



Installing the Dialogic® Vision™ Server TIGI2U

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Revision history

| Revision | Release date | Notes |
|-----------------------------|--------------|---------------------------|
| 9000-62700-10 | June 2007 | SRG, Vision Server TIGI2U |
| 9000-62700-11 | April 2008 | LBG |
| 9000-62700-12 | August 2008 | SRG |
| 64-0404-01 Rev A | June 2009 | LBG |
| Last modified: May 28, 2009 | | |

Refer to www.dialogic.com for product updates and for information about support policies, warranty information, and service offerings.

Vision Server TIGI2U models

| AC model number | DC model number | Description |
|-----------------|-----------------|---|
| VHW-001-005 | VHW-002-005 | No line card or signaling interfaces. |
| VHW-001-004 | VHW-002-004 | One line card interface. |
| VHW-001-003 | VHW-002-003 | Two line card interfaces. |
| VHW-001-002 | VHW-002-002 | One line card interface and one SS7 signaling interface. |
| VHW-001-001 | VHW-002-001 | Two line card interfaces and one SS7 signaling interface. |

Components

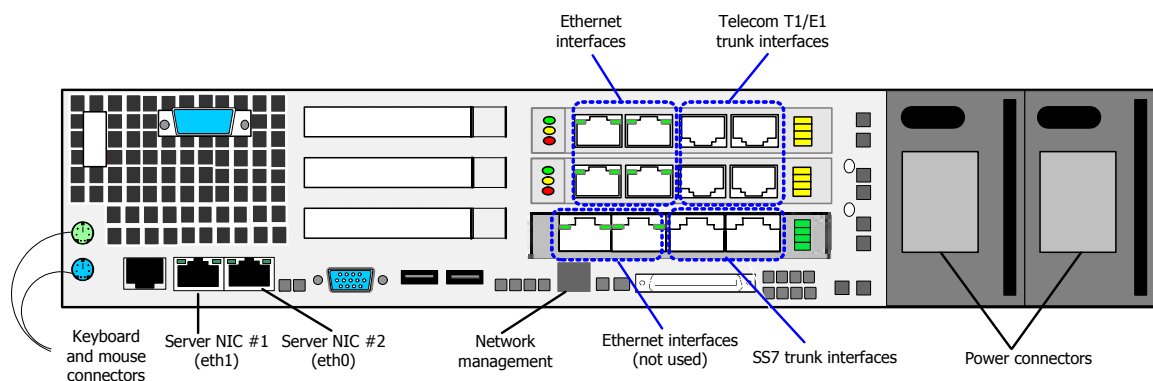
The Vision Server TIGI2U is shipped with the following components:

- *Intel Telco/Industrial Grade Server TIGI2U Hardware Reference Guide*
- Two AC power cords for AC servers. Specified per order.
- *Intel Server Deployment Toolkit CD*
- Intel Server universal rack mount kit
- *Installing the Vision Server TIGI2U* (this document)
- *R&TTE Declaration of Conformity*
- *Vision Server Series RoHS Declaration of Conformity*
- *Software License Agreement*
- *Accessing Vision Documentation*

Note: Save all packaging materials. Your warranty requires that the server be returned in the original packaging.

Rear panel

The following illustration shows the Vision Server TIGI2U rear panel. (The model shown in the following illustration has two line card interfaces and an optional SS7 signaling interface.)



