Audio Bridge Terminal

Flexible discrete audio input panel

Guide to Installation and Operation

M796-9902-103

12 December 2014

grass valley
A BELDEN BRAND

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Important Safeguards and Notices

This section provides important safety guidelines for operators and service personnel. Specific warnings and cautions appear throughout the manual where they apply. Please read and follow this important information, especially those instructions related to the risk of electric shock or injury to persons.

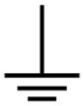
Symbols and Their Meanings

Indicates that dangerous high voltage is present within the equipment enclosure that may be of sufficient magnitude to constitute a risk of electric shock.

Indicates that the user, operator or service technician should refer to the product manuals for important operating, maintenance, or service instructions.

This is a prompt to note the fuse rating when replacing fuses. The fuse referenced in the text must be replaced with one having the ratings indicated.

Identifies a protective grounding terminal which must be connected to earth ground prior to making any other equipment connections.



Identifies an external protective grounding terminal which may be connected to earth ground as a supplement to an internal grounding terminal.

Indicates that static sensitive components are present, which may be damaged by electrostatic discharge. Use anti-static procedures, equipment and surfaces during servicing.

Indicates that the equipment has more than one power supply cord, and that all power supply cords must be disconnected before servicing to avoid electric shock.

The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Canadian Standard Association (CSA) regulations and recommendations for USA/Canada.

The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Underwriters Laboratory (UL) regulations and recommendations for USA/Canada.

The presence of this symbol in or on Grass Valley equipment means that it has been tested and certified as complying with applicable Intertek Testing Services regulations and recommendations for USA/Canada.

The presence of this symbol in or on Grass Valley product means that it complies with all applicable European Union (CE) directives.

The presence of this symbol in or on Grass Valley product means that it complies with safety of laser product applicable standards.

Warnings

A warning indicates a possible hazard to personnel, which may cause injury or death. Observe the following general warnings when using or working on this equipment:

- Appropriately listed/certified mains supply power cords must be used for the connection of the equipment to the mains voltage at either 120 V AC or 240 V AC.
- This product relies on the building's installation for short-circuit (over-current) protection. Ensure that a fuse or circuit breaker for 120 V AC or 240 V AC is used on the phase conductors.
- Any instructions in this manual that require opening the equipment cover or enclosure are for use by qualified service personnel only.
- Do not operate the equipment in wet or damp conditions.
- This equipment is grounded through the grounding conductor of the power cords. To avoid electrical shock, plug the power cords into a properly wired receptacle before connecting the equipment inputs or outputs.
- Route power cords and other cables so they are not likely to be damaged. Properly support heavy cable bundles to avoid connector damage.
- Disconnect power before cleaning the equipment. Do not use liquid or aerosol cleaners; use only a damp cloth.
- Dangerous voltages may exist at several points in this equipment. To avoid injury, do not touch exposed connections and components while power is on.
- High leakage current may be present. Earth connection of product is essential before connecting power.
- Prior to servicing, remove jewelry such as rings, watches, and other metallic objects.
- To avoid fire hazard, use only the fuse type and rating specified in the service instructions for this product, or on the equipment.
- To avoid explosion, do not operate this equipment in an explosive atmosphere.
- Use proper lift points. Do not use door latches to lift or move equipment.
- Avoid mechanical hazards. Allow all rotating devices to come to a stop before servicing.
- Have qualified service personnel perform safety checks after any service.

Cautions

A caution indicates a possible hazard to equipment that could result in equipment damage. Observe the following cautions when operating or working on this equipment:

- This equipment is meant to be installed in a restricted access location.

- When installing this equipment, do not attach the power cord to building surfaces.
- Products that have no on/off switch, and use an external power supply must be installed in proximity to a main power outlet that is easily accessible.
- Use the correct voltage setting. If this product lacks auto-ranging power supplies, before applying power ensure that each power supply is set to match the power source.
- Provide proper ventilation. To prevent product overheating, provide equipment ventilation in accordance with the installation instructions.
- Do not operate with suspected equipment failure. If you suspect product damage or equipment failure, have the equipment inspected by qualified service personnel.
- To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel. Servicing should be done in a static-free environment.
- This unit may have more than one power supply cord. Disconnect all power supply cords before servicing to avoid electric shock.
- Follow static precautions at all times when handling this equipment.

Electrostatic Discharge (ESD) Protection

Electrostatic discharge occurs when electronic components are improperly handled and can result in intermittent failure or complete damage adversely affecting an electrical circuit. When you remove and replace any card from a frame always follow ESD-prevention procedures:

- Ensure that the frame is electrically connected to earth ground through the power cord or any other means if available.
- Wear an ESD wrist strap ensuring that it makes good skin contact. Connect the grounding clip to an *unpainted surface* of the chassis frame to safely ground unwanted ESD voltages. If no wrist strap is available, ground yourself by touching the *unpainted* metal part of the chassis.
- For safety, periodically check the resistance value of the antistatic strap, which should be between 1 and 10 megohms.
- When temporarily storing a card make sure it is placed in an ESD bag.
- Cards in an earth grounded metal frame or casing do not require any special ESD protection.

Mesures de sécurité et avis importants

La présente section fournit des consignes de sécurité importantes pour les opérateurs et le personnel de service. Des avertissements ou mises en garde spécifiques figurent dans le manuel, dans les sections où ils s'appliquent. Prenez le temps de bien lire les consignes et assurez-vous de les respecter, en particulier celles qui sont destinées à prévenir les décharges électriques ou les blessures.

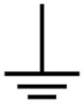
Signification des symboles utilisés

Signale la présence d'une tension élevée et dangereuse dans le boîtier de l'équipement ; cette tension peut être suffisante pour constituer un risque de décharge électrique.

Avertit l'utilisateur, l'opérateur ou le technicien de maintenance que des instructions importantes relatives à l'utilisation et à l'entretien se trouvent dans la documentation accompagnant l'équipement.

Invite l'utilisateur, l'opérateur ou le technicien de maintenance à prendre note du calibre du fusible lors du remplacement de ce dernier. Le fusible auquel il est fait référence dans le texte doit être remplacé par un fusible du même calibre.

Identifie une borne de mise à la terre de protection. Il faut relier cette borne à la terre avant d'effectuer toute autre connexion à l'équipement.



Identifie une borne de mise à la terre externe qui peut être connectée en tant que borne de mise à la terre supplémentaire.

Signale la présence de composants sensibles à l'électricité statique et qui sont susceptibles d'être endommagés par une décharge électrostatique. Utilisez des procédures, des équipements et des surfaces antistatiques durant les interventions d'entretien.

Le symbole ci-contre signifie que l'appareil comporte plus d'un cordon d'alimentation et qu'il faut débrancher tous les cordons d'alimentation avant toute opération d'entretien, afin de prévenir les chocs électriques.

La marque C-CSA-US certifie que l'appareil visé a été testé par l'Association canadienne de normalisation (CSA) et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.

La marque C-UL-US certifie que l'appareil visé a été testé par Underwriters Laboratory (UL) et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.

La marque ETL Listed d'Intertek pour le marché Nord-Américain certifie que l'appareil visé a été testé par Intertek et reconnu conforme aux exigences applicables en matière de sécurité électrique en vigueur au Canada et aux États-Unis.

