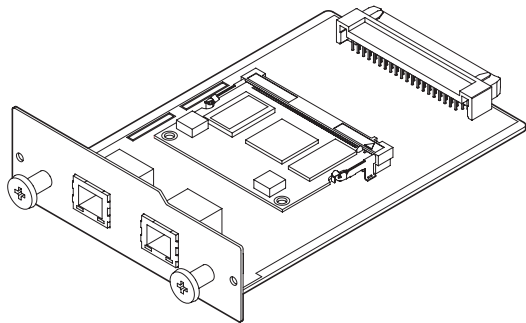


# TASCAM

# IF-DA64

## Dante Interface CARD

D01275800B



OWNER'S MANUAL

ENGLISH

MODE D'EMPLOI

FRANÇAIS

MANUAL DEL USUARIO

ESPAÑOL

BEDIENUNGSANLEITUNG

DEUTSCH

MANUALE DI ISTRUZIONI

ITALIANO

取扱説明書

日本語

- TASCAM is a trademark of TEAC CORPORATION, registered in the U.S. and other countries.
- Audinate®, the Audinate logo and Dante are trademarks of Audinate Pty Ltd.  
[www.audinate.com/patents](http://www.audinate.com/patents)
- Other company names, product names and logos in this document are the trademarks or registered trademarks of their respective owners.

## ティアック株式会社

<https://tascam.jp/jp/>

〒206-8530 東京都多摩市落合1-47

---

TEAC AMERICA, INC.

<http://tascam.com/>

Phone: +1-323-726-0303

1834 Gage Road, Montebello, California 90640

USA

---

**2** TASCAM IF-DA64

TEAC UK Ltd.

<http://tascam.eu/>

Phone: +44-8451-302511

2 Huxley Road, Surrey Research Park, Guildford,  
GU2 7RE, United Kingdom

---

TEAC EUROPE GmbH

<http://tascam.eu/>

Phone: +49-611-71580

Bahnstrasse 12, 65205 Wiesbaden-Erbenheim,  
Germany

---

TEAC SALES & TRADING(SHENZHEN) CO.,  
LTD

Phone: +86-755-88311561~2

Room 817, Block A, Hailrun Complex, 6021

Shennan Blvd., Futian District, Shenzhen 518040,  
China

# OWNER'S MANUAL

## IMPORTANT SAFETY PRECAUTIONS

### For U.S.A.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### INFORMATION TO THE USER

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### CAUTION

Changes or modifications to this equipment not expressly approved by TEAC CORPORATION for compliance could void the user's authority to operate this equipment.

### For the customers in Europe

#### WARNING

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

### For Canada

THIS CLASS A DIGITAL APPARATUS COMPLIES WITH CANADIAN ICES-003.CET

### DECLARATION OF CONFORMITY

We, TEAC EUROPE GmbH, Bahnstrasse 12, 65205 Wiesbaden-Erbenheim, Germany declare in own responsibility, the TEAC product described in this manual is in compliance with the corresponding technical standards.



### CE Marking Information

EN55103-1/2

a) Applicable electromagnetic environment: E4

---

## IMPORTANT SAFETY INSTRUCTIONS

---

- If you are experiencing problems with this product, contact TEAC for a service referral. Do not use the product until it has been repaired.

### ■ For European Customers

#### Disposal of electrical and electronic equipment

- All electrical and electronic equipment should be disposed of separately from the municipal waste stream via designated collection facilities appointed by the government or the local authorities.
- By disposing of the electrical and electronic equipment correctly, you will help save valuable resources and prevent any potential negative effects on human health and the environment.
- Improper disposal of waste equipment can have serious effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment.
- The crossed out wheeled dust bin symbol indicates that electrical and electronic equipment must be collected and disposed of separately from household waste.
- The return and collection systems are available to the end users. For more detailed information about disposal of old electrical and electronic equipment, please contact your city office, waste disposal service or the shop where you purchased the equipment.



---

## Contents

---

IMPORTANT SAFETY PRECAUTIONS .....	3
IMPORTANT SAFETY INSTRUCTIONS .....	4
Introduction .....	5
Features of these cards.....	5
Models compatible for installation.....	5
Installation procedure overview.....	6
Included items.....	6
Using the TEAC Global Site .....	6
User registration .....	6
Updating the firmware.....	7
Notes about Dante.....	7
Names and functions of parts.....	7
Rear panel.....	7
Connecting to a Dante network .....	8
Switched (daisy chain) connection .....	9
Redundant connection.....	9
Synchronizing with clock from a source other than the Dante network.....	10
Using Dante Controller.....	11
Dante Controller overview.....	11
Audio routing settings.....	11
Changing sampling frequencies and bit depths with Dante Controller.....	12
Specifications.....	14
Ratings.....	14
Input/output ratings.....	14
Other.....	14
Dimensional drawings.....	14

---

## Introduction

---

Thank you very much for purchasing a TASCAM IF-DA64 Dante interface card.

Before connecting and using this card, please take time to read this manual thoroughly to ensure you understand how to properly set it up and connect it, as well as the operation of its many useful and convenient functions. After you have finished reading this manual, please keep it in a safe place for future reference.

You can also download this Owner's Manual from the TEAC Global Site (<http://teac-global.com/>).

---

## Features of these cards

---

- Capable of sending and receiving uncompressed digital audio signals
  - 44.1/48kHz, 24-bit: 64 channels maximum
  - 88.2/96kHz, 24-bit: 32 channels maximum
- Supports redundant network connections with two RJ-45 connectors (PRIMARY, SECONDARY)

---

## Models compatible for installation

---

Before installing this card, check the TEAC Global Site (<http://teac-global.com/>) for the latest information about the models in which it can be installed.

---

## Installation procedure overview

---

- For installation procedures, see the Owner's Manual for the unit in which you will install the card.
- Before installing or removing this card, disconnect the power cord from the unit it is installed in.
- Before installing the card, confirm that the red daughterboard is inserted all the way into the connector.
- Securely tighten the attachment screws on the right and the left of the card before use.

---

## Included items

---

This product includes the following items.

Keep the box and packing materials for transportation in the future.

Please contact TASCAM Customer Support (see back cover) if any of these items are missing or have been damaged during transportation.

- Main unit..... × 1
- Owner's Manual (this document) including warranty..... × 1

---

## Using the TEAC Global Site

---

You can download this Owner's Manual and the Reference Manual necessary for this unit from the TEAC Global Site (<http://teac-global.com/>).

1. Open the TEAC Global Site (<http://teac-global.com/>).
2. In the TASCAM Downloads section, click the desired language to open the Downloads website page for that language.

### NOTE

*If the desired language does not appear, click Other Languages.*

3. Click the product name in the "Search by Model Name" section to open the Downloads page for that product.
4. Select and download the Owner's Manual and the Reference Manual that are needed.

---

## User registration

---

Customers in the USA, please visit the TASCAM website (<http://tascam.com/>) to register as a user online.

---

## Updating the firmware

---

Two separate types of firmware can be updated to add functions to this card.

- Card firmware
- Dante module firmware

Both firmware updates must be conducted separately.

Check the TEAC Global Site (<http://teac-global.com/>) for details about the latest firmware and update procedures.

---

## Notes about Dante

---

Dante is a transmission protocol developed by Audinate. Using networks based on gigabit Ethernet standards, it enables multi-channel (512 IN/512 OUT) transmission and high precision, for example.

Check the Audinate website for details about Dante.

<https://www.audinate.com/>

- This card includes a Dante module circuit board made by Audinate.  
See the following Audinate web page for information about the open source components used by the Dante module circuit board.

<https://www.audinate.com/software-licensing>

---

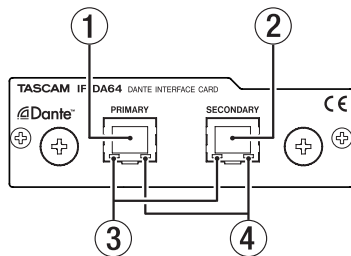
## Names and functions of parts

---

This card has two RJ-45 connectors that support gigabit Ethernet. Use LAN cables to connect these connectors to other devices that support Dante or a Dante network.

---

### Rear panel



- ① **PRIMARY connector**  
This is the main Dante transmission connector. Use this to connect to a Dante network all the time.
- ② **SECONDARY connector**  
This is the secondary Dante transmission connector. The use changes depending on the mode. When in redundant mode, this connects to the secondary Dante network.

When in switched (daisy chain) mode, use to connect another Dante device in the chain.

③ **Link status/activity indicator**

Green indicates that a link is established between the devices.

Blinking indicates that signals are being transmitted between the devices.

④ **Gigabit link status indicator**

Orange indicates that a gigabit Ethernet link has been established.

---

## Connecting to a Dante network

---

In order to set up and use this card, you must also set up the Ethernet network that it is connected to, a computer that runs Dante Controller and other devices that support Dante.

### ■ LAN cables used for connections

Use LAN cables that are category 5e or faster.

Both crossover and straight cables can be used.

### CAUTION

- *This unit is not compatible with 100Mbps Ethernet switching hubs. Always use switching hubs that support Layer 2 and Gigabit Ethernet.*
- *Two of these cards cannot be installed in a DA-6400 and used at the same time. If two of these cards are installed, only the one in SLOT 1 can be used.*

### NOTE

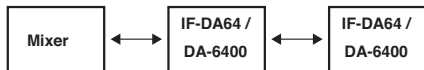
- *Set the computer to set the IP address automatically.*
- *Restarting the computer might be necessary if a previous network setting is still active on the computer.*



## Switched (daisy chain) connection

Dante devices can be daisy-chained when there are few connected devices and when not using a switching hub. Connect them as shown below.

### Switched (daisy chain) connection example



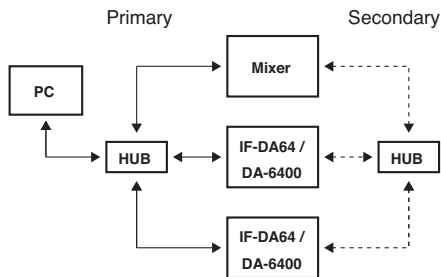
#### NOTE

- When using a switched (daisy chain) connection, connect to either the **PRIMARY** or **SECONDARY** connector.
- If the number of connected devices increases, raising the latency setting will be necessary.

## Redundant connection

For recording situations where retakes are not possible, including live performances, a connection set up like the following uses two completely independent primary and secondary networks.

## Redundant connection example

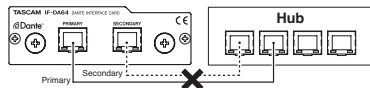


#### NOTE

Settings for switched (daisy chain) and redundant connections do not change automatically. Change the settings on the Dante Controller Network Config screen.

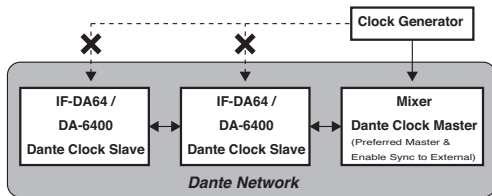
#### CAUTION

- The primary and secondary networks cannot be connected to each other in any way.
- Do not connect the primary and secondary networks to the same switching hub.



## Synchronizing with clock from a source other than the Dante network

### ■ Example using a clock generator



- When synchronizing to an external word clock generator, connect that generator to the device that is the clock master in the Dante network.
- If a device synchronizes to its internal clock, an external word clock or another clock that is not on the Dante network, always set check marks for the “Enable Sync to External” and “Preferred Master” items on the Clock Status page of the Dante Controller Network View screen.

- Set Dante Clock Slave devices in the following manner.
  - Set the device to synchronize with the Dante network.
  - Do not synchronize to an external clock generator or the device’s own internal clock.
  - In Dante Controller remove the check marks for the “Enable Sync to External” and “Preferred Master” settings.

