GE
Security

Fiber Optic
Four-Channel Audio System
Models B723A and B7723A

installation instructions

imagination at work

11-0723A-B

GENERAL

This manual is a guide to the installation and operation of the B723A and B7723A series fiber optic four-channel audio transmission systems. Please read the entire manual before installing the equipment.

NOTE: The series numbers B723A, B723AT and B723AR will be used to describe all models of transmitters and receivers unless noted otherwise.

The B723A offers one-way transmission of four channels of broadcast quality audio over one multimode fiber. The B7723A system uses one single-mode fiber. A complete system consists of a transmitter and a receiver.

Units are designed for standalone operation in a 502R enclosure or for installation in the GE Security 515R1 or 517R1 Card Cages.

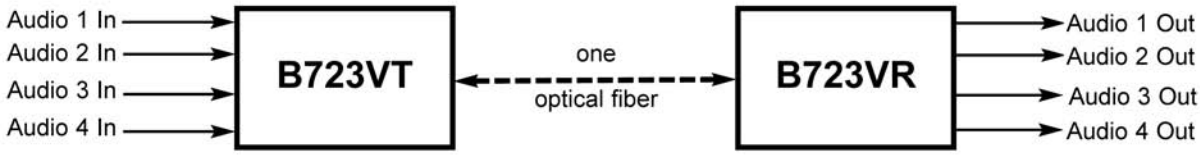
Unpacking the Unit

In the event that anything is missing from the following list, contact your authorized GE Security dealer or representative.

B723AT Transmitter or B723AR Receiver
(B7723AT Transmitter or B7723AR Receiver)
Instruction manual

Save the original packing materials in case it becomes necessary to return the unit.

SYSTEM DIAGRAM



INSTALLATION

Installation Considerations

This fiber-optic link is supplied as a rack card. The rack card can be used in the standalone configuration if placed in a 502R enclosure. Units should be installed in dry locations protected from extremes of temperature and humidity.

Perform the following to install the unit after performing the MODULE SETUP procedures.

Standalone Modules (Rack Card in 502R)

1. Determine where the module is to be installed, and ensure that there is adequate space for making the various cable connections and for reading the diagnostic LEDs.

2. Standalone modules can be attached to suitable flat surfaces with four no. 6 (3-mm) screws. Once the plate is securely attached to a flat surface, the cable connections can be made. The type of screws chosen must be suitable for the surface on which the module is to be mounted.

Rack Cards

Rack cards are designed to be installed in one of Fiber Options' 19-inch (483-mm) EIA standard card-cage racks, either the 515R1 or the 517R1. They may also be mounted in the 502R standalone rack-card enclosures. Follow these steps to install the card:

NOTE: To provide earth ground reference, Stand Alone (Enclosure) modules need to be connected to a good earth ground. This can be accomplished by connecting a copper-based conductor from the modules ***DC Common/Ground*** pin to an approved earth ground.

515R1 and 517R1 Card Cage Racks

CAUTION: Although rack cards are hot-swappable and may be installed without turning off power to the rack, Fiber Options recommends that the power switch on the rack power supply be turned OFF and that the rack power supply is disconnected from any power source.

1. Make sure that the card is oriented right-side up, and slide it into the card guides in the rack until the edge connector at the back of the card seats in the corresponding slot in the rack's connector panel. Seating may require thumb pressure on the top and bottom of the card's front panel.

CAUTION: Take care not to press on any of the LEDs.

2. Tighten the two thumb screws on the card until the front panel of the card is seated against the front of the rack.

502R Standalone Enclosures

CAUTION: The rack card module can ONLY be powered by 13.5-16 VDC. AC power must not be used. Fiber Options recommends the use of the 613P power adapter.

CAUTION: Fiber Options recommends that the enclosure is not connected to any power source during installation.

1. Look inside the enclosure to determine the location of the socket for the edge connector on the card. Orient the card so that it will seat in the socket, and slide it into the enclosure until the edge connector at the back of the card seats in the socket. Seating may require thumb pressure on the ends of the card's front panel.

CAUTION: Take care not to press on any of the LEDs.

2. Tighten the two thumb screws on the card until the front panel of the card is seated against the front of the enclosure. .

MODULE SETUP

Prior to installing the units, the alarm, audio level, and input impedance jumpers and the optical display selector switch need to be setup for proper system operation.

Audio Level

The B723A system features dual audio level operation to meet the system requirements of -10 dB audio reference and 0 dB/+4 dB audio reference level. All units are shipped from the factory with the audio level jumper set to 18 dB (0 dB audio reference level). At this setting, the 18 dB of operating range will support maximum audio levels of +18 dB.