Le marquage CE indique que l'appareil visé est conforme aux exigences essentielles des directives applicables de l'Union européenne en matière de sécurité électrique, de compatibilité électromagnétique et de conformité environnementale.

Le symbole ci-contre sur un appareil Grass Valley ou à l'intérieur de l'appareil indique qu'il est conforme aux normes applicables en matière de sécurité laser.

Avertissements

Les avertissements signalent des conditions ou des pratiques susceptibles d'occasionner des blessures graves, voire fatales. Veuillez vous familiariser avec les avertissements d'ordre général ci-dessous :

- Un cordon d'alimentation dûment homologué doit être utilisé pour connecter l'appareil à une tension de secteur de 120 V CA ou 240 V CA.
- La protection de ce produit contre les courts-circuits (surintensités) dépend de l'installation électrique du bâtiment. Assurez-vous qu'un fusible ou un disjoncteur pour 120 V CA ou 240 V CA est utilisé sur les conducteurs de phase.
- Dans le présent manuel, toutes les instructions qui nécessitent d'ouvrir le couvercle de l'équipement sont destinées exclusivement au personnel technique qualifié.
- N'utilisez pas cet appareil dans un environnement humide.
- Cet équipement est mis à la terre par le conducteur de mise à la terre des cordons d'alimentation. Pour éviter les chocs électriques, branchez les cordons d'alimentation sur une prise correctement câblée avant de brancher les entrées et sorties de l'équipement.
- Acheminez les cordons d'alimentation et autres câbles de façon à ce qu'ils ne risquent pas d'être endommagés. Supportez correctement les enroulements de câbles afin de ne pas endommager les connecteurs.
- Coupez l'alimentation avant de nettoyer l'équipement. Ne pas utiliser de nettoyants liquides ou en aérosol. Utilisez uniquement un chiffon humide.
- Des tensions dangereuses peuvent exister en plusieurs points dans cet équipement. Pour éviter toute blessure, ne touchez pas aux connexions ou aux composants exposés lorsque l'appareil est sous tension.
- Avant de procéder à toute opération d'entretien ou de dépannage, enlevez tous vos bijoux (notamment vos bagues, votre montre et autres objets métalliques).
- Pour éviter tout risque d'incendie, utilisez uniquement les fusibles du type et du calibre indiqués sur l'équipement ou dans la documentation qui l'accompagne.
- Ne pas utiliser cet appareil dans une atmosphère explosive.
- Présence possible de courants de fuite. Un raccordement à la masse est indispensable avant la mise sous tension.
- Après tout travail d'entretien ou de réparation, faites effectuer des contrôles de sécurité par le personnel technique qualifié.

Mises en garde

Les mises en garde signalent des conditions ou des pratiques susceptibles d'endommager l'équipement. Veuillez vous familiariser avec les mises en garde ci-dessous :

- L'appareil est conçu pour être installé dans un endroit à accès restreint.
- Au moment d'installer l'équipement, ne fixez pas les cordons d'alimentation aux surfaces intérieures de l'édifice.
- Les produits qui n'ont pas d'interrupteur marche-arrêt et qui disposent d'une source d'alimentation externe doivent être installés à proximité d'une prise de courant facile d'accès.
- Si l'équipement n'est pas pourvu d'un modules d'alimentation auto-adaptables, vérifiez la configuration de chacun des modules d'alimentation avant de les mettre sous tension.
- Assurez une ventilation adéquate. Pour éviter toute surchauffe du produit, assurez une ventilation de l'équipement conformément aux instructions d'installation.
- N'utilisez pas l'équipement si vous suspectez un dysfonctionnement du produit. Faites-le inspecter par un technicien qualifié.
- Pour réduire le risque de choc électrique, n'effectuez pas de réparations autres que celles qui sont décrites dans le présent manuel, sauf si vous êtes qualifié pour le faire. Confiez les réparations à un technicien qualifié. La maintenance doit se réaliser dans un milieu libre d'électricité statique.
- L'appareil peut comporter plus d'un cordon d'alimentation. Afin de prévenir les chocs électriques, débrancher tous les cordons d'alimentation avant toute opération d'entretien.
- Veillez à toujours prendre les mesures de protection antistatique appropriées quand vous manipulez l'équipement.

Protection contre les décharges électrostatiques (DES)

Une décharge électrostatique peut se produire lorsque des composants électroniques ne sont pas manipulés de manière adéquate, ce qui peut entraîner des défaillances intermittentes ou endommager irrémédiablement un circuit électrique. Au moment de remplacer une carte dans un châssis, prenez toujours les mesures de protection antistatique appropriées :

- Assurez-vous que le châssis est relié électriquement à la terre par le cordon d'alimentation ou tout autre moyen disponible.
- Portez un bracelet antistatique et assurez-vous qu'il est bien en contact avec la peau. Connectez la pince de masse à une *surface non peinte* du châssis pour détourner à la terre toute tension électrostatique indésirable. En l'absence de bracelet antistatique, déchargez l'électricité statique de votre corps en touchant une surface métallique *non peinte* du châssis.
- Pour plus de sécurité, vérifiez périodiquement la valeur de résistance du bracelet antistatique. Elle doit se situer entre 1 et 10 mégohms.
- Si vous devez mettre une carte de côté, assurez-vous de la ranger dans un sac protecteur antistatique.

- Les cartes qui sont reliées à un châssis ou boîtier métallique mis à la terre ne nécessitent pas de protection antistatique spéciale.

Recycling

Visit www.grassvalley.com for recycling information.

Certification and Compliance

Safety Compliance

This equipment complies with the requirements of UL 60950-1, 2nd Edition, 2007, and CAN/CSA-22.2 No. 60950-1, 2nd Edition, 2007.

The power cord supplied with this equipment meets the appropriate national standards for the country of destination.

Electromagnetic Compatibility

This equipment has been tested for verification of compliance with FCC Part 15, Subpart B requirements for class A digital devices.

Note: 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.

This equipment has been tested and found to comply with the requirements of the EMC directive 2004/108/EC:

- EN 55022 Class A Radiated and conducted emissions
- EN 61000-3-2 Limits for harmonic current emissions
- EN 61000-3-3 Limitation of voltage fluctuations and flicker
- EN 61000-4-2 Electrostatic discharge immunity
- EN 61000-4-3 Radiated, radio-frequency, electromagnetic field immunity
- EN 61000-4-4 Electrical fast transient immunity
- EN 61000-4-5 Surge transient immunity
- EN 61000-4-6 Conducted disturbances immunity
- EN 61000-4-11 Voltage dips, short interruptions and voltage variations immunity

Audio Bridge Terminal

The Audio Bridge Terminal (ABT) is an external audio multiplexer/serializer for the Kaleido-X, Kaleido-X16, Kaleido-Modular-X, and Kaleido-MX multiviewer models. It offers highly space-efficient monitoring of up to 768 discrete audio channels.