### CAUTION

*The only device that can synchronize to the external word clock generator is the one that is the Dante Clock Master in the Dante network.*

## Using Dante Controller

### Dante Controller overview

This card uses the Dante Controller application, which is available at the Audinate website, to connect with other devices that support Dante.

Download the latest version of the Dante Controller application and an operation manual from the Audinate website.

#### Audinate download page

<https://www.audinate.com/products/software/dante-controller>

Make at least the following settings using a computer that has Dante Controller installed.

- Set the audio routing.
- Adjust the sampling frequency and bit depth of each Dante device.

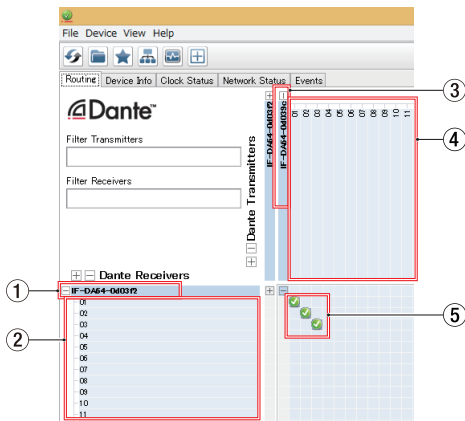
#### NOTE

*Settings made using Dante Controller are stored in the built-in memory of each Dante device. Unless settings are modified, connections will not change even if Dante Controller is quit or the computer is disconnected from the Dante network.*

### Audio routing settings

When Dante Controller is launched, the Network View screen shown below will open.

On this screen, you can set and monitor conditions related to the Dante network.



#### ① Receiving device name

This is the name of a receiving device on the Dante network.

- ② **Receiving device channels**  
These are the names of the channels of the receiving device on the Dante network.
- ③ **Transmitting device name**  
This is the name of a transmitting device on the Dante network.
- ④ **Transmitting device channels**  
These are the names of the channels of the transmitting device on the Dante network.
- ⑤ **Audio routing**  
Route the audio channels of the transmitting and receiving devices that you want to connect here.  
Left-click the intersection of the channels you want to connect on the matrix to connect them.

## NOTE

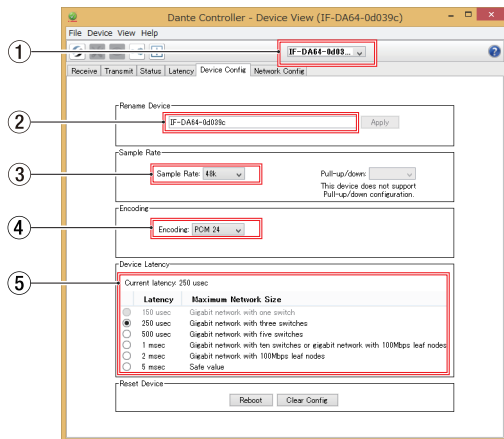
*While pressing the computer keyboard Ctrl key, left-click the “\_” at the intersection of device names to connect all connectable channels at once.*

## Changing sampling frequencies and bit depths with Dante Controller

Double-click a device name on the Network View screen to open the Device View screen.

On this screen, you can set and monitor conditions related to devices on the Dante network.

Click the Device Config tab to open the page where you can change the sampling frequency, bit rate and other settings of the device selected in ① shown in the illustration below.



① **Device name**

This is the name of the device that can have its settings changed in the current Device View.

② **Change device name**

Edit the device name.

③ **Sampling frequency**

Set the sampling frequency.

④ **Bit depth**

Set the bit depth.

⑤ **Latency setting**

Set the latency.

Use the following guidelines to change the latency setting.

Selectable latency value	Connected network setup guideline
250usec	The transmission route from the transmitting device to the receiving device passes through 1 gigabit switching hub.
500usec	The transmission route from the transmitting device to the receiving device passes through 5 gigabit switching hubs.
1msec	The transmission route from the transmitting device to the receiving device passes through 10 gigabit switching hubs.
2msec	The transmission speed of the transmitting device is 100 Mbps.
5msec	Use this maximum selectable latency value when creating a large-scale network.

**CAUTION**

- *Changing the name of a device will clear audio routing settings. For this reason, we recommend changing device names to names that are easy to identify before setting audio routings.*
- *Depending on network connection conditions, setting the latency to a value higher than the guideline might be necessary.*

**NOTE**

- *Set the sampling rate and bit depth to the same values as the other Dante devices that send and receive audio signals. Also set the unit in which the IF-DA64 is installed to the same values.*
- *When using a switched (daisy chain) connection, which does not use a switching hub, set the latency according to the number of Dante devices that signals pass-through as shown below.*

■ **Switched (daisy chain) connection example**

**Passes through 2 devices**



**Passes through 1 device**



---

## Specifications

---

### Ratings

#### ■ Channels and formats

Sampling Frequency

44.1/48 kHz: 64 channels max.

88.2/96 kHz: 32 channels max.

---

### Input/output ratings

#### ■ PRIMARY/SECONDARY connectors

Connector: RJ-45

Transmission protocol: Dante

Gigabit Ethernet standard: 1000BASE-T (IEEE 802.3ab)

Cables: category 5e or faster.

---

### Other

#### ■ Dimensions

107 × 34 × 156.8 mm (width × height × depth, including protrusions)

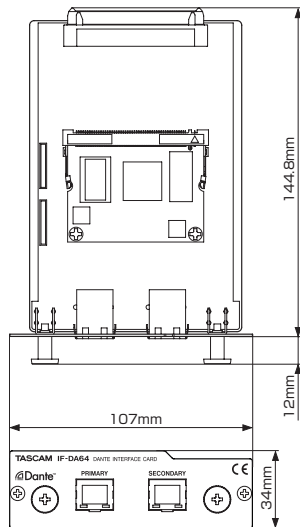
#### ■ Weight

139 g

---

---

## Dimensional drawings



- Illustrations in this manual might differ in part from the actual product.
- Specifications and external appearance might be changed without notification to improve the product.

# MODE D'EMPLOI

## PRÉCAUTIONS DE SÉCURITÉ IMPORTANTES

### Pour les utilisateurs en Europe

#### AVERTISSEMENT

Il s'agit d'un produit de Classe A. Dans un environnement domestique, cet appareil peut provoquer des interférences radio. Dans ce cas, l'utilisateur peut être amené à prendre des mesures appropriées.

### Pour le Canada

CET APPAREIL NUMÉRIQUE DE LA CLASSE A EST CONFORME À LA NORME NMB-003 DU CANADA.

### DÉCLARATION DE CONFORMITÉ

Nous, TEAC EUROPE GmbH, Bahnstrasse 12, 65205 Wiesbaden-Erbenheim, Allemagne, déclarons sous notre propre responsabilité que le produit TEAC décrit dans ce mode d'emploi est conforme aux normes techniques lui correspondant.



### Informations sur le marquage CE

EN55103-1/2

a) Environnement électromagnétique applicable : E4

## INSTRUCTIONS DE SÉCURITÉ IMPORTANTES

- Si vous rencontrez des problèmes avec ce produit, contactez TEAC pour une assistance technique. N'utilisez pas le produit tant qu'il n'a pas été réparé.

### ■ Pour les consommateurs européens

### Mise au rebut des équipements électriques et électroniques

- (a) Tous les équipements électriques et électroniques doivent être traités séparément de la collecte municipale d'ordures ménagères dans des points de collecte désignés par le gouvernement ou les autorités locales.
- (b) En vous débarrassant correctement des équipements électriques et électroniques, vous contribuerez à la sauvegarde de précieuses ressources et à la prévention de potentiels effets négatifs sur la santé humaine et l'environnement.

- (c) Le traitement incorrect des déchets d'équipements électriques et électroniques peut avoir des effets graves sur l'environnement et la santé humaine en raison de la présence de substances dangereuses dans les équipements.
- (d) Le symbole de poubelle sur roues barrée d'une croix indique que les équipements électriques et électroniques doivent être collectés et traités séparément des déchets ménagers.
- (e) Des systèmes de retour et de collecte sont disponibles pour l'utilisateur final. Pour des informations plus détaillées sur la mise au rebut des vieux équipements électriques et électroniques, veuillez contacter votre mairie, le service d'ordures ménagères ou le magasin dans lequel vous avez acheté l'équipement.



## Sommaire

PRÉCAUTIONS DE SÉCURITÉ IMPORTANTES.....	15
INSTRUCTIONS DE SÉCURITÉ IMPORTANTES.....	15
Introduction .....	17
Caractéristiques de cette carte.....	17
Modèles compatibles pour l'installation .....	17
Présentation de la procédure d'installation.....	18
Éléments fournis .....	18
Utilisation du site mondial TEAC.....	18
Enregistrement de l'utilisateur .....	18
Mise à jour du firmware .....	19
Remarques concernant Dante.....	19
Nomenclature et fonctions des parties.....	19
Face arrière.....	19
<b>Connexion à un réseau Dante .....</b>	<b>20</b>
Connexion commutée (en chaîne) .....	21
Connexion redondante.....	21
Synchronisation avec l'horloge d'une source autre que le réseau Dante .....	22
<b>Emploi de Dante Controller.....</b>	<b>23</b>
Présentation de Dante Controller.....	23
Réglages de routage audio .....	23
Changement de la fréquence et de la résolution d'échantillonnage avec Dante Controller.....	24
<b>Caractéristiques techniques.....</b>	<b>26</b>
Données .....	26



Valeurs d'entrée/sortie.....	26
Autres.....	26
Dessins avec cotes.....	26

---

## Introduction

---

Merci beaucoup d'avoir choisi une carte interface Dante IF-DA64 TASCAM.

Avant de connecter et d'utiliser cette carte, veuillez prendre le temps de lire ce mode d'emploi en totalité pour vous assurer une bonne compréhension de sa mise en service et de son branchement, ainsi que du mode opératoire de ses nombreuses fonctions utiles et pratiques. Une fois la lecture de ce mode d'emploi terminée, veuillez à le conserver en lieu sûr pour référence ultérieure.

Vous pouvez aussi télécharger ce mode d'emploi depuis le site mondial de TEAC (<http://teac-global.com/>).

---

## Caractéristiques de cette carte

---

- Capable d'envoyer et de recevoir des signaux audio numériques non compressés
  - 44,1/48 kHz, 24 bits : 64 canaux au maximum
  - 88,2/96 kHz, 24 bits : 32 canaux au maximum
- Prend en charge les connexions réseau redondantes avec deux connecteurs RJ-45 (PRIMARY, SECONDARY)

---

## Modèles compatibles pour l'installation

---

Avant l'installation de cette carte, consultez le site mondial TEAC (<http://teac-global.com/>) pour obtenir les dernières informations concernant les modèles dans lesquels elle peut être installée.

---

## Présentation de la procédure d'installation

---

- Pour les procédures d'installation, voir le mode d'emploi de l'unité dans laquelle vous installez la carte.
- Avant d'installer ou de retirer cette carte, débranchez le cordon d'alimentation de l'unité hôte.
- Avant d'installer la carte, vérifiez que la carte fille rouge est insérée à fond dans le connecteur.
- Serrez bien les vis de fixation des côtés gauche et droit de la carte avant l'utilisation.

---

## Éléments fournis

---

Ce produit est livré avec les éléments suivants.

Conservez la boîte et les matériaux d'emballage pour de futurs transports.

Si un élément quelconque est manquant ou a été endommagé durant le transport, veuillez contacter le service clientèle TASCAM (voir au dos de couverture).