If a low audio input level causes the audio display to remain dark, the input sensitivity of the B723A can be increased by switching to the 8 dBu maximum scale. Jumpers W2, W3, W5, and W7 on the transmitter and jumpers W1 and W2 on the receiver select this function. See Figures 1 and 2.

For systems running at -10 dB, typical for VCRs and DVD players, the jumpers should be set to the 8 dB position.

The user has the added option of setting the transmitter input to 8 dBu and the receiver output to 18 dBu. This will add 10 dB of gain to the system, but will also increase system Signal-To-Noise Ratio (SNR).

Input Impedance

The B723A is shipped with the input impedance set at high impedance (high-Z). To select a 600-ohm input impedance in place of the high-Z input, move jumpers W4 and W6 on the transmitter. See Figure 1.

Alarm Jumper

Rack cards are supplied with an alarm function that activates if the optical signal input to the receiver fails. The alarm is always indicated on the front panel of the card by a red LEVEL/LOSS™ LED. The alarm may also be output to the rack power supply, where a sonalert (audible alarm) and alarm output contact closure may be activated.

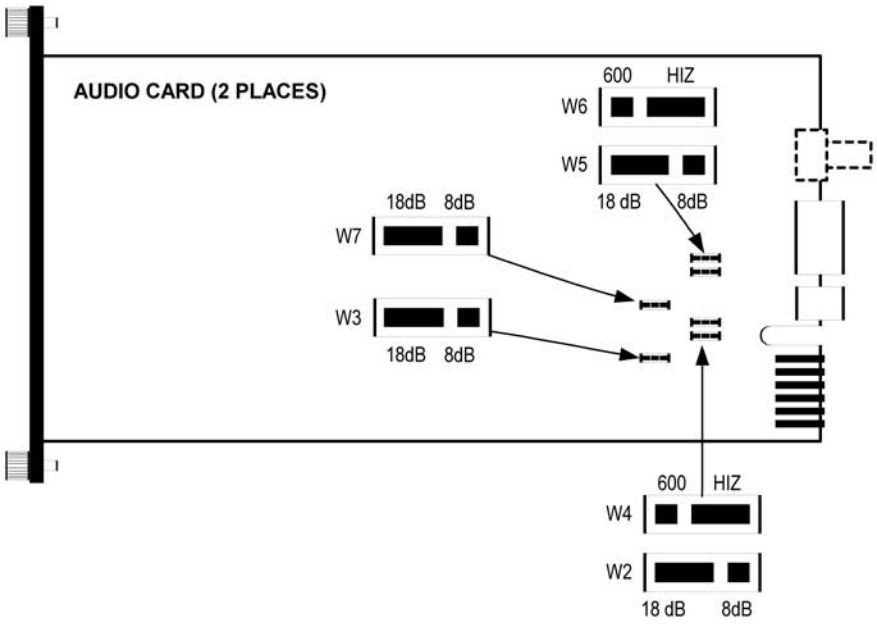
The alarm is set to ON (ALARM) at the factory. If the alarm output is not desired, move jumper W4 on each receiver card to the OFF (DISABLE) position. Refer to Figure 2.

NOTE: Disabling the alarm does not affect the operation of the LEVEL/LOSS™ LED. Loss of optical signal will always be indicated by a red LEVEL/LOSS™ LED.

Optical Display Selection

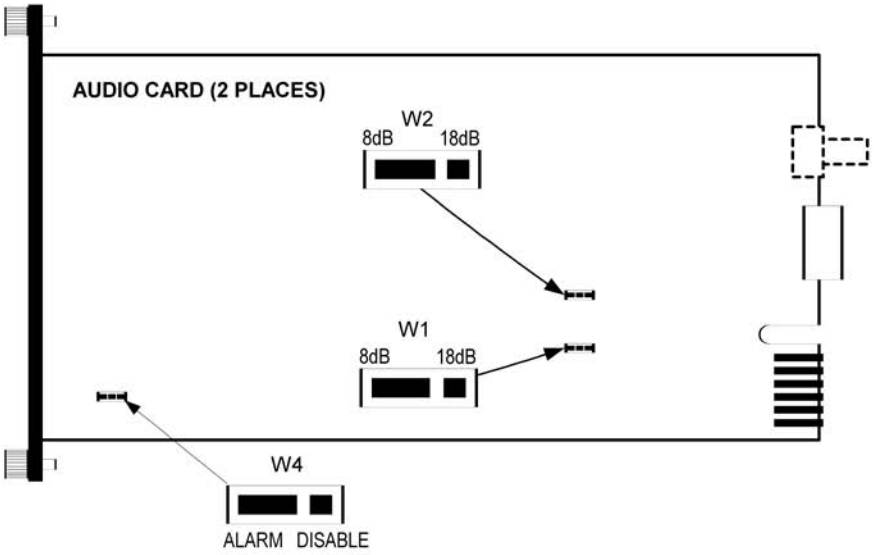
The receiver provides two alternative methods of displaying the strength of the optical signal. At the bottom of each of the two left-hand LED display columns is an LED labeled LVL/LOSS.