Summary

Introduction

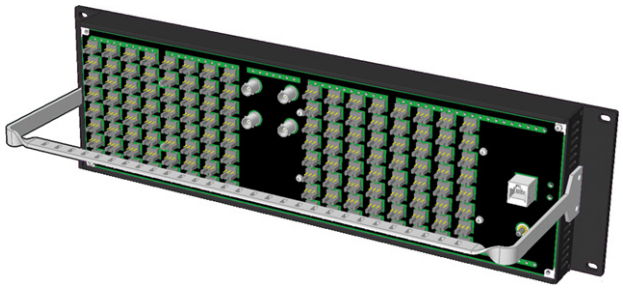
Kaleido-X, Kaleido-X16, Kaleido-Modular-X, and Kaleido-MX multiviewers support embedded audio in SDI signals, but there are cases when embedded audio is not available (e.g. analog inputs, or not embedded) or extra audio inputs are required. The ABT provides connector space for the audio signal inputs, and multiplexes all the audio signals into combined serial feeds on coaxial cables that connect to the multiviewer.

Features include:

- Up to 128 channels of audio processing (depending on model)
- Analog or digital audio inputs
- Dual redundant SDTI outputs on standard video coaxial cable
- Internal tone generator
- 0 dBFS adjustments on analog inputs
- Locks to video, AES or Word clock reference (48 kHz only)
- Compatible with non-PCM signals
- Complies with IEEE 802.3af standard for Powered Over Ethernet devices
- Occupies 3 rack units, 4 cm (1.57 in) width (plus connectors)
- Can fit in the back of racks
- Can be located up to 250 m (800 ft) away from the multiviewer

Description

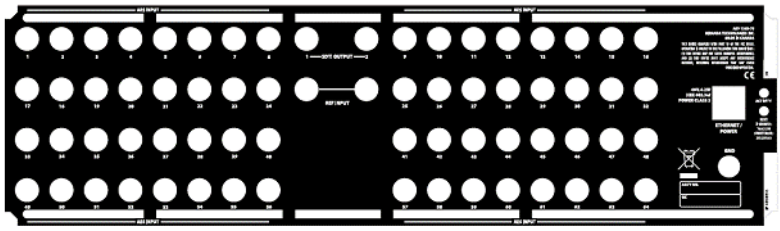
The ABT is designed to mount in a standard 19 in rack, and is 3 RU high. All connections are from the rear.



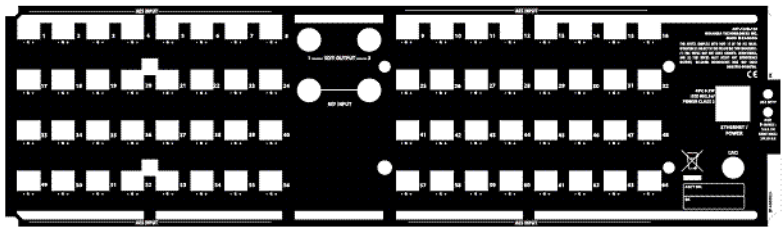
Audio Bridge Terminal - rear view

There are 6 different models of the ABT, based on signal/connector type and capacity:

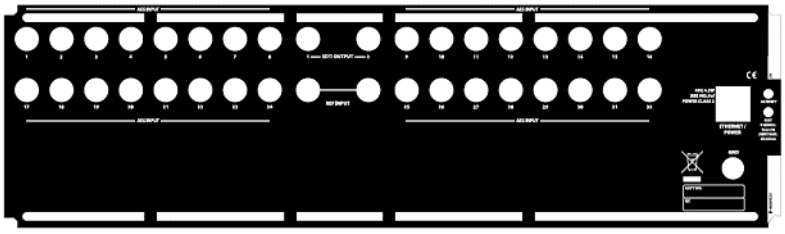
Model	Characteristics
ABT-128D-110	128 digital (64 AES) inputs on WECO connectors (balanced, 110 Ω impedance)
ABT-64D-110	64 digital (32 AES) inputs on WECO connectors (balanced, 110 Ω impedance)
ABT-128D-75	128 digital (64 AES) inputs on BNC connectors (unbalanced, 75 Ω impedance)
ABT-64D-75	64 digital (32 AES) inputs on BNC connectors (unbalanced, 75 Ω impedance)
ABT-128A	128 analog inputs on WECO connectors (balanced, 20 kΩ impedance)
ABT-64A	64 analog inputs on WECO connectors (balanced, 20 kΩ impedance)



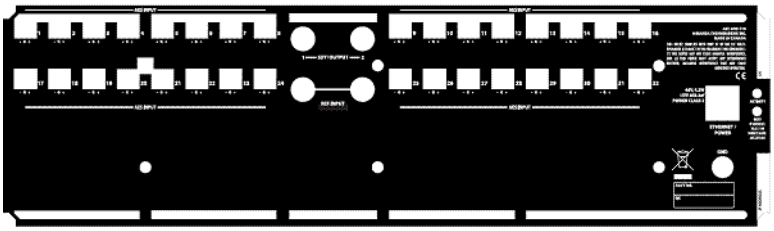
ABT-128D-75 rear panel layout



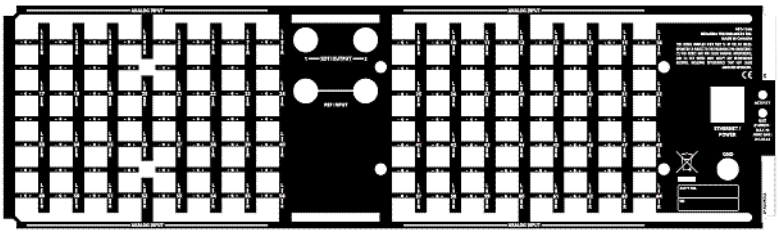
ABT-128D-110 rear panel layout



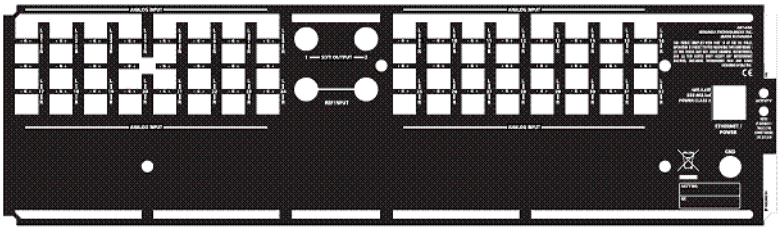
ABT-64D-75 rear panel layout



ABT-64D-110 rear panel layout



ABT-128A rear panel layout



ABT-64A rear panel layout

Connections

Audio Inputs

The number and configuration of the audio inputs depends on the specific model of ABT you are using.

Reference Input (Looped Through)

An external reference signal is required to synchronize the SDTI outputs. An analog video reference signal, word clock or AES-75 signal can be connected to one of the REFERENCE SIGNAL connectors. If the loop-through is not used, a 75 Ω termination on the other REFERENCE SIGNAL connector must be used to properly terminate the line.

For an Audio Bridge Terminal with an AES breakout panel, AES INPUT 1 can also be used for synchronization. This input signal must be error-free PCM audio sampled at 48 kHz. In the case where both REFERENCE SIGNAL and AES INPUT 1 have valid references, the signal connected to REFERENCE SIGNAL has priority.