- Unité principale ..... × 1
- Mode d'emploi (ce document) incluant la garantie ..... × 1

---

## Utilisation du site mondial TEAC

---

Vous pouvez télécharger depuis le site mondial TEAC (<http://teac-global.com/>) ce mode d'emploi et le manuel de référence nécessaires à cette unité.

1. Allez sur le site mondial TEAC (<http://teac-global.com/>).
2. Dans la section TASCAM Downloads (téléchargements TASCAM), cliquez sur la langue souhaitée afin d'ouvrir la page de téléchargement du site web pour cette langue.

### NOTE

*Si la langue désirée n'apparaît pas, cliquez sur **Other Languages (autres langues)**.*

3. Cliquez sur le nom du produit dans la section « Produits » et ouvrez la page « Liens et téléchargements » de ce produit.
4. Sélectionnez et téléchargez le mode d'emploi et le manuel de référence nécessaires.

---

## Enregistrement de l'utilisateur

---

Si vous êtes client aux USA, veuillez vous enregistrer en ligne comme utilisateur sur le site web TASCAM (<http://tascam.com/>)

## Mise à jour du firmware

Deux types de firmware distincts peuvent être mis à jour pour ajouter des fonctions à cette carte.

- Le firmware de la carte
- Le firmware du module Dante

Les mises à jour des deux firmwares doivent être effectuées séparément.

Consultez le site mondial TEAC (<http://teac-global.com/>) pour des détails concernant le dernier firmware et les procédures de mise à jour.

## Remarques concernant Dante

Dante est un protocole de transmission mis au point par Audinate. Au travers de réseaux basés sur la norme Ethernet Gigabit, il permet par exemple la transmission multicanal (512 entrées/512 sorties) avec une haute précision.

Consultez le site web Audinate pour des détails sur Dante.

<https://www.audinate.com/>

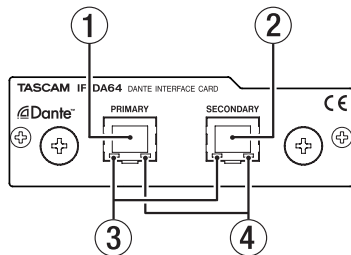
- Cette carte comprend un circuit imprimé de module Dante réalisé par Audinate. Voir la page web Audinate suivante pour des informations sur les composants Open Source utilisés par la carte de circuit imprimé du module Dante.

<https://www.audinate.com/software-licensing>

## Nomenclature et fonctions des parties

Cette carte a deux connecteurs RJ-45 acceptant l'Ethernet Gigabit. Utilisez des câbles pour réseau local (LAN) afin de relier ces connecteurs aux autres appareils compatibles Dante ou à un réseau Dante.

### Face arrière



- ① **Connecteur PRIMARY**  
C'est le connecteur de transmission Dante principal. Utilisez-le toujours pour la connexion à un réseau Dante.
- ② **Connecteur SECONDARY**  
C'est le connecteur de transmission Dante secondaire. Son emploi change en fonction du mode.

En mode redondant, il se connecte au réseau Dante secondaire.

En mode commuté (chaînage en guirlande), utilisez-le pour connecter un autre périphérique Dante dans la chaîne.

③ **Voyant d'activité/état de la liaison**

Il s'allume en vert pour indiquer qu'une liaison est établie entre les appareils.

Il clignote pour indiquer que des signaux sont transmis entre les appareils.

④ **Voyant d'état de liaison Gigabit**

Il s'allume en orange pour indiquer qu'une liaison Ethernet Gigabit a été établie.

---

## Connexion à un réseau Dante

---

Afin de configurer et d'utiliser cette carte, vous devez également configurer le réseau Ethernet auquel elle est connectée, un ordinateur sur lequel tourne Dante Controller et les autres appareils compatibles Dante.

### ■ Câbles réseau (LAN) utilisés pour les connexions

Utilisez des câbles réseau (LAN) de catégorie 5e ou plus rapides. Il est possible d'utiliser des câbles croisés ou droits.

#### ATTENTION

- *Cette unité n'est pas compatible avec les commutateurs Ethernet 100 Mbit/s. Utilisez toujours des commutateurs compatibles Ethernet Gigabit de couche 2.*
- *Il n'est pas possible d'installer et d'utiliser en même temps deux de ces cartes dans un DA-6400. Si deux de ces cartes sont installées, seule celle présente dans le SLOT 1 peut être utilisée.*

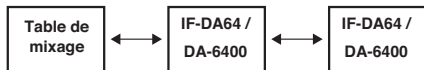
#### NOTE

- *Configurez l'ordinateur pour que les adresses IP soient automatiquement définies.*
- *Le redémarrage de l'ordinateur peut être nécessaire si un réglage réseau antérieur est encore actif sur l'ordinateur.*

## Connexion commutée (en chaîne)

Des appareils Dante peuvent être enchaînés lorsqu'il y en a peu à connecter et qu'aucun commutateur n'est utilisé. Connectez-les comme indiqué ci-dessous.

### ■ Exemple de connexion commutée (en chaîne)



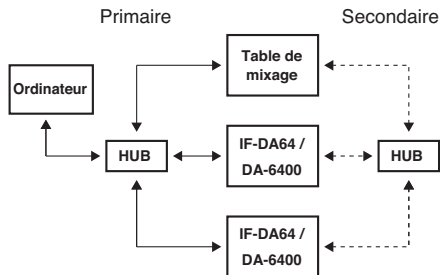
#### NOTE

- Pour une connexion commutée (en chaîne), vous pouvez utiliser aussi bien le connecteur **PRIMARY** que le connecteur **SECONDARY**.
- Si le nombre d'appareils connectés augmente, il sera nécessaire d'augmenter le réglage de latence.

## Connexion redondante

Pour les situations d'enregistrement ne permettant pas de refaire une prise, comme les prestations live, une configuration de connexion telle que la suivante fait appel à deux réseaux, primaire et secondaire, totalement indépendants.

### ■ Exemple de connexion redondante

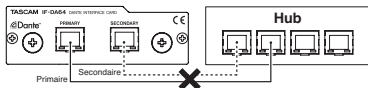


#### NOTE

Les réglages pour les connexions commutées (en chaîne) et redondantes ne changent pas automatiquement. Modifiez les réglages dans l'écran sur l'écran **Network Config (configuration réseau)** de Dante Controller.

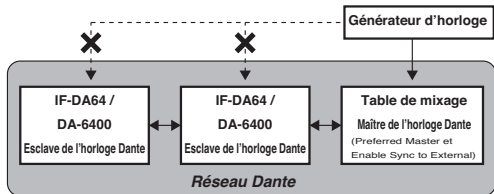
#### ATTENTION

- Les réseaux primaire et secondaire ne peuvent en aucune façon être reliés l'un à l'autre.
- Ne connectez pas les réseaux primaire et secondaire au même commutateur.



## Synchronisation avec l'horloge d'une source autre que le réseau Dante

### ■ Exemple d'emploi d'un générateur d'horloge



- Lors de la synchronisation sur un générateur word clock externe, branchez ce générateur à l'appareil qui est le maître de l'horloge du réseau Dante.
- Si un appareil se synchronise sur son horloge interne, un word clock externe ou toute autre horloge qui n'est pas sur le réseau Dante, cochez toujours les options « Enable Sync to External » (permettre la synchro externe) et « Preferred Master » (maître de préférence) en page Clock Status de l'écran Network View de Dante Controller.

- Réglez les appareils esclaves de l'horloge Dante de la façon suivante.

- Réglez l'appareil pour qu'il se synchronise sur le réseau Dante.
- Ne faites pas la synchronisation sur un générateur d'horloge externe ou sur la propre horloge de l'appareil.
- Dans Dante Controller, décochez les options « Enable Sync to External » et « Preferred Master ».

### ATTENTION

*Le seul appareil qui puisse se synchroniser sur le générateur de word clock externe est celui désigné comme maître de l'horloge Dante dans le réseau Dante.*

## Emploi de Dante Controller

### Présentation de Dante Controller

Cette carte utilise l'application Dante Controller, qui est disponible sur le site web Audinate, pour la connexion à d'autres appareils compatibles Dante.

Téléchargez la dernière version de l'application Dante Controller et son mode d'emploi sur le site web Audinate.

#### Page de téléchargement Audinate

<https://www.audinate.com/products/software/dante-controller>

Réglez au moins les paramètres suivants au moyen de l'ordinateur sur lequel est installé Dante Controller.

- Configurez le routage audio.
- Réglez la fréquence d'échantillonnage et la résolution en bits de chaque appareil Dante.

#### NOTE

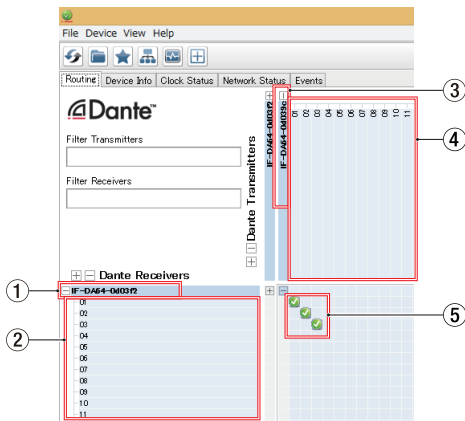
*Les réglages effectués avec Dante Controller sont conservés dans la mémoire intégrée à chaque appareil Dante.*

*Tant que les réglages ne sont pas modifiés, les connexions ne changent pas même si l'on ferme Dante Controller ou si l'ordinateur est déconnecté du réseau Dante.*

## Réglages de routage audio

Au lancement de Dante Controller s'ouvre l'écran Network View (vue réseau) représenté ci-dessous.

Dans cet écran, vous pouvez choisir et surveiller les conditions de fonctionnement du réseau Dante.



#### ① Nom de l'appareil récepteur

C'est le nom de l'appareil récepteur sur le réseau Dante.

## ② Canaux de l'appareil récepteur

Ce sont les noms des canaux de l'appareil récepteur sur le réseau Dante.

## ③ Nom de l'appareil émetteur

C'est le nom de l'appareil émetteur sur le réseau Dante.

## ④ Canaux de l'appareil émetteur

Ce sont les noms des canaux de l'appareil émetteur sur le réseau Dante.

## ⑤ Routage audio

Faites ici le routage des canaux audio des appareils émetteur et récepteur que vous souhaitez connecter.

Cliquez avec le bouton gauche de la souris sur l'intersection des canaux à connecter dans la matrice pour les relier.

### NOTE

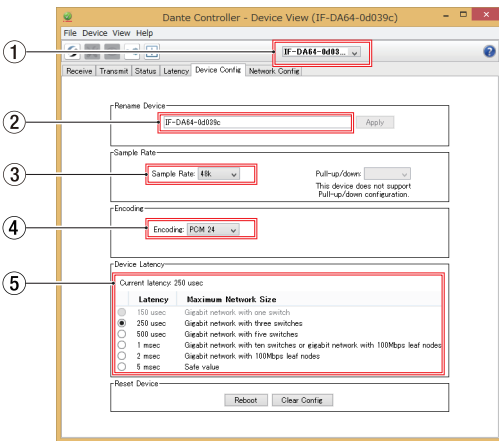
*En maintenant pressée la touche Ctrl du clavier de l'ordinateur, cliquez avec le bouton gauche de la souris sur le « - » à l'intersection des noms d'appareil pour relier d'un coup tous les canaux connectables.*

## Changement de la fréquence et de la résolution d'échantillonnage avec Dante Controller

Double-cliquez sur un nom d'appareil dans l'écran Network View pour ouvrir l'écran Device View (vue d'appareil).

Dans cet écran, vous pouvez choisir et surveiller les conditions de fonctionnement des appareils sur le réseau Dante.