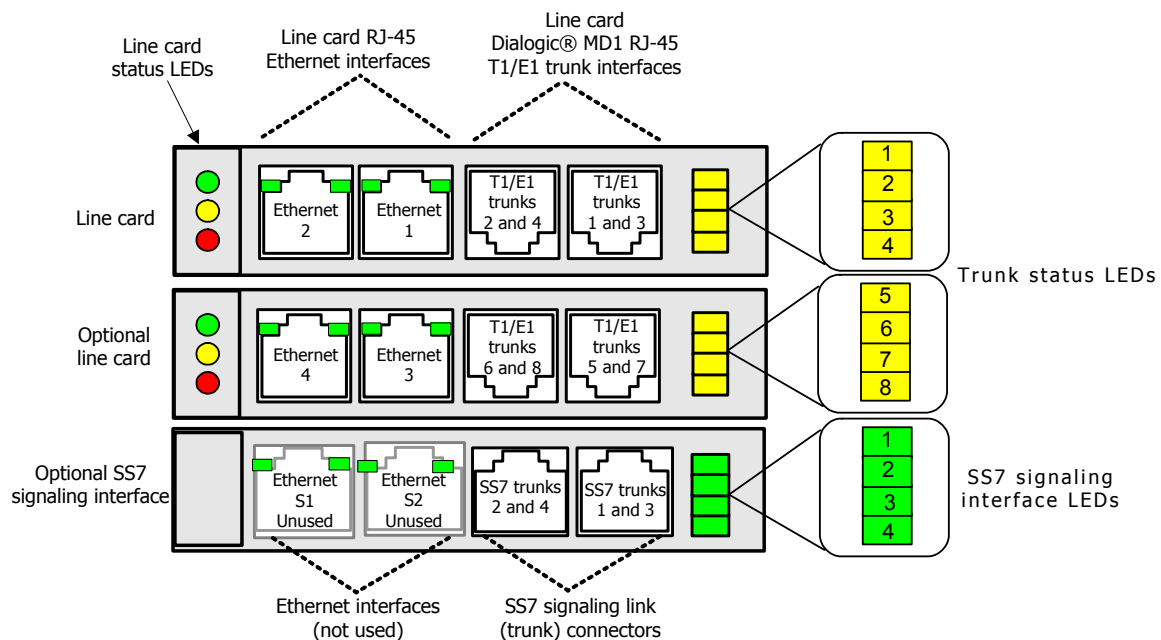
Note: SS7 trunk interfaces are used in an SS7 signaling direct connection configuration.

Telecom, Ethernet, and SS7 interfaces

The Vision Server TIGI2U may include the following Dialogic-specific interfaces:

| Interface | Quantity | Description |
|---------------------|----------|---|
| Dialogic® MD1 RJ-45 | 4 | T1/E1 interface for up to eight telecom trunks (two each on line card and optional line card). |
| RJ-45 | 4 | Ethernet interfaces for WAN or LAN connections for carrying RTP media traffic (two each on line card and optional line card). |
| Dialogic® MD1 RJ-45 | 2 | Interfaces for up to four SS7 signaling connections (on SS7 signaling card). |
| RJ-45 | 2 | Not used (on SS7 signaling card). |

The following illustration shows the interface numbering and LED assignments for a Vision Server TIGI2U with two line cards and an SS7 signaling interface:



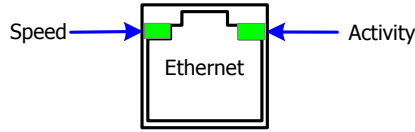
Line card status LEDs

The line card status LEDs provide the following indications:

| LED | Description |
|------------------------|---|
| Green only | Line card booted successfully and is running. |
| Red only | Fatal software error. |
| Red and yellow | Line card is resetting. |
| Red, yellow, and green | Line card resets are released. |
| Yellow and green | Line card loader has started. |
| Not lit | Power is off or the hardware is starting up. |

Ethernet LEDs

The following illustration shows speed and activity LEDs on line card Ethernet RJ-45 interfaces:



Line card Ethernet interface speed and activity LEDs provide the following indications:

| LED | Description | | | | | | | | |
|-----------|--|-----------|-----|-------|-----|--------|----|---------|----------|
| Speed | Data rate of the Ethernet link. <table border="1" data-bbox="402 653 683 848"> <thead> <tr> <th>Data rate</th> <th>LED</th> </tr> </thead> <tbody> <tr> <td>10 Mb</td> <td>Off</td> </tr> <tr> <td>100 Mb</td> <td>On</td> </tr> <tr> <td>1000 Mb</td> <td>Blinking</td> </tr> </tbody> </table> <p>This LED is used only when a reliable Ethernet connection has been established and the activity LED is on.</p> | Data rate | LED | 10 Mb | Off | 100 Mb | On | 1000 Mb | Blinking |
| Data rate | LED | | | | | | | | |
| 10 Mb | Off | | | | | | | | |
| 100 Mb | On | | | | | | | | |
| 1000 Mb | Blinking | | | | | | | | |
| Activity | There is activity on the line card Ethernet link. The LED flickers when the Ethernet establishes link integrity and when there is transmit or receive activity on the link. | | | | | | | | |

