that is, while all parties are on the line rather than while there is a dial tone or while a phone is ringing). A "switch-hook flash" simulates quickly pressing and releasing the switch-hook on a handset phone, which (for 95% of business sites connected to a PBX or directly to the phone system) puts the existing connection on hold while you dial the number of another party you want to add to the call. When you hear a dial tone, dial the desired number, then press the FLASH key again to conference the calls together. The LEDs will temporarily turn from green to red for the duration of the flash and then back to green.

A square icon with a black border containing the text "FLASH" in a bold, sans-serif font.

If you get a busy signal, no answer, wrong number, or any other undesired result, you can drop the line you just dialed by pressing FLASH again. If you do reach the third party you wanted, you can talk to them for as long as you like. When you conclude your business with the third party, hang up to terminate the entire call, or press FLASH again to drop the third party's line but continue talking to the second party.

You cannot drop the second party's line and continue talking to the third party; you must ask the second party to hang up. (This is a limitation of the worldwide phone system, not of the VCS.) Once the second party hangs up, the third party becomes the second party, and you can add a new third party to the line if you wish.

The phone system is also limited in that it only supports two phone lines on a normal RJ-11 wall jack, so you cannot dial a third number to add a fourth party to the call. If either of the other parties is on a conference phone, they can call and add the fourth party. Be aware, however, that the VCS might not be able to get consistent sound quality from any line carrying signals from multiple sites.

4.3 Increasing and Decreasing the Volume

To raise the volume one decibel, press the VOL + key. To lower the volume one decibel, press the VOL – key. Each time the level changes, the LEDs will flash momentarily to show that the level is changing. When the VCS hits its top volume of above 90 decibels, or its bottom volume of below 50 decibels, its LEDs will stop flashing, indicating that it can go no farther.



4.4 Muting and Un-muting the Microphones

To mute the microphones for privacy, so that people can talk on your end of the call and not be heard on the other end of the call, press the MUTE key. The LEDs will flash red and the microphones will be turned off.



To un-mute the microphones, press the MUTE key again. The LEDs will stop flashing red and will resume shining solid green, and the microphones will be turned back on.

4.5 Redialing the Last Number

To redial the last number dialed, simply press the REDIAL key.



5. Troubleshooting

5.1 Calling Black Box

If you determine that your Voice Conferencing System is malfunctioning, *do not attempt to alter or repair it*. Contact Black Box. The problem might be solvable over the phone.

Before you do, make a record of the history of the problem. Black Box will be able to provide more efficient and accurate assistance if you have a complete description, including:

- The serial number of your unit. (This is printed on the bottom of the main module.)
- 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.

5.2 Shipping and Packaging

If you need to transport or ship your Voice Conferencing System:

- Package it carefully. We recommend that you use the original container.
- Before you ship a unit for repair or return, contact Black Box to get a Return Materials Authorization (RMA) number, and make sure you include everything you received with the unit when you ship it.



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