Cliquez sur l'onglet Device Config (configuration d'appareil) pour ouvrir la page dans laquelle vous pouvez changer la fréquence d'échantillonnage, la résolution en bits et d'autres réglages de l'appareil sélectionné dans le champ ① de l'illustration ci-dessous.



## ① Nom d'appareil

C'est le nom de l'appareil dont les réglages peuvent être actuellement changés dans la fenêtre Device View.

## ② Changez ici le nom de l'appareil

Modifiez le nom de l'appareil.



- ③ **Fréquence d'échantillonnage**  
Réglez la fréquence d'échantillonnage.

- ④ **Résolution en bits**  
Réglez la résolution en bits.

- ⑤ **Réglage de latence**  
Réglez la latence.  
Utilisez les indications suivantes pour changer le réglage de latence.

Valeur de latence sélectionnable	Indication de configuration du réseau connecté
250 usec ( $\mu$ s)	Le chemin de transmission entre l'appareil émetteur et l'appareil récepteur passe au travers d'un commutateur Gigabit.
500 usec ( $\mu$ s)	Le chemin de transmission entre l'appareil émetteur et l'appareil récepteur passe au travers de cinq commutateurs Gigabit.
1 msec (ms)	Le chemin de transmission entre l'appareil émetteur et l'appareil récepteur passe au travers de dix commutateurs Gigabit.
2 msec (ms)	L'appareil émetteur a une vitesse de transmission de 100 Mbit/s.
5 msec (ms)	Utilisez cette valeur, la plus grande pouvant être sélectionnée, pour créer un réseau de grande envergure.

## ATTENTION

- *Changer le nom d'un appareil effacera les réglages de routage audio. Pour cette raison, nous vous recommandons de doter les appareils de noms permettant de facilement les identifier avant de commencer les réglages de routage audio.*
- *Selon les conditions de connexion du réseau, il peut s'avérer nécessaire de régler la latence sur une valeur plus élevée qu'indiqué ici.*

## NOTE

- *Réglez la fréquence et la résolution d'échantillonnage sur les mêmes valeurs que dans les autres appareils Dante qui envoient et reçoivent les signaux audio. Réglez aussi sur les mêmes valeurs dans l'unité où est installée l'IF-DA64.*
- *Si vous utilisez une connexion commutée (en chaîne) ne faisant pas appel à un commutateur, réglez la latence en fonction du nombre d'appareils Dante que traversent les signaux, comme représenté ci-dessous.*

## ■ Exemple de connexion commutée (en chaîne)

### Traversant 2 appareils



### Traversant 1 appareil



## Caractéristiques techniques

### Données

#### ■ Canaux et formats

Fréquence d'échantillonnage

44,1/48 kHz : 64 canaux max.

88,2/96 kHz : 32 canaux max.

### Valeurs d'entrée/sortie

#### ■ Connecteurs PRIMARY/SECONDARY

Connecteur : RJ-45

Protocole de transmission : Dante

Ethernet Gigabit standard : 1000BASE-T (IEEE 802.3ab)

Câbles : catégorie 5e ou plus rapides.

### Autres

#### ■ Dimensions

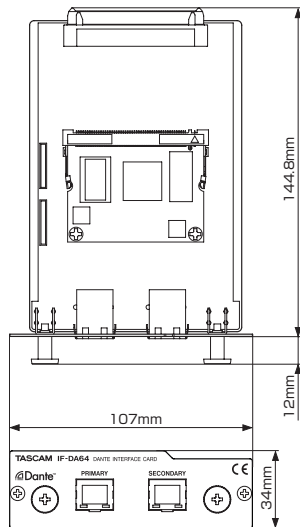
107 × 34 × 156,8 mm

(largeur × hauteur × profondeur, avec parties saillantes)

#### ■ Poids

139 g

## Dessins avec cotes



- Les illustrations de ce mode d'emploi peuvent partiellement différer du produit réel.
- Caractéristiques et aspect externe peuvent être changés sans préavis en vue d'améliorer le produit.

# MANUAL DE INSTRUCCIONES

## PRECAUCIONES IMPORTANTES DE SEGURIDAD

### Para EE.UU.

Este aparato cumple con lo expuesto en la sección 15 de las Normas FCC. Su funcionamiento está sujeto a las dos condiciones siguientes: (1) este aparato no puede producir interferencias molestas, y (2) este aparato debe aceptar cualquier interferencia recibida, incluyendo aquellas que puedan producir un funcionamiento no deseado.

### INFORMACIÓN PARA EL USUARIO

Se ha verificado y comprobado que esta unidad cumple con los límites de un aparato digital de clase A, de acuerdo a la sección 15 de las normativas FCC. Estos límites han sido desarrollados para ofrecer una protección razonable contra las interferencias molestas que se pueden producir cuando se usa este aparato en un entorno no-profesional. Este aparato genera, utiliza y puede irradiar energía de radiofrecuencia y, si no es instalado y usado de acuerdo al manual de instrucciones, puede producir interferencias molestas en las comunicaciones de radio.

El uso de este aparato en una zona residencial puede producir interferencias molestas, en cuyo caso el usuario será el responsable de corregirlas por sus propios medios.

### PRECAUCIÓN

Los cambios o modificaciones realizadas en este equipo que no hayan sido aprobadas expresamente por escrito por TEAC CORPORATION pueden anular la autorización del usuario para manejar este aparato.

### Para los usuarios europeos

#### AVISO

Este es un aparato de clase A. En un entorno no profesional, este aparato puede producir interferencias de radio, en cuyo caso el usuario será el responsable de tomar las medidas adecuadas para evitarlo.

### Para Canadá

ESTE APARATO DIGITAL DE CLASE A CUMPLE CON LA NORMA CANADIENSE ICES-003.

### DECLARACIÓN DE CONFORMIDAD

Nosotros, TEAC EUROPE GmbH, Bahnstrasse 12, 65205 Wiesbaden-Erbenheim, Germany declaramos bajo nuestra propia responsabilidad que el producto TEAC descrito en este manual cumple con los standards técnicos correspondientes.



### Información de marca CE

EN55103-1/2


a) Entorno electromagnético aplicable: E4

## INSTRUCCIONES IMPORTANTES DE SEGURIDAD

- Si experimenta cualquier tipo de problema al usar este aparato, póngase en contacto con TEAC y solicite su reparación. No vuelva a usar este aparato hasta que esté reparado.

### ■ Para los usuarios europeos

#### Eliminación de aparatos eléctricos y electrónicos

- (a) Nunca debe eliminar un aparato eléctrico o electrónico junto con el resto de la basura orgánica. Este tipo de aparatos deben ser depositados en los "puntos limpios" creados a tal efecto por su Ayuntamiento o por la empresa de limpieza local.
- (b) Con la correcta eliminación de los aparatos eléctricos y electrónicos estará ayudando a ahorrar valiosos recursos y evitará a la vez todos los efectos negativos potenciales tanto para la salud como para el entorno.
- (c) Una eliminación incorrecta de este tipo de aparatos junto con la basura orgánica puede producir efectos graves en el medio ambiente y en la salud a causa de la presencia de sustancias potencialmente peligrosas que pueden contener.
- (d) El símbolo del cubo de basura tachado indica la obligación de separar los aparatos eléctricos y electrónicos del resto de basura orgánica a la hora de eliminarlos.  

- (e) Los llamados "puntos limpios" de recogida y retirada selectiva de este tipo de productos están disponibles para cualquier usuario final. Para más información acerca de la eliminación de este tipo de elementos, póngase en contacto con el departamento correspondiente de su

Ayuntamiento, empresa de limpieza o recogida de basuras o con el comercio en el que adquirió este aparato.

---

## Índice

---

PRECAUCIONES IMPORTANTES DE SEGURIDAD .....	27
INSTRUCCIONES IMPORTANTES DE SEGURIDAD .....	28
Introducción.....	29
Características de estas tarjetas .....	29
Modelos compatibles para la instalación.....	29
Resumen del proceso de instalación .....	30
Elementos incluidos .....	30
Uso de la página web global de TEAC .....	30
Registro de usuario.....	30
Actualización del firmware .....	31
Notas acerca de Dante.....	31
Nombre y función de las partes .....	31
Panel trasero.....	31
Conexión a una red Dante .....	32
Conexión conmutada (daisy chain) .....	33
Conexión redundante.....	33
Sincronización con un reloj de una fuente que no sea la red Dante .....	34
Uso del Dante Controller .....	35
Resumen del Dante Controller.....	35
Ajustes del ruteo audio.....	35
Cambio de frecuencias de muestreo y profundidad de bits con el Dante Controller .....	36
Especificaciones técnicas .....	38
General.....	38
Entrada/salida .....	38
Otros .....	38
Esquema de dimensiones .....	38

---

## Introducción

---

Felicidades y gracias por su compra de la tarjeta interface Dante TASCAM IF-DA64.

Antes de conectar y comenzar a usar esta tarjeta, dedique unos minutos a leer completamente este manual para asegurarse de que entiende cómo conectarla y configurarla correctamente, así como la finalidad de sus distintas funciones. Una vez que haya leído el manual, consérvelo en un lugar seguro para cualquier posible referencia a él en el futuro.

También puede descargarse este Manual de instrucciones desde la página web global de TEAC (<http://teac-global.com/>).

---

## Características de estas tarjetas

---

- Capacidad de envío y recepción de señales audio digitales sin compresión
  - 44.1/48kHz, 24 bits: 64 canales máximo
  - 88.2/96kHz, 24 bits: 32 canales máximo
- Admite conexiones de red redundante con dos conectores RJ-45 (PRIMARY, SECONDARY)

---

## Modelos compatibles para la instalación

---

Antes de instalar esta tarjeta, consulte en la página web global de TEAC (<http://teac-global.com/>) la información más actualizada acerca de los modelos en los que puede ser instalada.

---

## Resumen del proceso de instalación

---

- Para ver todos los pasos relativos a la instalación, consulte el Manual de instrucciones de la unidad en la que vaya a instalar esta tarjeta.
- Antes de introducir o extraer esta tarjeta en una unidad, desconecte dicha unidad de la corriente eléctrica.
- Antes de instalar esta tarjeta, asegúrese de que la placa roja quede completamente introducida en el conector.
- Asegúrese de apretar los tornillos de fijación que están a la izquierda y derecha de la tarjeta antes de usarla.

---

## Elementos incluidos

---

Dentro del embalaje encontrará lo siguiente.

Conserve el embalaje y las protecciones por si alguna vez necesita transportar el aparato.

Póngase en contacto con los servicios técnicos de TEAC (vea la contraportada) si echa en falta alguno de los elementos siguientes o si observa que alguno de ellos ha resultado dañado durante el transporte.

- Unidad principal..... × 1
- Manual de instrucciones (este documento)  
incluyendo garantía..... × 1

---

## Uso de la página web global de TEAC

---

Desde la web global de TEAC (<http://teac-global.com/>) podrá descargarse este Manual de instrucciones de esta unidad.

1. Vaya a la web global de TEAC (<http://teac-global.com/>).
2. En la sección TASCAM Downloads, haga clic en el idioma que quiera para acceder a la página de descargas en dicho idioma.

### NOTA

*Si no aparece el idioma que busca, haga clic en **Other Languages**.*

3. Haga clic en el nombre de producto en la sección "Search by Model Name" para acceder a la página de descargas de dicho producto.
4. Elija y descargue el Manual de instrucciones y el Manual de referencia cuando lo necesite.

---

## Registro de usuario

---

Si usted ha adquirido este aparato en los Estados Unidos, visite la página web de TASCAM (<http://tascam.com/>) para registrarse como un usuario online.

## Actualización del firmware

Puede actualizar dos tipos de firmware distintos para añadir funciones a esta tarjeta.

- Firmware de la tarjeta
- Firmware del módulo Dante

Debe realizar ambas actualizaciones de firmware por separado.