Trunk status LEDs

The trunk status LEDs provide the following indications:


| LED status | Description |
|------------------------------|--|
| Red LED on Yellow LED off | Loss of frame, loss of signal, or bit error rate. |
| Yellow LED on Red LED off | Remote loss of frame or remote loss of signaling multiframe. |
| Both LEDs on | The line card is in the process of establishing communication with the network. |
| Both LEDs off | Proper frame synchronization between the trunk and network has been established. All required framing alignment has been found (or the line card/trunk is not configured). |

SS7 signaling interface LEDs

The SS7 signaling LEDs provide the following indications:

| Trunk LEDs | Description |
|---------------------|--|
| Off | Trunk is not configured. |
| Slow blinking green | Loss of signal. |
| Fast blinking green | Loss of frame or loss of signaling multiframe. |
| Steady green | Proper frame synchronization between the trunk and network is established and all required framing alignment has been found. |

Installation overview

| | |
|---|--|
|  | <p>Warning: Observe the following precautions when handling Vision Server TIGI2U equipment:</p> <p>Server power ON/OFF: The push-button on/off power switch on the front panel of the server does not turn off the power. To remove power from the server, you must unplug the power cord from either the power supply or wall outlet.</p> <p>Hazardous conditions</p> <ul style="list-style-type: none"> • Power supply: Hazardous voltage, current, and energy levels are present inside the power supply enclosure. • Devices and cables: Hazardous electrical conditions may be present on power, telephone, and communication cables. Turn off the server and disconnect telecommunications systems, networks, modems, and the power cord attached to the server before opening it. Otherwise, personal injury or equipment damage can result. <p>Maintenance: There are no user-serviceable parts inside the Vision Server TIGI2U chassis. Only technically qualified personnel should perform service and maintenance tasks.</p> <p>Avoid injury: Lifting the server chassis and attaching it to the rack is a two-person job. If needed, use an appropriate lifting device.</p> |
|---|--|

The following table provides the approximate weight for the Vision Server TIGI2U:

| A Vision Server TIGI2U with... | Weighs approximately... |
|--|-------------------------|
| No line card interfaces | 19.5 kg (43 lbs) |
| Two line card interfaces | 20.0 kg (44.2 lbs) |
| Two line card interfaces and a signaling interface | 20.2 kg (44.6 lbs) |

The universal rack mount kit weighs approximately 2.26 kg (5 lbs), and the shipping box weighs approximately 3.62 kg (8 lbs).

| | |
|------------------------|--|
| <p>Caution:</p> | <p>Temperature: The operating temperature of the server, when installed in an equipment rack, must not go below 5 °C (41 °F) or rise above 35 °C (95 °F). Extreme fluctuations in temperature can cause a variety of problems in the server.</p> <p>Ventilation: The equipment rack must provide sufficient airflow to the front of the server to maintain proper cooling.</p> <p>Codes and regulations: Ensure that the installation meets all government codes and regulations concerning facilities. In addition, all sites where the Vision Server TIGI2U are deployed must meet all local, national, and international codes described in <i>Compliance statements</i> on page 14.</p> |
|------------------------|--|

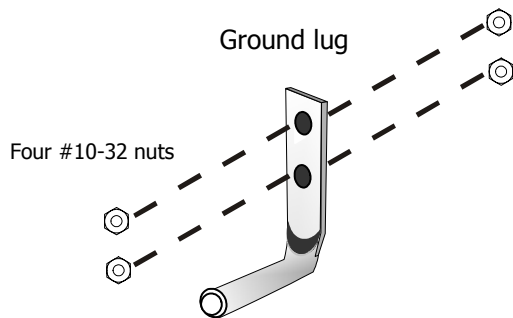
The following table summarizes the steps required for installing the Vision Server TIGI2U:

| Step | Action | Refer to... |
|------|---|---|
| 1 | Install the Vision Server TIGI2U. | <i>Intel Server Deployment Toolkit CD</i> |
| 2 | Make a good low impedance connection to earth ground. This is required because DS-1 connections can be susceptible to lightning strike or power cross before a power source is provided for the device. | <i>Grounding the server on page 9</i> |
| 3 | Provide a power source for the server. | <i>Connecting to a power source on page 10</i> |
| 4 | Connect Ethernet interfaces to the device, if applicable. | <i>Connecting Ethernet cables on page 10</i> |
| 5 | Ensure that T1 connections are behind a channel service unit (CSU). | <i>Connecting to a T1 network on page 11</i> |
| 6 | Connect device trunk interfaces, if applicable. | <i>Connecting T1/E1 trunk and SS7 signaling cables on page 11</i> |