Multiplexed Audio Outputs

The multiplexed audio outputs are formatted to be compatible with the STDI audio input connections on the KXI-16 series of cards.

The Serial Digital Transport Interface (SDTI) uses the Serial Digital Interface (SDI) developed to transport digital video signals as a carrier for other data types. It requires that the transmitter and receiver have the same codec.

Ethernet/Power

The power for the ABT arrives on an RJ-45 connector, and shares this connector with an Ethernet interface. The ABT conforms to the IEEE 802.3af standard for powered devices

Two kinds of power sources are supported:

- midspan power source injector into an existing Ethernet network,
- power sourcing Ethernet switch.

Full redundancy is obtained with both supplies present at the same time.

Indicators

The ACTIVITY indicator is located on the right-hand side of the rear panel. This LED reports the status of the Ethernet connection as follows:

Color	Board Status
Off	No link detected
Green	Normal (good link)
Orange	Activity
Red	Hardware fault
Flashing Red	Upgrading firmware

Two LEDs are visible on the front panel, one for each power supply. When lit, they both indicate the same status:

Color	Board Status
Green	Normal
Flashing Green	Normal, rebooting
Orange	Warning
Flashing Orange	Warning, rebooting
Red	Hardware fault
Flashing Red	Upgrading firmware

When the ABT is powered up, all three LEDs will be orange until the boot sequence is terminated. This is a visual indicator that the LEDs are functioning properly.

Controls

The RESET button is located on the right-hand side of the ABT rear panel.

Push the RESET button to reset the ABT's IP address to a default value:

IP address	10.0.3.190
Subnet mask	255.255.0.0

This simplifies the process of connecting to the ABT via its Ethernet connection. The process is described in more detail in Web Interface, on page 6.

Operation

Synchronization

An external reference signal is required to synchronize the SDTI outputs. An analog video reference signal, word clock or AES-75 signal can be connected to one of the REFERENCE SIGNAL connectors. If the loop-through is not used, a 75 Ω termination on the other REFERENCE SIGNAL connector must be used to properly terminate the line.

For an Audio Bridge Terminal with an AES breakout panel, AES INPUT 1 can also be used for synchronization. This input signal must be error-free PCM audio sampled at 48 kHz. In the case where both REFERENCE SIGNAL and AES INPUT 1 have valid references, the signal connected to REFERENCE SIGNAL has priority.

SDTI Link

The two SDTI outputs are identical, each including signals from all inputs. Each SDTI output can be connected to a multiviewer SDTI input or to a specific SDTI de-multiplexer. Depending on the number of input connections available, this link transports up to 128 channels of audio. The SDTI streams transport the current IP address of the Audio Bridge Terminal to the receiver. The connection via TCP/IP will give access to the different parameters and status.

Audio Inputs

Analog Audio Inputs

The analog channels pass through analog to digital converters with 24 bit resolution and a 48 kHz sample rate. To compensate the level of the analog signal, the 0 dBFS value may be set from +24 dBu to -7 dBu for each channel through the Web page interface.

Digital Audio Inputs

The ABT operates on at 48 kHz-sampled audio signals, and inputs at different sampling rates may not be processed satisfactorily. The validity, user and channel status bits are transmitted alongside the PCM samples. The input error status detected by the digital input

receiver can be monitored by the Web page interface. The non-PCM data will pass unchanged.

Web Interface

To access the Web interface, the ABT must be connected to a local area network (LAN). If the unit's IP address is known, you can access the built-in Web server by entering the address in a Web browser connected to the same network.

If the IP address is not known, it is possible to reset the unit's network configuration. You must set up a simple LAN comprised of:

- one PC running a Web browser
- the ABT to be configured
- a switch for interconnection.

To connect the ABT to the LAN

1 Connect the PC to the switch.

2 Set the PC network configuration with the following parameters:

Parameter	Value
DHCP	OFF
Static IP address	10.0.0.1
Subnet mask	255.255.0.0
Default gateway	10.0.0.1

3 Apply power to the ABT and make sure it is connected to the switch.

> Note: If the switch is Power over Ethernet (PoE) enabled, simply connect it to the unit using an Ethernet cable. If not, PoE mid-span ('inserter') equipment must be placed between the switch and the Audio Bridge Terminal.

4 Press the RESET button for at least 1 second.

> Note: The RESET button is beside the ETHERNET/POWER RJ-45 connector.

The ABT will reboot with the following static network configuration:

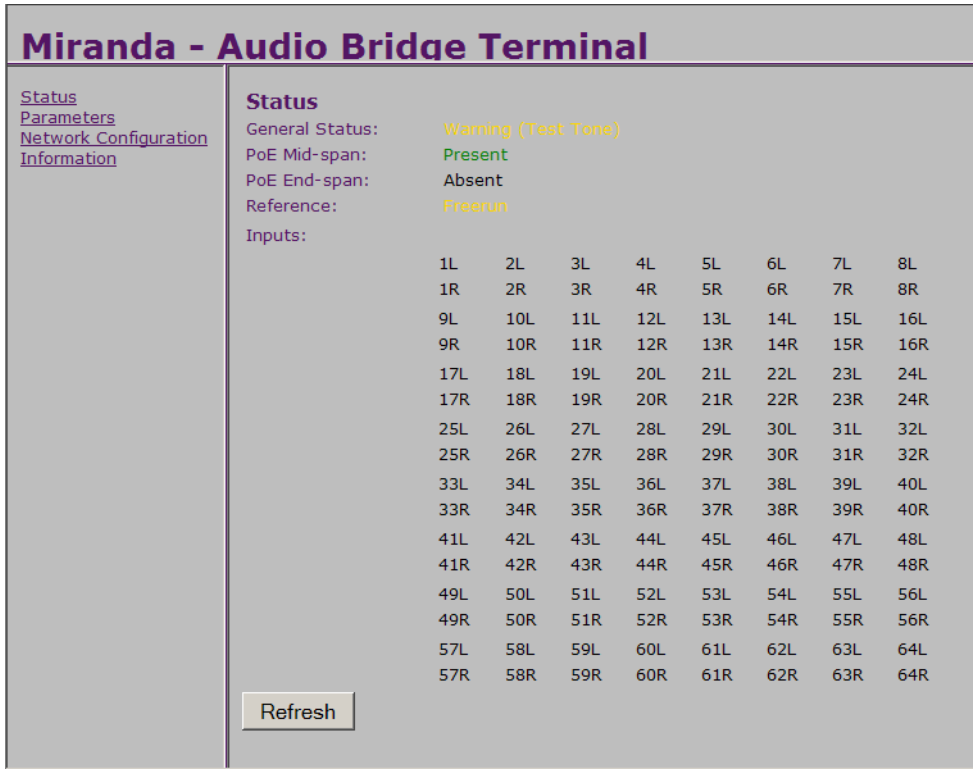
Parameter	Value
DHCP	OFF
Static IP address	10.0.3.190
Subnet mask	255.255.0.0
Default gateway	10.0.0.1