Consulte en la página web global de TEAC (<http://teac-global.com/>) los detalles acerca de las actualizaciones disponibles.

## Notas acerca de Dante

Dante es un protocolo de transmisión desarrollado por Audinate. Usando redes basadas en standards gigabit Ethernet, permite la transmisión multicanal (512 E/512 S) y de alta precisión, por ejemplo.

Para más detalles sobre Dante, vaya a la página web de Audinate.

<https://www.audinate.com/>

- Esta tarjeta incluye una placa de circuito de módulo Dante diseñada por Audinate.

Vaya a la siguiente dirección web de Audinate para más información relativa a los componentes de código abierto usados en la placa de circuito del módulo Dante.

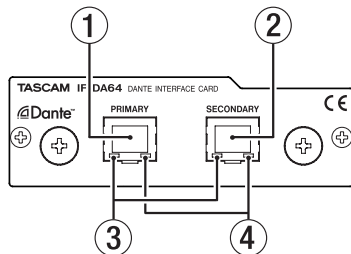
<https://www.audinate.com/software-licensing>

## Nombre y función de las partes

Esta tarjeta tiene dos conectores RJ-45 que admiten gigabit Ethernet.

Use cables LAN para conectar estas tomas a otros dispositivos que admitan Dante o una red Dante.

## Panel trasero



### ① Conector PRIMARY

Este es el conector de transmisión Dante principal. Úselo siempre para conectarse a una red Dante.

### ② Conector SECONDARY

Este es el conector de transmisión Dante secundario. Su uso varía dependiendo del modo elegido.

Cuando esté usando la unidad en el modo redundante, esta toma le permitirá la conexión a una red Dante secundaria.

Cuando esté usando la tarjeta en el modo conmutado (daisy chain), utilice esta toma para conectar otro dispositivo Dante en la misma cadena.

### ③ **Indicador de actividad/estado de enlace**

Este indicador iluminado en verde indica que hay un enlace establecido entre los dispositivos.

El parpadeo de este piloto indica que están siendo transmitidas señales entre los dispositivos.

### ④ **Indicador de estado de enlace Gigabit**

Cuando este piloto está iluminado en naranja indica que ha sido establecido un enlace gigabit Ethernet.

---

## Conexión a una red Dante

---

De cara a configurar y poder usar esta tarjeta, deberá configurar también la red Ethernet a la que esté conectada, así como disponer de un ordenador que ejecute el programa Dante Controller y otros dispositivos que admitan Dante.

### ■ **Cables LAN usados para las conexiones**

Use cables LAN de categoría 5e o superiores.

Puede usar tanto cables trenzados como trenzados-cruzados.

### **CUIDADO**

- *Esta unidad no es compatible con hubs conmutadores Ethernet a 100Mbps. Utilice siempre hubs conmutadores que admitan Layer 2 y Gigabit Ethernet.*
- *No puede instalar y usar a la vez dos de estas tarjetas en un DA-6400. Si hay dos tarjetas instaladas a la vez, solo podrá usar la que esté instalada en SLOT 1.*

### **NOTA**

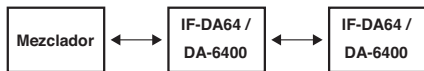
- *Ajuste el ordenador para que establezca la dirección IP de forma automática.*
- *Es posible que tenga que reiniciar el ordenador si todavía está activa en el ordenador un ajuste de red previo.*



## Conexión conmutada (daisy chain)

Los dispositivos Dante pueden ser conectados en una daisy-chain cuando haya pocos dispositivos en la red y cuando no utilice un hub conmutador (también llamados "switchers"). Conéctelos como le mostramos abajo.

### ■ Ejemplo de conexión conmutada (daisy chain)



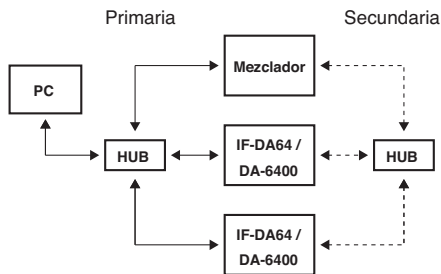
### NOTA

- Cuando utilice una conexión conmutada (daisy chain), use la toma **PRIMARY** o **SECONDARY**.
- Conforme aumente el número de dispositivos conectados, deberá ir aumentando el valor de la latencia.

## Conexión redundante

Para situaciones de grabación en las que no sean posibles nuevas tomas, incluyendo actuaciones en directo, puede usar una conexión como la que mostramos a continuación en la que se usan dos redes completamente independientes (primaria y secundaria).

### ■ Ejemplo de conexión redundante

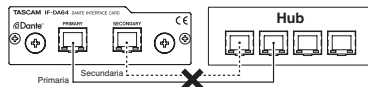


### NOTA

Los ajustes para las conexiones conmutada (daisy chain) y redundante no cambian automáticamente. Cámbielos en la pantalla Network Config del Dante Controller.

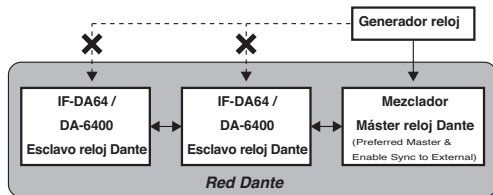
### CUIDADO

- Las redes primaria y secundaria no pueden estar interconectadas de ninguna forma.
- No conecte la red primaria y la secundaria al mismo hub conmutador o switcher.



## Sincronización con un reloj de una fuente que no sea la red Dante

### ■ Ejemplo usando un generador de reloj



- Cuando esté sincronizando la señal a un generador de reloj word externo, conecte dicho generador al dispositivo que sea el máster de reloj en la red Dante.
- Si un dispositivo se sincroniza a su reloj interno, una señal de reloj word externa u otra señal de reloj que no sea la de la red Dante, active siempre las marcas de verificación de los elementos "Enable Sync to External" y "Preferred Master" de la página Clock Status de la pantalla Network View del Dante Controller.

- Configure los dispositivos esclavos de reloj Dante de la siguiente forma.
  - Configure el dispositivo para sincronizarse con la red Dante.
  - No realice la sincronización a un generador de reloj externo o al reloj interno de ese dispositivo.
  - En el programa Dante Controller quite las marcas de verificación de los elementos "Enable Sync to External" y "Preferred Master".

### **CUIDADO**

*El único dispositivo que puede ser sincronizado al generador de reloj word externo es el que sea el máster de reloj en la red Dante.*

## Uso del Dante Controller

### Resumen del Dante Controller

Esta tarjeta usa la aplicación Dante Controller, disponible a través de la página web de Audinate, para la conexión con otros dispositivos que admitan Dante.

Descárguese la última versión disponible de la aplicación Dante Controller y de su manual de instrucciones desde la página web de Audinate.

#### Página de descargas de Audinate

<https://www.audinate.com/products/software/dante-controller>

Realice, como mínimo, los ajustes siguientes usando el ordenador en el que esté instalado el programa Dante Controller.

- Ajuste el ruteo audio.
- Ajuste la frecuencia de muestreo y la profundidad de bits de cada dispositivo Dante.

#### NOTA

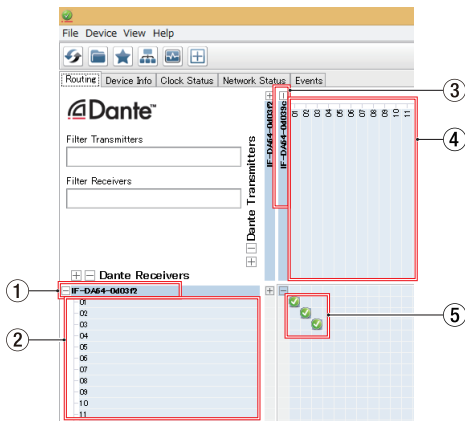
*Los ajustes realizados por medio del Dante Controller son almacenados en la memoria interna de cada dispositivo Dante.*

*Salvo que cambie los ajustes, las conexiones no cambiarán incluso aunque salga del programa Dante Controller o desconecte el ordenador de la red Dante.*

## Ajustes del ruteo audio

Cuando ejecute el Dante Controller, aparecerá la pantalla Network View siguiente.

En esta pantalla podrá configurar y monitorizar diversas condiciones relacionadas con la red Dante.



- ① **Nombre del dispositivo receptor**  
Este es el nombre del dispositivo receptor de la red Dante.

## ② Canales del dispositivo receptor

Son los nombres de los canales del dispositivo receptor de la red Dante.

## ③ Nombre del dispositivo emisor

Este es el nombre del dispositivo emisor de la red Dante.

## ④ Canales del dispositivo emisor

Son los nombres de los canales del dispositivo emisor de la red Dante.

## ⑤ Ruteo audio

Ajuste aquí el ruteo (o direccionamiento) de los canales audio de los dispositivos emisores y receptores que quiera conectar.

Haga clic en la matriz con el botón izquierdo del ratón en la intersección de los canales que quiera conectar para realizar dicha conexión.

### NOTA

*Mientras pulsa la tecla Ctrl del teclado de su ordenador, haga clic izquierdo en la “-” de la intersección de nombres de dispositivos para conectar a la vez todos los canales conectables.*

## Cambio de frecuencias de muestreo y profundidad de bits con el Dante Controller

Haga doble clic en el nombre de un dispositivo en la pantalla Network View para acceder a la pantalla Device View.

En esta pantalla podrá ajustar y monitorizar diversas condiciones relacionadas con los dispositivos de la red Dante.

Haga clic en la pestaña Device Config para abrir la página en la que podrá cambiar la frecuencia de muestreo, profundidad de bits y otros ajustes del dispositivo elegido en ① de abajo.

①

②

③

④

⑤

Latency	Maximum Network Size
<input type="radio"/> 150 usec	Gigabit network with one switch
<input checked="" type="radio"/> 250 usec	Gigabit network with three switches
<input type="radio"/> 500 usec	Gigabit network with five switches
<input type="radio"/> 1 msec	Gigabit network with ten switches or gigabit network with 100Mbps leaf nodes
<input type="radio"/> 2 msec	Gigabit network with 100Mbps leaf nodes
<input type="radio"/> 5 msec	Safe value

### ① Nombre de dispositivo

Este es el nombre del dispositivo en el que puede cambiar sus ajustes en la pantalla Device View activa.

### ② Cambio de nombre de dispositivo

Edite aquí el nombre del dispositivo.

### ③ Frecuencia de muestreo

Elija la frecuencia de muestreo que quiera.

### ④ Profundidad de bits

Ajuste la profundidad de bits.

### ⑤ Ajuste de latencia

Elija el valor de latencia.

Tenga en cuenta esta tabla para ajustar la latencia.

Valor posible	Ajuste de red conectada
250usec	La ruta de transmisión desde el dispositivo emisor al receptor pasa a través de un switcher a 1 gigabit.
500usec	La ruta de transmisión desde el dispositivo emisor al receptor pasa a través de un switcher a 5 gigabit.
1msec	La ruta de transmisión desde el dispositivo emisor al receptor pasa a través de un switcher a 10 gigabit.
2msec	La velocidad de transmisión del emisor es de 100 Mbps.
5msec	Use este valor máximo cuando cree una red a gran escala.