After the installation is complete, configure the Vision Server TIGI2U as described in the documentation. Refer to the *Accessing Vision Documentation* document for information about accessing the documentation.

Grounding the server

Before connecting the server to a power source, be sure it is properly grounded. The server must be grounded using a two-hole #10x5/8 ground lug (Burndy YAV102TC10-90 or equivalent). Use four #10-32 nuts, one under and one on top of the ground lug as shown:



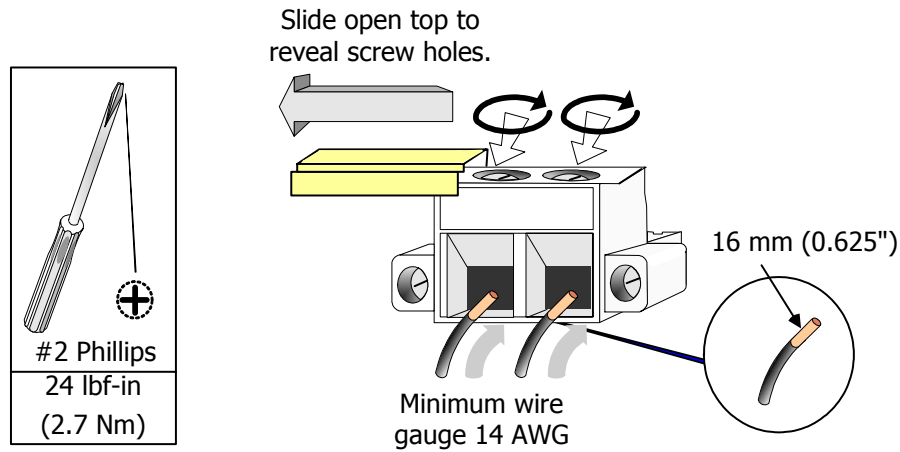
Tighten each nut to 10 in-lbs torque.

Note: The ground lug and nuts are not included with the server.

Connecting to a power source

If you are installing an AC server, connect a power cord to the AC connector on the back of the server and plug the cord into an AC outlet.

To install a DC server, slide open the cover for the DC power connector and strip the wire insulation back from the wire. Insert each wire all the way into the connector and tighten the screw on top of the connector as shown:

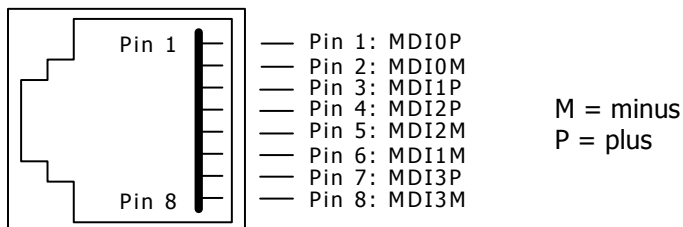


Caution: The top cover must be fully closed before applying power to cables or attaching the connector to the power supply.

Connecting Ethernet cables

To connect to a 10Base-T, 100Base-T, or 1000Base-T network, use two shielded twisted pair (STP) Category 5 or better Ethernet cables. The two 10/100/1000Base-T Ethernet connectors provide the line card with Ethernet connections supporting auto-negotiation for 10, 100, and 1000 Base-T full duplex and half duplex transmissions.

The following illustration shows pin assignments for the RJ-45 line card Ethernet interfaces:

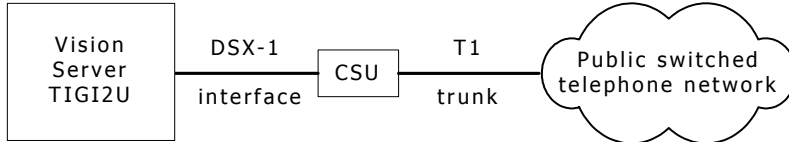


Connecting to a T1 network

Note: Connecting to a T1 network is not applicable in an IP deployment.