5 Type the IP address "10.0.3.190" in the browser's address bar to connect to the ABT unit.

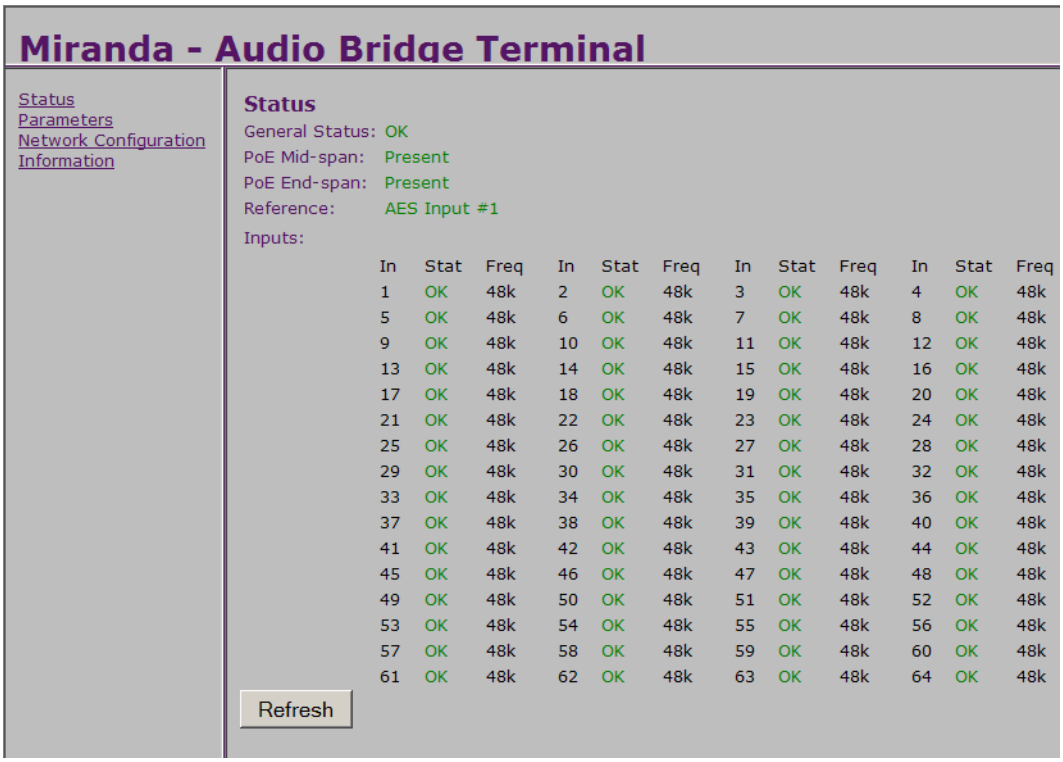
The Web server serves the Web pages that allow monitoring and configuration of the parameters. You can access these pages by clicking on the links on the left side of the current page.

The individual pages are described in the following sections.

Status Web Page



ABT-128A Status Web page



In	Stat	Freq	In	Stat	Freq	In	Stat	Freq	In	Stat	Freq
1	OK	48k	2	OK	48k	3	OK	48k	4	OK	48k
5	OK	48k	6	OK	48k	7	OK	48k	8	OK	48k
9	OK	48k	10	OK	48k	11	OK	48k	12	OK	48k
13	OK	48k	14	OK	48k	15	OK	48k	16	OK	48k
17	OK	48k	18	OK	48k	19	OK	48k	20	OK	48k
21	OK	48k	22	OK	48k	23	OK	48k	24	OK	48k
25	OK	48k	26	OK	48k	27	OK	48k	28	OK	48k
29	OK	48k	30	OK	48k	31	OK	48k	32	OK	48k
33	OK	48k	34	OK	48k	35	OK	48k	36	OK	48k
37	OK	48k	38	OK	48k	39	OK	48k	40	OK	48k
41	OK	48k	42	OK	48k	43	OK	48k	44	OK	48k
45	OK	48k	46	OK	48k	47	OK	48k	48	OK	48k
49	OK	48k	50	OK	48k	51	OK	48k	52	OK	48k
53	OK	48k	54	OK	48k	55	OK	48k	56	OK	48k
57	OK	48k	58	OK	48k	59	OK	48k	60	OK	48k
61	OK	48k	62	OK	48k	63	OK	48k	64	OK	48k

ABT-128D Status Web page

The *Status* Web page reports the status of several aspects of the ABT unit.

General Status: the overall status of the unit, as also reported by the front panel LED:

Text	Text color	LED color
OK	Green	Green
Warning	Orange	Orange
Hardware Error	Red	Red
Upgrading	Bold Red	Flashing Red

PoE Mid-span: reports whether PoE mid-span equipment is Present (green text) or absent (normal text)

PoE End-span: reports whether PoE end-span equipment is Present (green text) or absent (normal text)

Reference: reports the status of the reference used for input signal synchronization:

Text	Text color	Interpretation
Freerun	Orange	No reference present
format name	Normal	Identifies the reference that is present.

The supported reference signal formats are the following:

Video	NTSC	PAL	720p50
	720p59.94	720p60	1080i50
	1080i59.94	1080/60i	1080PsF23.98
	1080PsF24	1080p23.98	1080p24
	1080p25	1080p29.97	1080p30
Audio	AES75	Word clock	AES input 1

Note: All HD reference signals are analog with tri-level sync

Inputs: reports the status of each of the audio inputs to the ABT.

The page content for Input Status varies depending on the model of ABT being monitored. The number of inputs varies with the model. In addition, analog and digital inputs are reported differently.

Note: Analog inputs show channel number only.