## CUIDADO

- *El cambio del nombre de un dispositivo borrará todos los ajustes de ruteo audio. Por este motivo, le recomendamos que cambie el nombre de los dispositivos a nombres que les permitan identificarlos fácilmente antes de ajustar el ruteo audio.*
- *Dependiendo de las condiciones de la conexión de la red, es posible que tenga que ajustar la latencia a un valor superior al recomendado en la tabla.*

## NOTA

- *Ajuste la frecuencia de muestreo y la profundidad de bits a los mismos valores que los otros dispositivos Dante que envían y reciben las señales audio. Ajuste también a esos mismos valores la unidad en la que esté instalada la IF-DA64.*
- *Cuando use una conexión conmutada (daisy chain), sin switcher, ajuste la latencia de acuerdo al número de dispositivos Dante por los que pasa la señal como lo mostramos abajo.*

### ■ Ejemplo de conexión conmutada (daisy chain)

#### 2 dispositivos intermedios



#### 1 dispositivo intermedio



## Especificaciones técnicas

### General

#### ■ Canales y formatos

Frecuencia de muestreo

44.1/48 kHz: 64 canales máximo

88.2/96 kHz: 32 canales máximo

### Entrada/salida

#### ■ Conectores PRIMARY/SECONDARY

Conector: RJ-45

Protocolo de transmisión: Dante

Standard Gigabit Ethernet: 1000BASE-T (IEEE 802.3ab)

Cables: categoría 5e o superiores.

### Otros

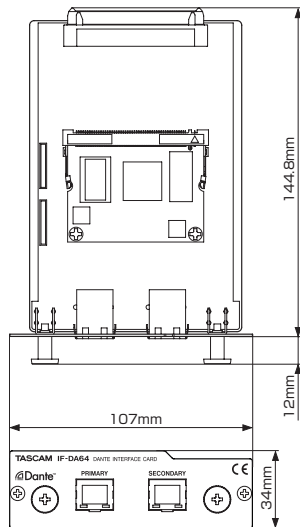
#### ■ Dimensiones

107 × 34 × 156.8 mm (anchura × altura × profundidad, excluyendo salientes)

#### ■ Peso

139 g

## Esquema de dimensiones



- Las ilustraciones y otras imágenes mostradas aquí pueden variar con respecto a las del aparato real.
- De cara a mejoras en el producto, tanto las especificaciones técnicas como el aspecto exterior están sujetos a cambios sin previo aviso.

# Gebrauchsanleitung

## Wichtige Hinweise

### Informationen zur elektromagnetischen Verträglichkeit

Dieses Gerät wurde auf die Einhaltung der Grenzwerte gemäß der EMV-Richtlinie 2004/108/EG der Europäischen Gemeinschaft hin geprüft. Diese Grenzwerte gewährleisten einen angemessenen Schutz vor schädlichen Störungen in einer kommerziellen Arbeitsumgebung. Dieses Gerät erzeugt und nutzt Energie im Funkfrequenzbereich und kann solche ausstrahlen. Wenn es nicht in Übereinstimmung mit den Anweisungen der Dokumentation installiert und betrieben wird, kann es Störungen im Funk- und Rundfunkbetrieb verursachen.

Bei der Nutzung dieses Geräts im Wohnbereich sind Störungen sehr wahrscheinlich. In diesem Fall hat der Nutzer die Beseitigung solcher Störungen auf eigene Kosten zu übernehmen.

### Wichtig

Änderungen oder Modifikationen am Gerät, die nicht ausdrücklich von der TEAC Corporation geprüft und genehmigt worden sind, können zum Erlöschen der Betriebserlaubnis führen.

### Konformitätserklärung

TEAC Europe GmbH, Bahnstrasse 12,  
65205 Wiesbaden-Erbenheim, Deutschland,  
erklärt hiermit eigenverantwortlich, dass das in  
diesem Handbuch beschriebene Produkt die  
entsprechenden technischen Normen erfüllt.



### Information zur CE-Kennzeichnung

EN 55103-1/2

Ausgelegt für die folgende elektromagnetische Umgebung: E4

## Wichtige Hinweise

Bei Problemen mit diesem Produkt wenden Sie sich bitte an den Kundendienst. Benutzen Sie das Gerät nicht mehr, bis es repariert wurde.

### Informationen zur Entsorgung von Altgeräten

Wenn dieses Symbol eines durchgestrichenen Abfallimers auf einem Produkt angebracht ist, unterliegt dieses Produkt den europäischen Richtlinien 2002/96/EG und/oder 2006/66/EG sowie nationalen Gesetzen zur Umsetzung dieser Richtlinien.



Richtlinien und Gesetze schreiben vor, dass Elektro- und Elektronik-Altgeräte nicht in den Hausmüll (Restmüll) gelangen dürfen. Um die fachgerechte Entsorgung, Aufbereitung und Wiederverwertung sicherzustellen, sind Sie verpflichtet, Altgeräte über staatlich dafür vorgesehene Stellen zu entsorgen.

Mit der ordnungsgemäßen Entsorgung von Altgeräten vermeiden Sie Umweltschäden und eine Gefährdung der persönlichen Gesundheit. Die Entsorgung ist für Sie kostenlos.

Weitere Informationen zur Entsorgung von Altgeräten erhalten Sie bei Ihrer Stadtverwaltung, beim Entsorgungsamt oder in dem Geschäft, in dem Sie das Produkt erworben haben.

## Inhaltsverzeichnis

Wichtige Hinweise .....	39
Einführung .....	41
Leistungsmerkmale dieser Karte .....	41
Mit welchen Produkten ist die Interfacekarte kompatibel?.....	41
Hinweise zur Installation .....	41
Auspacken/Lieferumfang .....	41
Die Firmware aktualisieren .....	42
Informationen zu Dante.....	42
Die Bedienelemente und ihre Funktionen.....	43
Verbindung mit einem Dante-Netzwerk herstellen .....	44
Die Anwendung „Dante Controller“ nutzen .....	46
Technische Daten .....	50



---

## Einführung

---

Vielen Dank, dass Sie sich für die Dante-Interfacekarte IF-DA64 von Tascam entschieden haben.

Bevor Sie diese Karte benutzen, lesen Sie sich diese Gebrauchsanleitung bitte aufmerksam durch. Nur so ist sichergestellt, dass Sie die Karte ordnungsgemäß installieren und einrichten und alle vorhandenen Merkmale nutzen können. Bewahren Sie diese Anleitung gut auf, und geben Sie sie immer zusammen mit der Karte weiter, da sie zum Gerät gehört.

Diese Gebrauchsanleitung steht auch auf der globalen TEAC-Website unter <http://teac-global.com/> oder auf der deutschen Website (<http://tascam.de/>) zum Download zur Verfügung.

---

## Leistungsmerkmale dieser Karte

---

- Senden und Empfangen unkomprimierter digitaler Audiosignale
  - 44,1/48 kHz, 24 Bit: 64 Kanäle maximal
  - 88,2/96 kHz, 24 Bit: 32 Kanäle maximal
- Unterstützt redundante Netzwerkverbindungen mithilfe von zwei RJ-45-Anschlüssen (PRIMARY, SECONDARY)

---

## Mit welchen Produkten ist die Interfacekarte kompatibel?

---

Bevor Sie diese Interfacekarte einbauen, überprüfen Sie auf der TEAC Global Site (<http://teac-global.com/>) oder auf der deutschsprachigen Tascam-Website (<http://tascam.de/>), mit welchen Produkten die Karte verwendet werden kann.

---

## Hinweise zur Installation

---

- Wie Sie die Interfacekarte einbauen, lesen Sie bitte im Benutzerhandbuch des jeweiligen Geräts nach.
- Trennen Sie das Gerät vom Stromnetz, bevor Sie diese Karte installieren oder entfernen.
- Vergewissern Sie sich außerdem, dass die rote Tochterplatine fest in ihrem Steckverbinder sitzt.
- Bevor Sie die Karte verwenden, vergewissern Sie sich, dass die Befestigungsschrauben auf der linken und rechten Seite der Karte festgezogen sind.

---

## Auspacken/Lieferumfang

---

Zum Lieferumfang dieses Produkts gehören die unten aufgeführten Bestandteile.

Bewahren Sie das Verpackungsmaterial für einen eventuellen zukünftigen Transport auf.

Sollte etwas fehlen oder auf dem Transport beschädigt worden sein, wenden Sie sich bitte umgehend an Ihren Händler.

- Interfacekarte..... × 1
- Gebrauchsanleitung (das vorliegende Dokument) einschließlich Garantiehinweis..... × 1

---

## Die Firmware aktualisieren

---

Die Karte verfügt über zwei getrennte Firmwares. Diese können aktualisiert werden, um der Karte Funktionen hinzuzufügen.

- Firmware der Karte
- Firmware des Dante-Moduls

Beide Firmwares müssen unabhängig voneinander aktualisiert werden.

Einzelheiten zu neueren Firmware-Versionen sowie eine Installationsanleitung finden Sie gegebenenfalls auf der TEAC Global Site (<http://teac-global.com/>) oder auf der deutschsprachigen Website (<http://tascam.de/>).

---

## Informationen zu Dante

---

Dante ist ein von Audinate entwickeltes Übertragungsprotokoll. Es ermöglicht die Übertragung von bis 512 Audiokanälen in beiden Richtungen mit hoher Präzision über ein Netzwerk basierend auf dem Gigabit-Ethernet-Standard.

Einzelheiten zu Dante finden Sie auf der Website von Audinate.

**<https://www.audinate.com/>**

- Diese Karte enthält ein von Audinate gefertigtes Dante-Modul in Form einer aufgesteckten Platine. Auf der Website von Audinate finden Sie Informationen zu den Open-Source-Komponenten, die das Dante-Modul verwendet.

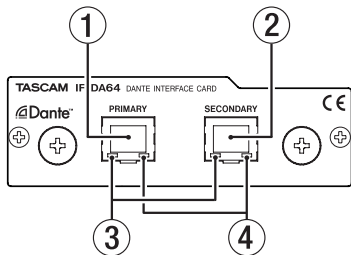
**<https://www.audinate.com/software-licensing>**

## Die Bedienelemente und ihre Funktionen

Diese Karte hat zwei RJ-45-Anschlüsse, die den Gigabit-Ethernet-Standard unterstützen.

Verbinden Sie diese über Netzkabel mit einem Dante-Netzwerk oder Geräten, die das Dante-Protokoll unterstützen.

### Rückseite



#### ① Netzwerkanschluss PRIMARY

Dies ist der Hauptanschluss für die Dante-Verbindung. Nutzen Sie ihn für eine dauerhafte Verbindung mit dem Dante-Netzwerk oder Dante-Gerät.

#### ② Netzwerkanschluss SECONDARY

Dies ist der zweitrangige (sekundäre) Anschluss für die Dante-Verbindung. Seine Verwendung hängt von der Betriebsart ab.

- Im Redundanzbetrieb stellt er die Verbindung zum Dante-Ersatznetzwerk her.
- Im verketteten Betrieb („Switched Mode“) verbinden Sie damit ein weiteres Dante-Gerät innerhalb der Kette.

#### ③ Anzeige für Verbindungsstatus und Aktivität

Grün weist auf eine bestehende Verbindung zwischen den Geräten hin.

Blinken bedeutet, dass Signale zwischen den Geräten ausgetauscht werden.

#### ④ Statusanzeige für die Gigabit-Verbindung

Orange weist auf eine funktionierende Verbindung mit einem Gigabit-Ethernet-Netzwerk hin.

---

## Verbindung mit einem Dante-Netzwerk herstellen

---

Um diese Karte einrichten und nutzen zu können, müssen Sie auch folgende Komponenten einrichten:

- das Ethernet-Netzwerk, mit dem die Karte verbunden ist,
- einen Computer, auf dem der Dante Controller läuft und
- die anderen Geräte, die Dante unterstützen.

### ■ Netzwerkkabel für Verbindungen

Verwenden Sie Netzwerkkabel der Kategorie 5e oder besser.

Gekreuzte Kabel können ebenso verwendet werden wie gerade durchverbundene.