For typical T1 communications, each trunk interface connects to a channel service unit (CSU), which is connected to a T1 trunk line. The CSU provides a DSX-1 interface to the T1 line, and also contains circuitry that enables the central office (CO) to perform diagnostic tests remotely.

The following illustration shows the Vision Server TIGI2U trunk interface with the CSU:



You can purchase or lease the CSU from the telephone company or other vendor.

Warning:



The cables attached to this product must be isolated by a channel service unit (CSU) before the cables leave the building.

To avoid causing T1 service provider alarms, make sure that the Vision Server TIGI2U always sends a valid signal, either by looping back at the CSU or by connecting the CSU to a functioning Vision Server TIGI2U. The best way to provide a loopback is to unplug the cable from the Vision Server TIGI2U to the CSU. The modular connector on most CSUs loops back the transmit signal to the receive signal when nothing is plugged in.

Connecting T1/E1 trunk and SS7 signaling cables

Note: Connecting T1/E1 trunk and SS7 signaling cables is not applicable in an IP deployment. Connecting SS7 signaling cables is not applicable in an ISDN deployment.

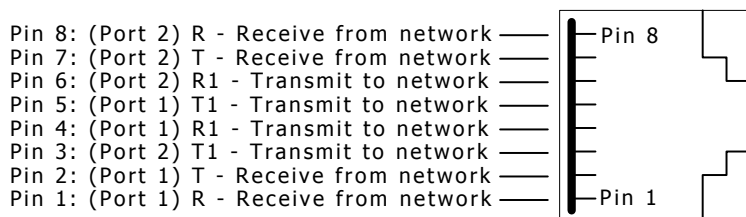
Use shielded cables to connect telecom trunks or SS7 signaling connections to Dialogic® MD1 RJ-45 interfaces. Trunk interfaces are combined in dual-trunk jacks. If necessary, you can separate the dual-trunk jacks using the following components:

- Trunk adapter cables separate the Dialogic® MD1 RJ-45 dual T1/E1 interface into two RJ-48C interfaces.
- A rack-mounted signal entry panel splits the Dialogic® MD1 RJ-45 interfaces into pairs of RJ-48C connectors.

For more information, contact a Dialogic representative.

Pin assignments

The following illustration shows pin assignments for the Dialogic® MD1 RJ-45 dual T1/E1 interfaces:



SS7 configurations

The SS7 link interface can be one of the following:

- A single timeslot on direct connected T1/E1 trunks.
- All of the timeslots on a T1/E1 trunk. High speed links (HSL) meet the ANSI T1.111-1996 and Q.703/Annex A standards. Each HSL occupies a full (not channelized) T1/E1 line and transfers data at the rate of 1.544 (2.048) Mbps.
- A single timeslot on a T1/E1 trunk carrying media. The H.100 bus delivers the signaling link to the SS7 signaling interface.

These connections differ depending whether the node is set up in a dedicated signaling or embedded signaling configuration. The default ISUP configuration that is shipped is an embedded signaling configuration, which leverages the H.100 bus.

In an SS7 dedicated signaling configuration, none of the bearer trunks carry signaling information. Instead, separate dedicated trunks carry this information.

T1/E1 cabling

Variations are based on the number of trunks that are installed. If the server includes more than one line card interface, maximize redundancy by distributing the trunk connections evenly between the line cards:

| Number of trunks | Number of line cards | Trunk connector |
|------------------|----------------------|-----------------|
| 1 | 1 | 1 |
| 2 | 2 | 1 |
| 3 | 1 | 2 |
| 4 | 2 | 2 |
| 5 | 1 | 3* |
| 6 | 2 | 3* |
| 7 | 1 | 4* |
| 8 | 2 | 4* |
| 1 | 1 | 1 |
| 2 | 1 | 2 |
| 3 | 1 | 3* |
| 4 | 1 | 4* |

* If two trunks connect to the physical connector, a trunk adapter cable (for example, P/N 32851) is required to split the two trunks.