Analog Input Status	Text Color
OK[a]	Normal
Overload	Red

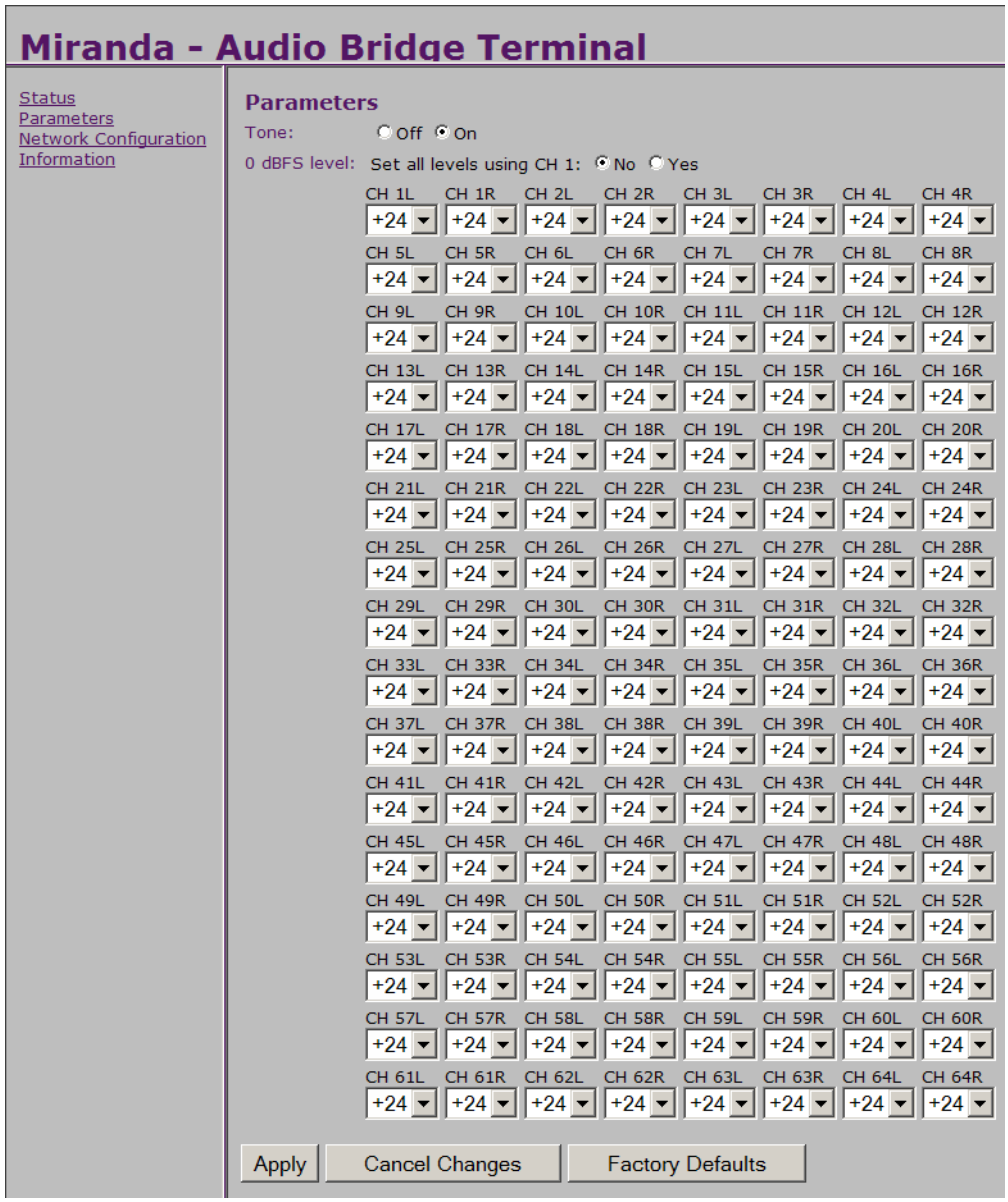
a. Silence is reported as OK in this context.

Digital Input Status	Text Color
OK	Green
Validity, CRCC errors	Yellow
Parity, Biphase errors	Orange
No lock	Red

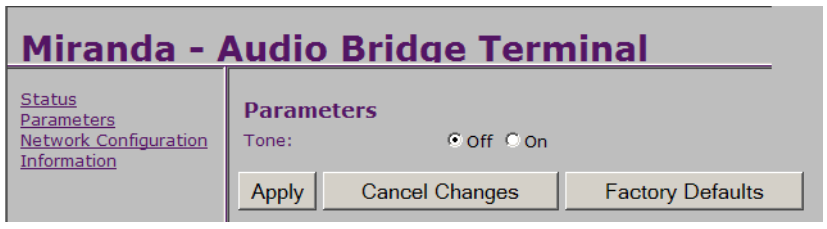
Digital Input Channel	Text Color
OK	Normal
Overload	Red

Here are sample pages showing the treatment of analog (ABT-128A) and digital (ABT-128D) inputs.

Parameters Web Page



ABT-128A Parameters page



ABT-128D Parameters page

The *Parameters* page allows the configuration of different parameters:

- The **Tone** parameter activates or deactivates the EBU test tone applied simultaneously to all channels. The odd channel will be a 1 kHz sine wave at -18 dBFS with a period of silence lasting 250 ms every 3 seconds. The even channel will be a continuous 1 kHz sine wave at -18 dBFS.
- The **0 dBFS level** parameters are available for an ABT with analog inputs. They allow the adjustment of the 0 dBFS level for each input. The number of inputs depends on the model. In the case where all inputs must be set to the same level, click **Yes** beside **Set all levels using CH 1**.

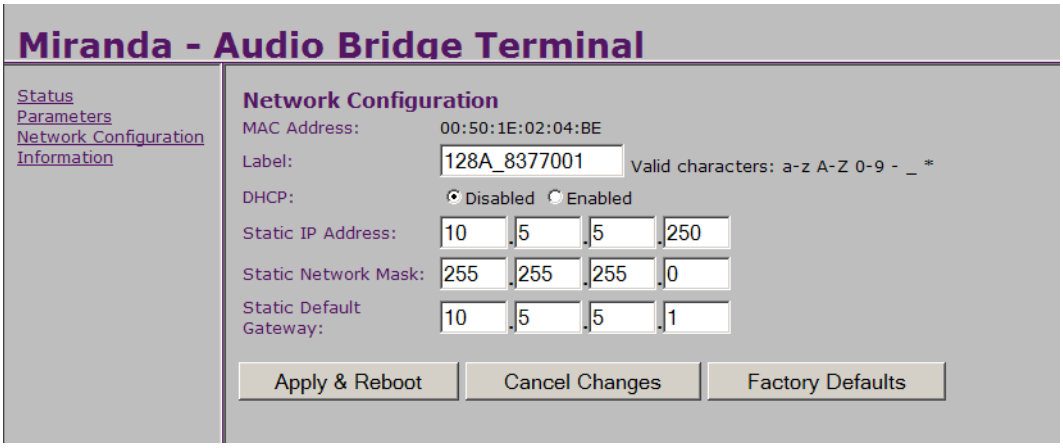
The changes take effect when you click **Apply**.

> Note: If changes to parameters are made before clicking **Apply** and the user wishes to reestablish the values displayed when the page was loaded, this can be done by clicking **Cancel Changes**.

Finally, factory default values for all parameters on this page can be displayed by clicking **Factory Defaults**.

The Audio level adjustments are not applicable to ABT models with digital inputs and do not appear on the Web page.

Network Configuration Web Page



The *Network Configuration* page allows you to configure network parameters.

The **MAC address** is the unique hardware address attributed to each Audio Bridge Terminal unit. Each unit has a different address, this being the only way to distinguish the units from each other when connected to a network.

The **Label** parameter gives the unit a label. The label is found in the title of the Web page. It can contain up to 16 characters. Valid characters are from the English alphabet (lowercase a through z, uppercase A through Z), numbers 0 through 9, the hyphen (-), the underscore (_) and the asterisk (*). If an invalid character is used, an error message will appear. The same label can be used by many units.

The **DHCP** parameter activates or deactivates dynamic network addressing. When activated, it allows a server to dynamically attribute an IP address and configuration information to the Audio Bridge Terminal. Normally the DHCP server provides at least the

following basic information: IP address, subnet mask and default gateway. When **Enabled** is chosen, the static network parameters become unavailable.

> Note: When DHCP is enabled, the Audio Bridge Terminal will try to obtain an IP address dynamically after booting/rebooting. If successful, the new IP address, subnet mask and default gateway can only be known by the equipment receiving the SDTI signal because the network configuration addresses are embedded in the Source Address field of the Header Data of the stream (refer to SMPTE 305.2M-2000). If unsuccessful, the static network configuration will be used but DHCP will remain enabled. If the unit is rebooted and a DHCP server responds, it will then use the dynamic network configuration provided by the server.