### Wichtig

- *Die Karte ist nicht kompatibel mit 100-Mbit-Switches. Verwenden Sie ausschließlich Switches/Hubs, die Layer 2 und Gigabit-Ethernet unterstützen.*
- *Es ist nicht möglich, in einem DA-6400 zwei dieser Karten gleichzeitig zu verwenden. Wenn Sie zwei Karten einbauen, kann nur die Karte in SLOT 1 verwendet werden.*

### Anmerkung

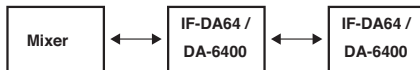
- *Richten Sie den Computer so ein, dass er seine IP-Adresse automatisch bezieht.*
- *Möglicherweise müssen Sie den Computer neu starten, wenn eine vorherige Netzwerkeinstellung noch aktiv ist.*

---

## Verbindungen für verketteten Betrieb herstellen

Dante-Geräte können miteinander verkettet werden, sofern es sich nur um wenige Geräte handelt und kein (Netzwerk-) Switch verwendet wird. Verbinden Sie die Geräte wie unten dargestellt.

### ■ Beispiel für verketteten Betrieb



### Anmerkung

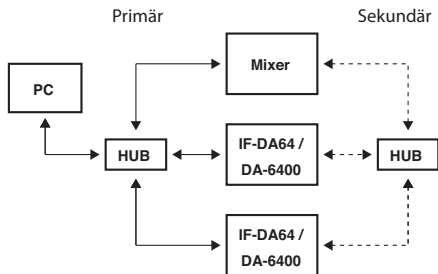
- *Für die Verkettung können Sie entweder den Anschluss PRIMARY oder den Anschluss SECONDARY nutzen.*
- *Mit zunehmender Anzahl von Geräten ist es erforderlich, den Wert für die Latenz zu erhöhen (siehe „Gerätelatenz“ auf Seite 48).*

---

## Verbindungen für den Redundanzbetrieb herstellen

Für Aufnahmesituationen, in denen eine wiederholte Aufnahme nicht möglich ist (einschließlich Livemitschnitten), können Sie mit einer Verkabelung wie der folgenden zwei vollkommen unabhängige Netzwerke nutzen (primäres und sekundäres).

## ■ Beispiel für Redundanzbetrieb

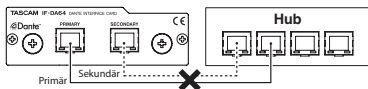


### Anmerkung

Die Einstellungen für verketteten Betrieb und Redundanzbetrieb wechseln nicht automatisch. Ändern Sie die Einstellung auf der Netzwerk-Konfigurationsseite des Dante-Controllers.

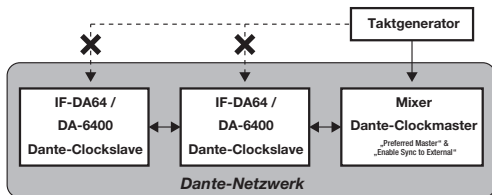
### Wichtig

- Primäres und sekundäres Netzwerk dürfen auf keine Weise miteinander verbunden werden.
- Schließen Sie die beiden Netzwerke nicht an denselben Netzwerk-Switch an.



## Synchronisation mit dem Takt einer Quelle außerhalb des Dante-Netzwerks

### ■ Beispiel für die Verwendung eines Taktgenerators



- Für der Synchronisation mit einem externen Wordclock-Generator verbinden Sie den Generator mit dem Gerät, das als Clockmaster im Dante-Netzwerk dient.
- Wenn sich ein Gerät zu seinem eigenen Takt, einer externen Wordclock oder einem anderen Takt außerhalb des Dante-Netzwerks synchronisiert, müssen im „Network View“ des Dante-Controllers auf der Registerkarte „Clock Status“ die Optionen „Enable Sync to External“ und „Preferred Master“ aktiviert sein.

- Richten Sie Dante-Geräte, die als Clockslaves dienen, wie folgt ein:
  - Sorgen Sie dafür, dass sich das Gerät mit dem Dante-Netzwerk synchronisiert.
  - Verhindern Sie, dass sich das Gerät mit einem externen Wordclock-Generator oder seinem eigenen Takt synchronisiert.
  - Deaktivieren Sie im Dante-Controller die Optionen „Enable Sync to External“ und „Preferred Master“.

### Wichtig

***Das einzige Gerät, das sich zum externen Wordclock-Generator synchronisieren darf, ist dasjenige, das als Clockmaster im Dante-Netzwerk dient.***

---

## Die Anwendung „Dante Controller“ nutzen

---

### Überblick

Für die Verbindung mit anderen Geräten, die das Dante-Protokoll unterstützen, nutzt die IF-DA64 das Computerprogramm Dante Controller. Dieses ist auf der Website von Audinate erhältlich. Laden Sie von der Audinate-Website die neueste Version von Dante Controller und die dazugehörige Bedienungsanleitung herunter.

Audinate-Downloadseite:

**<https://www.audinate.com/products/software/dante-controller>**

Nehmen Sie mithilfe eines Computers, auf dem Dante Controller installiert ist, zumindest die folgenden Einstellungen vor:

- Routing der Audiokanäle
- Abtastrate und Encoding (Bittiefe) für jedes Dante-Gerät

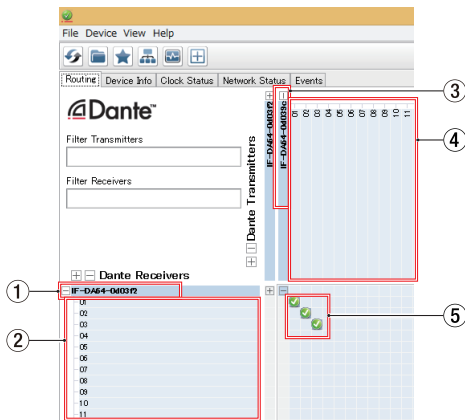
### Anmerkung

***Die Einstellungen, die Sie mithilfe des Dante-Controllers vornehmen, werden im jeweiligen Dante-Gerät gespeichert. Solange die Einstellungen nicht aktualisiert wurden, ändern sich auch nicht die Verbindungen, selbst wenn Sie Dante Controller beenden oder den Computer vom Dante-Netzwerk trennen.***

## Routing der Audiokanäle

Wenn Sie Dante Controller starten, erscheint der unten dargestellte „Network View“ mit der Registerkarte „Routing“.

Hier können Sie Einstellungen für das Dante-Netzwerk vornehmen und überwachen.



- 1 Bezeichnung des empfangenden Geräts**  
Dies ist die Bezeichnung des empfangenden Geräts im Dante-Netzwerk.
- 2 Kanäle des empfangenden Geräts**  
Dies sind die Bezeichnungen der Kanäle des empfangenden Geräts im Dante-Netzwerk.
- 3 Bezeichnung des sendenden Geräts**  
Dies ist die Bezeichnung des sendenden Geräts im Dante-Netzwerk.
- 4 Kanäle des sendenden Geräts**  
Dies sind die Bezeichnungen der Kanäle des sendenden Geräts im Dante-Netzwerk.
- 5 Verbindungen zwischen Ein- und Ausgängen (Routing)**  
Verbinden Sie hier die Kanäle des sendenden Geräts mit den Kanälen des empfangenden Geräts.  
Klicken Sie dazu mit der linken Maustaste auf den Schnittpunkt der Kanäle in der Matrix, die Sie miteinander verbinden wollen.

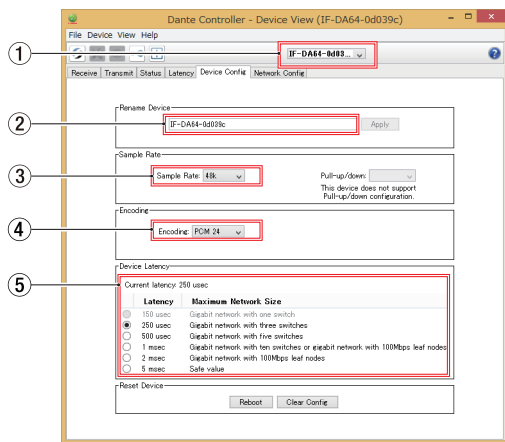
### Anmerkung

Um alle Kanäle eins zu eins zu verbinden, halten Sie die Strg-Taste auf dem Computer gedrückt und klicken Sie dann auf das Minuszeichen am Schnittpunkt der beiden Gerätebezeichnungen.

## Abtastrate und Bittiefe mit Dante Controller ändern

Doppelklicken Sie in der Netzwerkansicht (Network View) auf eine Gerätebezeichnung, um die Geräteansicht (Device View) aufzurufen. Hier können Sie Einstellungen für Geräte im Dante-Netzwerk vornehmen und überwachen.

Wählen Sie die Registerkarte „Device Config“. Hier können Sie die Abtastrate, Bittiefe und andere Einstellungen des unter ① ausgewählten Geräts ändern (siehe die folgende Abbildung).



- ① **Gerätebezeichnung**  
Dies ist Bezeichnung des Geräts, dessen Einstellungen Sie in der aktuellen Ansicht ändern können.
- ② **Eingabefeld für Gerätebezeichnung**  
Ändern Sie die Bezeichnung nach Ihren Wünschen.
- ③ **Abtastrate**  
Stellen Sie hier die gewünschte Abtastrate ein.
- ④ **Bittiefe**  
Wählen Sie hier die Bittiefe der Quantisierung.
- ⑤ **Gerätelatenz**  
Hier können Sie die Latenz festlegen. Halten Sie sich dabei an die folgenden Richtlinien:

Netzwerk-Konfigurationen	Latenzwert
Der Übertragungsweg vom sendenden Gerät zum empfangenden Gerät führt über einen Gigabit-Switch.	250 µsec
Der Übertragungsweg vom sendenden Gerät zum empfangenden Gerät führt über fünf Gigabit-Switches.	500 µsec
Der Übertragungsweg vom sendenden Gerät zum empfangenden Gerät führt über zehn Gigabit-Switches.	1 msec
Die Übertragungsgeschwindigkeit des sendenden Geräts beträgt 100 Mbit/s.	2 msec
Nutzen Sie diesen höchsten Latenzwert, wenn Sie ein umfangreiches Netzwerk bilden.	5 msec



## Wichtig

- Wenn Sie die Bezeichnung eines Geräts ändern, gehen seine Routing-Einstellungen verloren. Es ist also ratsam, zunächst alle Geräte mit leicht verständlichen Bezeichnungen zu versehen, bevor Sie die Routing-Einstellungen vornehmen.
- Je nach Zustand der Netzwerkverbindung kann es erforderlich sein, die Latenz auf einen höheren Wert einzustellen als in der Tabelle angegeben.

## Anmerkung

- Wählen Sie für alle sendenden und empfangenden Dante-Geräte die gleichen Werte für Abtastrate und Bittiefe. Verwenden Sie dieselben Werte auch für das Gerät, in dem die IF-DA64 installiert ist.
- Im verketteten Betrieb, bei dem kein Switch zum Einsatz kommt, wählen Sie den Wert für die Latenz entsprechend der Anzahl von Dante-Geräten, die das Signal durchläuft (siehe folgendes Beispiel). Orientieren Sie sich dabei an den Werten für Switches in der nebenstehenden Tabelle.

### ■ Beispiel für verketteten Betrieb

Signal durchläuft zwei Geräte



Signal durchläuft ein Gerät



## Technische Daten

### ■ Kanäle und Formate

Abtastrate

44,1 kHz oder 48 kHz: max. 64 Kanäle

88,2 kHz oder 96 kHz: max. 32 Kanäle

### ■ Anschlüsse PRIMARY, SECONDARY

Buchse: RJ-45

Übertragungsprotokoll: Dante

Gigabit-Ethernet-Standard: 1000BASE-T (IEEE 802.3ab)

Kabel: CAT 5e oder besser.