Compliance statements

EU R&TTE statement

This product is intended to be connected to the following public telecommunication networks:

- 2048 kbit/s 120 ohm digital structured or unstructured ONP leased line in all EU countries.
- Euro-ISDN Primary Rate Access in all EU countries (for servers with up to two line card interfaces and no signaling interface).

For more information, refer to <http://www.dialogic.com/declarations/default.htm>.

FCC Part 15 Class A statement

This board 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 or her own expense. Modifications not expressly approved by Dialogic may void the FCC granted authority to operate the equipment.

FCC Part 68 statement

This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the bottom of this equipment is a label that contains, among other information, a product identifier in the format US:EMCXDNANXXXXXXXX. If requested, this number must be provided to the telephone company. The telephone company will need to know the Service Order Code, the Facility Interface Code, and the wiring configuration (or USOC jack type) corresponding to the service you are ordering, as shown in the following table:

| Service type | Facility interface code | Service order code | USOC jack type |
|---|-------------------------|--------------------|----------------|
| 4-wire 1.544 Mbps (DS1) with super frame (SF), alternate mark inversion (AMI), no line power, 100 ohms. | 04DU9.BN | 6.0N | RJ-48C |
| 4-wire 1.544 Mbps (DS1) with SF, bipolar with eight-zero substitution (B8ZS), no line power, 100 ohms. | 04DU9.DN | 6.0N | RJ-48C |
| 4-wire 1.544 Mbps (DS1) with extended super frame (ESF), AMI, no line power, 100 ohms. | 04DU9.1KN | 6.0N | RJ-48C |
| 4-wire 1.544 Mbps (DS1) with ESF, bipolar with eight-zero substitution (B8ZS), no line power, 100 ohms. | 04DU9.1SN | 6.0N | RJ-48C |

If the equipment causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. If advance notice is not practical, the telephone company will notify you as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens the telephone company will provide advance notice so that you can make necessary modifications to maintain uninterrupted service.

This product is not intended for customer repair.

If you experience trouble with this equipment, contact Dialogic for warranty and repair information. The telephone company may ask that you disconnect this equipment from the network until the problem has been corrected or until you are sure that the equipment is not malfunctioning. This board may not be connected to party lines or used on coin service lines provided by the telephone company. The part 68 affidavit for digital and subrate services is included separately.

Canadian ICES-003 statement

This Class A digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Canadian CS-03 statement

NOTICE: This equipment meets the applicable Industry Canada Terminal Equipment Technical Specifications. This is confirmed by the registration number. The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment.

The Industry Canada label identifies certified equipment. The certification means that the equipment meets certain telecommunications network protective, operations, and safety requirements as prescribed in the appropriate Terminal Equipment Technical Requirements documents. The Department does not guarantee the equipment will operate to the users satisfaction.

Before installing this equipment, users must 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.

Repairs to certified equipment must be made by an authorized Canadian maintenance facility. 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 must 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 can 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. |
|-----------------|--|

Environmental notices

Perchlorate material - special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate/. This notice is required by California Code of Regulations, Title 22, Division 4.5 Chapter 33: Best Management Practices for Perchlorate Materials.

Battery disposal - This product contains a battery. Before disposing of this product, remove and dispose of the battery properly.

RoHS Declaration of Conformity

Dialogic Corp Inc. hereby declares that the product(s) consisting of the following Compliance Model Numbers:

- NFV1122A
- NFV1122B
- NFV2122A
- NFV2122B

meet the requirements of the European Directive:

- 2002/95/EC (RoHS)

The foregoing declaration is subject to the following:

- Dialogic Corp Inc. claims RoHS exemption 7b. (Lead in solders for servers, storage and storage array systems, network infrastructure equipment for switching, signaling, transmission as well as network management for telecommunications).
- Dialogic products may contain a quantity limit of 0.1% by mass (1000 PPM) in homogeneous material for: Mercury, Hexavalent Chromium, Polybrominated Biphenyls (PBB), Polybrominated Diphenyl Ethers (PBDE) and quantity limit of 0.01% by mass (100 PPM) of homogeneous material for Cadmium.

Limited warranty

For warranty information, refer to <http://www.dialogic.com/warranties>.