FIGURE 1: B723AT TRANSMITTER JUMPERS



Jumper	Function
W2	Audio Input Level
W3	Audio Input Level
W4	Input Impedance
W5	Audio Input Level
W6	Input Impedance
W7	Audio Input Level

FIGURE 2: B723AR RECEIVER JUMPERS



Jumper	Function
W1	Audio Output Level
W2	Audio Output Level
W4	Alarm Enable/Disable

This is Fiber Options' patented LEVEL/LOSS™ display that indicate the condition of the optical signal; details of its operation may be found in the LED OPERATION section on page 6.

On the B723AR, an alternative optical signal strength display has been incorporated. This consists of the LED bar graph display labeled LEVEL in the far left-hand LED column. The LVL/LOSS LED indicates signal strength by glowing either green or red. The bar graph displays signal strength by the number of illuminated LEDs in the eight-segment bar graph.

The factory default function for the four LEVEL LED bars is to display audio levels with the Optical Display Select switch set to the **A** (left) position. Optical signal strength is displayed on the LVL/LOSS LED. However, the left-hand LEVEL bar graph display can be used to display optical strength. To select the optical bar graph display, find the Optical Display Selector switch on the rear panel of the receiver. Refer to Figure 4. Set the switch to the **O** (right) position to activate the optical signal strength display.

CONNECTIONS

Fiber Optic Cable Connection

Most cable manufacturers identify the individual fibers in the cable. Select appropriately terminated fiber and mark both ends with unique identification label (e.g. for cable no. 03, fiber no. 08) to ensure that the fiber connected to the near end is the same one that is connected to the far end. The proper optical connection will link the transmitter's OUT port to the receiver's IN port. See Figures 3 and 4.

1. Wipe the inside of the port's sleeve with a lint-free pipe cleaner moistened with reagent-grade isopropyl alcohol. Blow dry with dry air.

2. Clean the connector using a lint-free cloth dampened with alcohol to thoroughly wipe the side and end of the ferrule. Blow the ferrule dry with dry air. Visually inspect the ferrule for lint.

3. Fasten the fiber optic cable to the port.

Audio Cable Connection

Audio input and output signals are connected to detachable 5-pin screw terminal connectors located on the rear of the modules.

Audio connection options include:

Transmitter	Receiver
Balanced input	Balanced output
Balanced input	Unbalanced output
Unbalanced input	Unbalanced output
Unbalanced input	Balanced output

NOTE: Signal strength remains the same regardless of type of connection.

Refer to Figures 3 and 4. Note that pins 4 and 5 are labeled LEFT and pins 1 and 2 are labeled RIGHT for stereo use, but the LEFT and RIGHT channels can also be treated as two separate audio channels.

For a balanced connection, connect the external equipment to the (+) and (-) pins of the desired channel. For an unbalanced connection, add a short jumper between the (-) pin and the G (ground) pin.

Test Connections

The transmitter is provided with two test output screw terminal connectors as shown in Figure 3. Connection to these is described in TEST MODE on page 6.

Power Connections

Standalone Modules

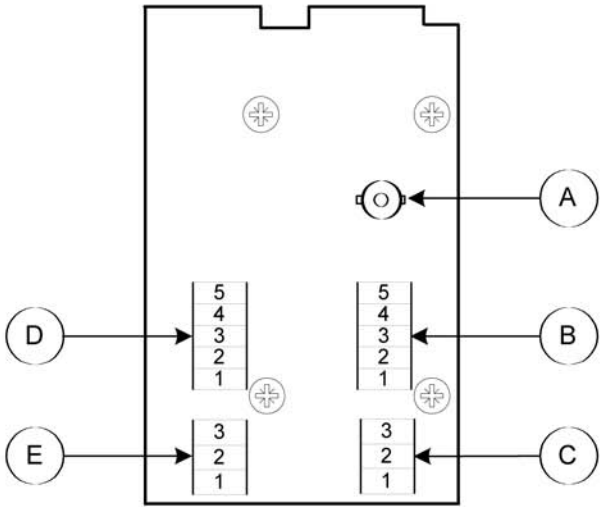
CAUTION: Pin 3 on some 502R enclosures is labeled +12 - 16 VDC. The lowest operating voltage for these units is 13.5 VDC. Disregard the labeling for pin 3 on the 502R enclosure.