The **Static IP Address** parameter is the IP address used when DHCP is disabled or unsuccessful.

The **Static Network Mask** parameter is the network mask used when DHCP is disabled or unsuccessful.

The **Static Default Gateway** parameter is the default gateway used when DHCP is disabled or unsuccessful.

At any time, it is possible to return to a known static network configuration by pressing the reset button for at least 1 second. It can found in a small hole named RESET just beside the ETHERNET/POWER RJ-45 connector. The ABT will reboot with the following default static network configuration:

Parameter	Value
DHCP	Disabled
IP address	10.0.3.190
Subnet mask	255.255.0.0
Default gateway	10.0.0.1

> Note: The changes are applied when you click **Apply & Reboot**. A new Web page appears reminding the new IP address if DHCP is disabled.

If changes to parameters are made before clicking **Apply & Reboot** and the user wishes to re-establish the values displayed when the page was loaded, this can be done by clicking **Cancel Changes**.

Finally, factory default values for all parameters on this page can be displayed by clicking **Factory Defaults**. The default Label is comprised of the ABT type (number of channels and the letter A for analog inputs or D for AES inputs) followed by the last part of its serial number. The default network configuration is the same as the one obtained by pressing the RESET button near the ETHERNET/POWER RJ-45 connector. Click **Cancel Changes** to return to the values displayed when the page was loaded. Click **Apply & Reboot** to apply the displayed values. The unit then reboots.

Information Web Page

The *Information* Web page gives model and version information.

- The model is made up of "ABT-" followed by the number of channels and the letter A for analog inputs or D for AES inputs.
- The serial number is the serial number of this ABT unit.
- The firmware version is the current firmware version. The device connected to this ABT will check the version before updating the firmware.

Firmware Updates

Firmware updates for the ABT are issued occasionally, with the release of a new version of the Kaleido-X Software. The firmware update package, including the MIU utility, is provided on the Kaleido-X upgrade DVD, or can be obtained by contacting Grass Valley Technical Support.

To determine if you need to update your ABT, check its firmware version (see Information Web Page, on page 13), and compare it with the version of the firmware update file (see the *Software and Firmware* section, in the Kaleido-X Release Notes).

The firmware of the ABT can be updated over its Ethernet connection.

Notes

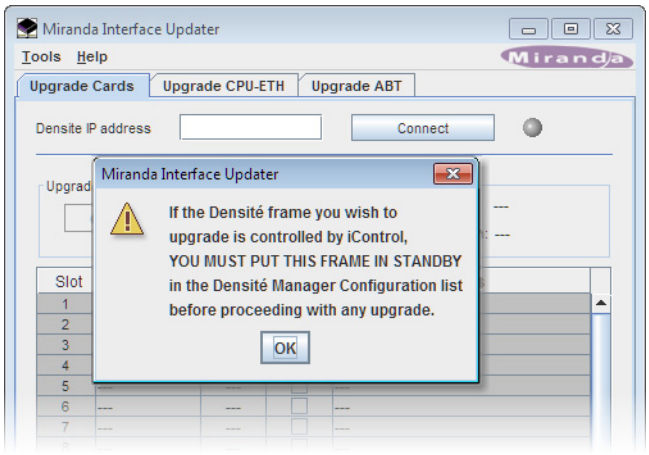
- Before starting the upgrade procedure, make sure there is no other device or application connected to the ABT unit. Close any Web browser or any instance of the XEdit application connected to the ABT.
- You need to have the Java Runtime Environment version 1.4.2 or later installed on your client PC or laptop.

The Miranda Interface Updater is stored on the Kaleido-X upgrade DVD in a folder named `ABT Upgrade`. The folder contains a JAR file (`MIU.jar`) with the Miranda Interface Updater (MIU) utility, and a ZIP archive (`7796-0101-109.zip`) with the latest firmware for your ABT.

To update the ABT's firmware

1 Open `MIU.jar` to launch the Miranda Interface Updater (MIU) utility.

A warning message appears.



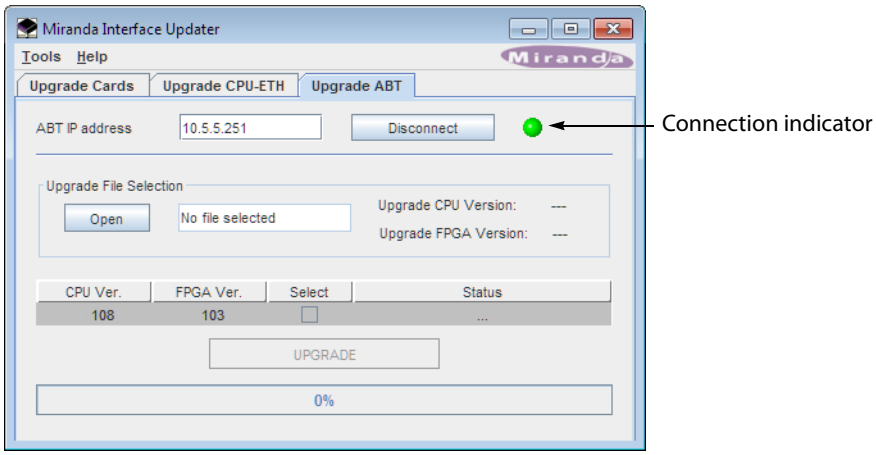
2 Click OK to dismiss the warning message.

> Note: MIU is also used to upgrade firmware on Densité cards. The initial warning message that appears is only relevant in the context of updating Densité cards. You can safely ignore it.

3 In **Miranda Interface Updater**, click the **Upgrade ABT** tab.

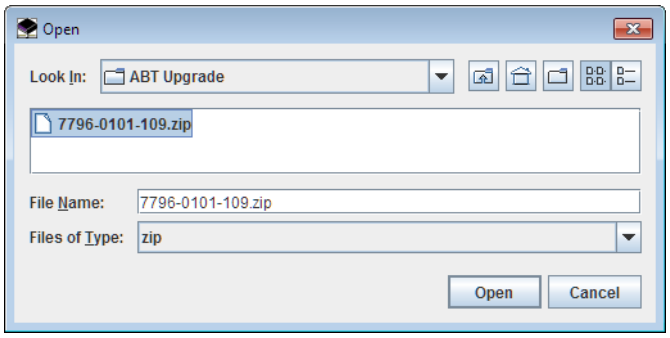
4 Type the IP address of the ABT unit you wish to upgrade in the **ABT IP address** box, and then click **Connect**.

The connection indicator turns green, and the **Open** button becomes available:



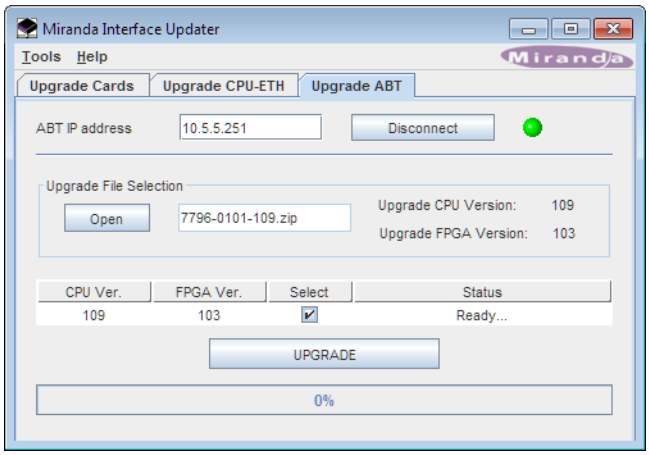
5 Click **Open**.