Standalone modules consist of a rack card housed in a 502R enclosure. Rack modules can only be powered with 13.5 -16 VDC. 502R enclosures are supplied with a detachable screw terminal connector for power. Make the power connections according to the label on the enclosure.

Rack Modules in 515R1 or 517R1Racks

Rack modules are automatically connected to the rack power bus when inserted into the card cage. Power is applied to the modules when the power switch on the rack power supply is switched ON.

FIGURE 3: B723AT TRANSMITTER REAR VIEW



Legend

Item	Description
A	Optical (Fiber) Connector
B	Audio Connector, Channel 1, 2
C	Test Output Connector
D	Audio Connector, Channel 3, 4
E	Test Output Connector

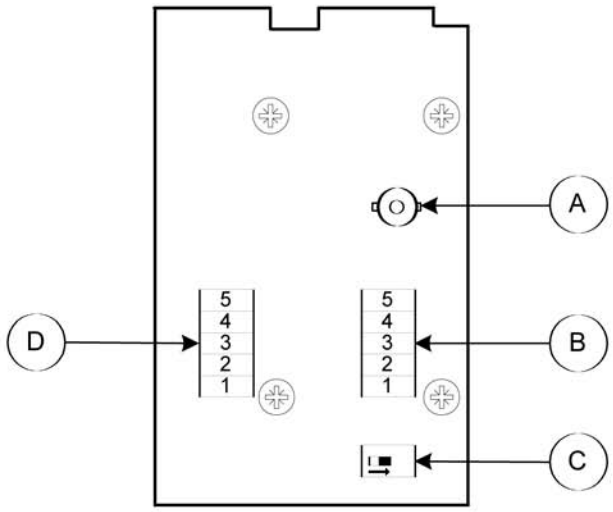
Audio Connections (B, D)

Pin	Function
5 (L+)	Left Channel +
4 (L-)	Left Channel -
3 (G)	Ground
2 (R+)	Right Channel +
1 (R-)	Right Channel -

Test Connections (C, E)

Pin	Function
3 (E)	Ground
2 (+)	Audio +
1 (-)	Audio -

FIGURE 4: B723AR RECEIVER REAR VIEW



Legend

Item	Description
A	Optical (Fiber) Connector
B	Audio Connector, Channel 1, 2
C	Optical Display Select Switch
D	Audio Connector, Channel 3, 4

Audio Connections (B, D)

Pin	Function
5 (L+)	Left Channel +
4 (L-)	Left Channel -
3 (G)	Ground
2 (R+)	Right Channel +
1 (R-)	Right Channel -

Optical Display Select Switch (C)

Position	Function
Left (A)	Normal LEVEL/LOSS display
Right (O)	Enhanced LEVEL/LOSS display

SMARTS™ DIAGNOSTICS

The B723A is equipped with an extensive built-in Status Monitoring And Reliability Test System (*SMARTS*™) diagnostics capabilities based on the arrays of LEDs on the front panel of each module.

LED Operation

Refer to Table 1 for an explanation of how to diagnose system faults using the LEDs built into the Fiber Options units.

The B723A transmitter has four vertical LED displays. Each vertical bar represents 1 audio channel. See Figure 5.

The receiver also has four vertical LED displays, similar to the transmitter. The primary difference is that the CAL LEDs are not present in the receiver. An optical signal strength LVL/LOSS (LEVELl/LOSS™) LED has been added. See Figure 5.

LEVEL Indicator

This bar-graph arrangement of LEDs works as a dynamic audio level indicator. Each LED segment represents approximately 2 dB of signal strength. As with audio level indicators on other audio equipment, if the display is constantly in the red, the audio level is excessive and will experience clipping. This must be corrected on the audio equipment.

The left-hand LEVEL column on the receiver may be used to display the optical signal strength. Refer to OPTICAL DISPLAY SELECTION on page 2 for instructions on how to select this function. If selected, the optical signal will be displayed on the eight-segment LED display. The more LEDs that are illuminated, the stronger the optical signal.

LVL/LOSS Indicator

The LEVEL/LOSS™ LED on the receiver indicates that the received optical signal is adequate (green) or inadequate (red). In the optical signal strength mode, which displays optical strength with the bar graph, the LEVEL/LOSS™ LED flashes.

CAL Indicator

The CAL LEDs on the transmitter provide two functions. Under normal operation, these LEDs glow green, indicating that there is power to the unit.

If the unit is in the TEST mode, as described below, these LEDs glow amber.

The TEST Mode

The TEST mode verifies that the audio channels are functioning correctly without having to connect any audio equipment to the fiber optic units. To carry out this test:

1. Create a jumper set as shown in Figure 6. The calibration test signal level is 0 dB.

2. Set the jumpers W4 and W6 to the HI Z position.

3. Connect the jumper set between the AUDIO connector and the CALIBRATE connector on the rear panel of the transmitter.

4. Power up the unit and observe the following:

a. The CAL LED should glow amber.

b. If the AUDIO INPUT LEVEL jumpers are set for the 18 dB maximum, the L and R LEVEL LEDs that are third from the bottom should glow green.

c. If the AUDIO INPUT LEVEL jumpers are set at 8 dB max, then the L and R LEVEL LED that are second from the top should be illuminated. This indicates a correctly functioning unit.

5. Remove power from the unit and remove the jumpers.

6. Set W4 and W6 to the correct position for normal operation.

7. Power up the unit.

Special Setup Procedures

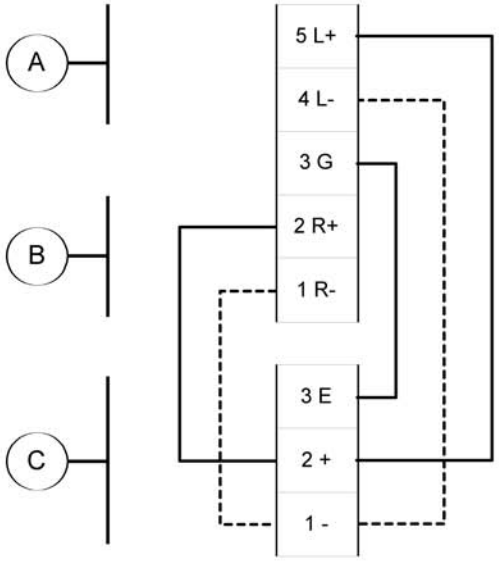
CAUTION: Take all normal precautions to protect the unit from static electricity during the following procedures.

The B723A is shipped with the maximum input/output levels set at 18 dBu and the the input impedance set at high-Z.

To select a 600-ohm input impedance in place of the high-Z input, move jumpers W4 and W6 on the transmitter. See Figure 1.

If a low audio input level causes the audio display to remain dark, the input sensitivity of the B723A can be increased by switching to the 8 dBu maximum scale.

FIGURE 6: TRANSMITTER TEST CONNECTIONS



Transmitter Legend

Item	Function
A	Audio Channel 1
B	Audio Channel 2
C	Test Signal output

Audio Connections

Pin	Function
5 (L+)	Audio Channel 1 +
4 (L-)	Audio Channel 1 -
3 (G)	Ground
2 (R+)	Audio Channel 2+
1 (R-)	Audio Channel 2 -

Test Connections

Pin	Function
3 (E)	Ground
2 (+)	Audio +
1 (-)	Audio -

Jumpers W2, W3, W5, and W7 on the transmitter and jumpers W1 and W2 on the receiver select this function. See Figures 1 and 2.

The user has the added option of setting the transmitter input to 8 dBu and the receiver output to 18 dBu. This will add 10 dB of gain to the system, but will also increase system Signal-To-Noise Ratio (SNR).

OPERATION

To operate the B723A rack-mount system, connect the rack power supply to an AC outlet and set the power switch to ON.

Refer to TEST MODE on page 6 for instructions on how to execute the test mode.

For an explanation of LED color codes, refer to LED OPERATION on page 6.

MAINTENANCE

There is no operator maintenance other than keeping the units clean.

CONTACTING GE SECURITY

Have the following information available: exact model number and product code of your fiber-optic links, and a listing of the diagnostic indicators and their respective color/condition.

SHIPPING AND PACKAGING

Before shipping or transporting your GE Security unit, pack it securely to prevent damage that could occur in transit. Use care to protect all connectors, LEDs, and corners from possible damage.

RETURNS TO GE SECURITY

If any equipment must be returned to GE Security for repair or replacement, you must obtain authorization from our Return Authorization department before shipping.

NOTE: All authorized returns must be clearly marked with the Return Authorization information. Please follow the instructions completely.

NOTE: GE Security will not accept return delivery of any products without prior authorization.

Customer Support

For assistance in installing, operating, maintaining, and troubleshooting this product, refer to this document and any other documentation provided. If you still have questions, please contact technical support during normal business hours (Monday through Friday, excluding holidays, between 6 a.m. and 5 p.m. Pacific Time).

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