6 Navigate to the `ABT Upgrade` folder on the DVD, click the ZIP archive that contains the ABT firmware update, and then click **Open**:



If the ZIP file is valid, the CPU and FPGA versions of the firmware appear, and the **Select** check box becomes available.

7 Select the **Select** check box:



The **UPGRADE** button becomes available.

> IMPORTANT
> Do not interrupt the upgrade process. This could corrupt the firmware and render the ABT inoperative.

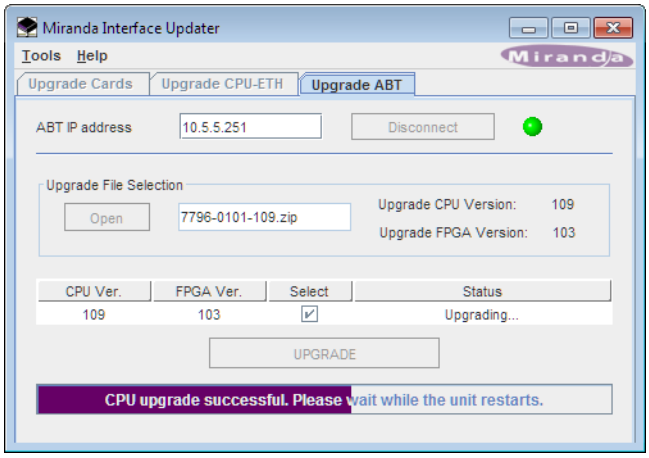
8 Click **UPGRADE**.

A confirmation message appears.

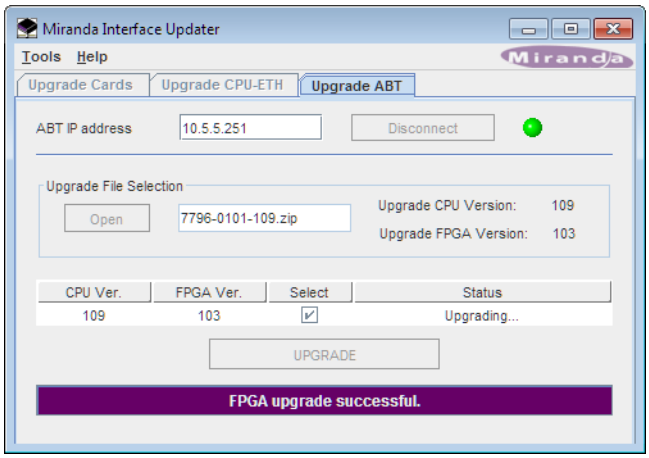
9 Click **Yes** to proceed with the upgrade.

> Note: On the ABT's front panel, LEDs will flash red during the file transfer and upgrade.

The CPU is upgraded first. Once the CPU upgrade has completed, the ABT restarts automatically. This may take 20 seconds, during which a message is shown in the progress area of the window.

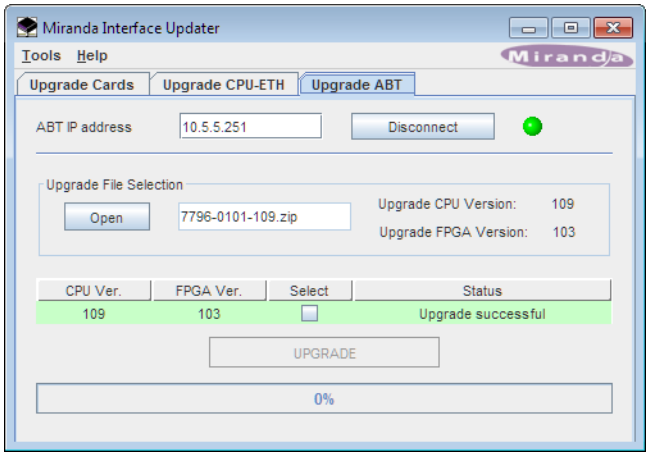


The FPGA is upgraded next. Once the FPGA upgrade has completed, the ABT restarts again, during which a message is shown in the progress area.



Once the ABT has restarted, the message “Upgrade successful” appears under **Status**, and operation resumes using the new firmware. Settings are not modified.

10 Click **Disconnect**.



Note: If the upgrade failed, click **Disconnect**, restart the ABT unit, and then follow the upgrade procedure again.

Specifications

Analog audio inputs

Signal	20 k Ω balanced, 10 k Ω unbalanced
Maximum level	+24 dBu
Connectors	WECO

Digital audio inputs

AES3	
Level	0.2 to 7 V
Termination	110 Ω balanced
Quantization	Up to 24 bits
Connectors	WECO

AES-3ID	
Level	0.2 to 2 V
Return loss	15 dB
Quantization	Up to 24 bits
Termination	75 Ω unbalanced
Connectors	BNC

Processing performance

Number of channels	ABT-128D: 128 (64 AES)
	ABT-128A: 128
	ABT-64D: 64 (32 AES)
	ABT-64A: 64
Quantization	24 bits
Sampling	48 kHz
SNR	100 dB A Weighted
THD+n	ABT-128A: < -86.5 dB (20 to 997 Hz), < -82 dB (7 kHz)
	ABT-128D: -138 dB (20 Hz to 24 kHz)
0 DBFS	+24 dBu, adjustable to -7 dBu with 1 dB steps
Frequency response	20 Hz to 24 kHz ±0.2 dB

Processing performance *(continued)*

CMRR	38 dB @ 60 Hz, 38 dB @ 20 kHz
Test tone generator	-18 dBFs, 24 bit, 1 KHz sine wave interrupted on left channel on every pair (250 ms / 3 s) EBU R49

Reference Input

Signal (1)	SMPTE 170M / ITU 624-4 composite sync
	SMPTE 274M / SMPTE 296M tri-level sync
	AES3id DARS

Word clock	
Connector	BNC

SDTI Outputs

Signal (2)	SMPTE 305.2M
Connectors	BNC

AES3 Output

Output level	2.7 p-p

AES3id Output

Output level	2.7 p-p

Miscellaneous

Communication port	10BASE-T (IEEE 802.3i), 100BASE-T (IEEE 803.2u)
Power	4 to 10 W depending on model, Power over Ethernet (IEEE 802.3af)
Connector	RJ-45
Operating temperature	5–40°C (41–104°F) (ambient)

Physical Dimensions

Height	3 RU
Depth	145 mm (5.75 in)

Contact Us

Grass Valley Technical Support

For technical assistance, contact our international support center, at 1-800-547-8949 (US and Canada) or +1 514 333 1772.

To obtain a local phone number for the support center nearest you, please consult the Product Support section of Grass Valley's Web site, at `http://www.grassvalley.com/support/contact`.

An online form for e-mail contact is also available from the Web site.

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