### ■ Abmessungen

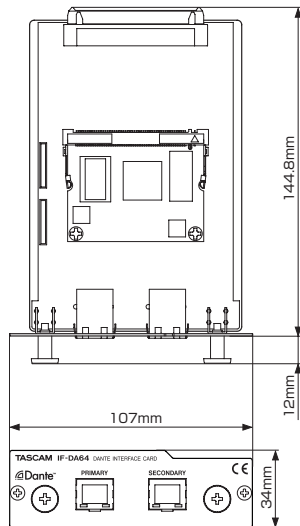
(B × H × T, einschließlich vorstehende Teile)

107 mm × 34 mm × 157 mm

### ■ Gewicht

139 g

## Maßzeichnungen



- Abbildungen können teilweise vom tatsächlichen Erscheinungsbild des Produkts abweichen.
- Änderungen an Konstruktion und technischen Daten vorbehalten.

# MANUALE DI ISTRUZIONI

## IMPORTANTI NORME DI SICUREZZA

### For U.S.A.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### INFORMATION TO THE USER

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

### CAUTION

Changes or modifications to this equipment not expressly approved by TEAC CORPORATION for compliance could void the user's authority to operate this equipment.

### Per i clienti in Europa

#### ATTENZIONE

Si tratta di un prodotto in classe A. In un ambiente domestico, questo prodotto può causare interferenze radio, nel qual caso l'utente è tenuto a prendere adeguate misure.

### DICHIARAZIONE DI CONFORMITÀ

Noi, TEAC EUROPE GmbH, Bahnstrasse 12, 65205 Wiesbaden-Erbenheim, Germania dichiariamo sotto la nostra responsabilità che il prodotto TEAC descritto in questo manuale è in conformità con i corrispondenti standard tecnici.



### Informazioni sul marchio CE

EN55103-1/2

a) Ambiente elettromagnetico applicabile: E4

## IMPORTANTI NORME DI SICUREZZA

- Se si verificano problemi con questo prodotto, contattare TEAC per una riparazione. Non utilizzare il prodotto fino a quando non è stato riparato.

## ■ Per i clienti europei

### Smaltimento di apparecchiature elettriche ed elettroniche

### Smaltimento di apparecchiature elettriche ed elettroniche

- (a) Tutte le apparecchiature elettriche ed elettroniche devono essere smaltite separatamente dai rifiuti urbani mediante impianti di raccolta specifici designati dal governo o dalle autorità locali.
- (b) Lo smaltimento in modo corretto delle apparecchiature elettriche ed elettroniche contribuisce a risparmiare preziose risorse ed evitare potenziali effetti negativi sulla salute umana e l'ambiente.
- (c) Lo smaltimento non corretto di apparecchiature può avere gravi conseguenze sull'ambiente e sulla salute umana come risultato della presenza di sostanze pericolose nelle apparecchiature elettriche ed elettroniche.
- (d) Il simbolo barrato della pattumiera indica che le apparecchiature elettriche ed elettroniche devono essere raccolte e smaltite separatamente dai rifiuti domestici.
- (e) I sistemi di raccolta sono a disposizione degli utenti finali. Per informazioni più dettagliate sullo smaltimento delle vecchie apparecchiature elettriche ed elettroniche, contattare il comune, il servizio di smaltimento rifiuti o il negozio dove è stato acquistato l'apparecchio.



## Indice dei contenuti

IMPORTANTI NORME DI SICUREZZA.....	51
IMPORTANTI NORME DI SICUREZZA.....	51
Introduzione.....	53
Caratteristiche di queste schede .....	53
I modelli compatibili per l'installazione .....	53
Panoramica della procedura di installazione .....	54
Accessori inclusi.....	54
Uso del sito TEAC Global Site .....	54
Registrazione utente.....	54
Aggiornamento del firmware .....	55
Note su Dante.....	55
Nomi e funzioni delle parti .....	55
Pannello posteriore.....	55
Connessione a una rete Dante .....	56
Collegamento commutato (cascata).....	56
Collegamento ridondante .....	57
Sincronizzazione con il clock da una sorgente diversa dalla rete Dante.....	57
Uso di Dante Controller.....	58
Panoramica di Dante Controller.....	58
Impostazioni di instradamento audio.....	58
Cambiare la frequenza di campionamento e profondità bit con Dante Controller .....	60
Specifiche.....	62
Dati tecnici.....	62

Dati di ingresso/uscita .....	62
Altro.....	62
Dimensioni.....	62

---

## Introduzione

---

Grazie per l'acquisto di una scheda di interfaccia TASCAM IF-DA64 Dante.

Prima di collegare e utilizzare questa scheda, si prega di leggere attentamente questo manuale per essere sicuri di capire come impostare correttamente e collegarla, nonché il funzionamento delle sue numerose funzioni utili e comode. Dopo aver terminato la lettura di questo manuale, si prega di conservarlo in un luogo sicuro per future consultazioni.

È possibile scaricare questo manuale dal sito TEAC Global Site (<http://teac-global.com/>).

---

## Caratteristiche di queste schede

---

- In grado di inviare e ricevere segnali audio digitali non compressi
  - 44.1/48kHz, 24-bit: 64 canali massimo
  - 88.2/96kHz, 24-bit: 32 canali massimo
- Supporta connessioni di rete ridondanti, con due connettori RJ45 (PRIMARY, SECONDARY)

---

## I modelli compatibili per l'installazione

---

Prima di installare questa scheda, controllare il sito TEAC Global Site (<http://teac-global.com/>) per le ultime informazioni sui modelli in cui può essere installata.

---

## Panoramica della procedura di installazione

---

- Per le procedure di installazione, consultare il Manuale di istruzioni dell'unità in cui si desidera installare la scheda.
- Prima di installare o rimuovere questa scheda, scollegare il cavo di alimentazione dall'unità in cui si installa.
- Prima di installare la scheda, verificare che la scheda figlia rossa sia inserita completamente nel connettore.
- Serrare saldamente le viti di fissaggio a destra e a sinistra prima dell'uso della scheda.

---

## Accessori inclusi

---

Questo prodotto include i seguenti accessori.

Conservare i materiali di imballaggio e la scatola per il trasporto in futuro.

Si prega di contattare l'assistenza clienti TASCAM (vedi retro copertina) se uno di questi articoli è mancante o è stato danneggiato durante il trasporto.

- Unità principale ..... × 1
- Manuale di istruzioni (questo documento) compresa la garanzia ..... × 1

---

## Uso del sito TEAC Global Site

---

È possibile scaricare il manuale di istruzioni di questa unità dal sito TEAC Global Site (<http://teac-global.com/>).

1. Aprire il sito TEAC Global Site (<http://teac-global.com/>).
2. Nella sezione TASCAM Download, selezionare la lingua desiderata per aprire la pagina di download per tale lingua.

### NOTA

*Se la lingua desiderata non appare, fare clic su **Other Languages**.*

3. Fare clic sul nome del prodotto nella sezione "Search by Model Name" per aprire la pagina di download per quel prodotto.
4. Selezionare e scaricare il manuale di istruzioni necessario.

---

## Registrazione utente

---

I clienti negli Stati Uniti possono visitare il sito TASCAM (<http://tascam.com/>) per registrarsi online.

## Aggiornamento del firmware

Due tipi distinti di firmware può essere aggiornato per aggiungere funzioni a questa scheda.

- Firmware della scheda
- Firmware del modulo Dante

Entrambi gli aggiornamenti del firmware devono essere condotti separatamente.

Controllare il sito TEAC Global Site (<http://teac-global.com/>) per i dettagli sulle procedure e sul firmware più recente.

## Note su Dante

Dante è un protocollo di trasmissione sviluppato da Audinate. Utilizzando reti basate su standard Gigabit Ethernet, consente la trasmissione multicanale (512 IN / OUT 512) di alta precisione.

Visitare il sito Audinate per i dettagli su Dante.

<https://www.audinate.com/>

- Questa scheda include una scheda figlia del modulo Dante prodotto da Audinate.
- Vedere la seguente pagina web Audinate per le informazioni sui componenti open source utilizzati dal circuito del modulo Dante.

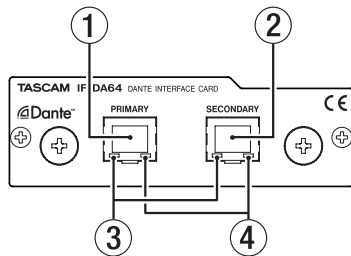
<https://www.audinate.com/software-licensing>

## Nomi e funzioni delle parti

Questa scheda presenta due connettori RJ-45 che supportano Gigabit Ethernet.

Utilizzare cavi LAN per collegare questi connettori ad altri dispositivi che supportano Dante o in una rete Dante.

## Pannello posteriore



### ① Connettore PRIMARY

Questo è il connettore di trasmissione Dante principale. Usare questo per connettersi a una rete Dante per tutto il tempo.

### ② Connettore SECONDARY

Questo è il connettore di trasmissione Dante secondario. Cambia a seconda della modalità operativa.

Quando in modalità ridondante, questo si collega alla rete Dante secondaria.

In modalità commutata (cascata), da utilizzare per collegare un altro dispositivo Dante nella catena.

### ③ **Indicatore dello stato/attività del collegamento**

Il colore verde indica che un collegamento è stabilito tra i dispositivi.

Lampeggiante indica che i segnali vengono trasmessi tra i dispositivi.

### ④ **Indicatore di stato del collegamento Gigabit**

Arancione indica che un collegamento Gigabit Ethernet è stato stabilito.

---

## Connessione a una rete Dante

---

Per impostare e utilizzare questa scheda, è necessario impostare anche la rete Ethernet a cui è collegato un computer che esegue Dante Controller e gli altri dispositivi che supportano Dante.

### ■ **Cavi LAN utilizzati per i collegamenti**

Utilizzare cavi LAN di categoria 5e o superiore.

Possono essere usati sia cavi crossover che normali.

### **CAUTELA**

- *Questa unità non è compatibile con hub 100 Mbps di commutazione Ethernet. Usare sempre hub di commutazione che supportano Layer 2 e Gigabit Ethernet.*
- *Due di queste schede non possono essere installate in un DA-6400 e utilizzate contemporaneamente. Se due di tali*

*schede sono installate, solo quella in SLOT 1 può essere utilizzata.*

### **NOTA**

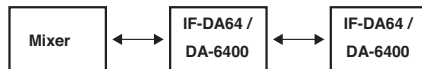
- *Impostare il computer per ricevere automaticamente l'indirizzo IP.*
- *Il riavvio del computer potrebbe essere necessario se una impostazione di rete precedente è ancora attiva sul computer.*

---

## Collegamento commutato (cascata)

I dispositivi Dante possono essere collegati in cascata quando ci sono pochi dispositivi collegati e quando non si usa un hub di commutazione. Colregarli come illustrato di seguito.

### ■ **Esempio di collegamento commutato (cascata)**



### **NOTA**

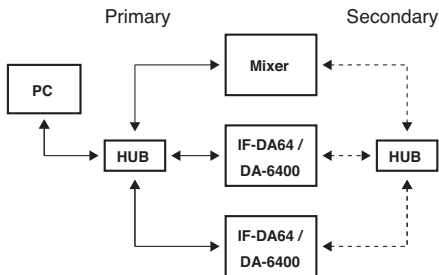
- *Quando si utilizza una connessione commutata (cascata), collegare il connettore **PRIMARY** o **SECONDARY**.*
- *Se il numero di dispositivi collegati aumenta, sarà necessario aumentare le impostazioni di latenza.*



## Collegamento ridondante

Per la registrazione di situazioni in cui le ripetizioni non sono possibili, tra cui spettacoli dal vivo, un collegamento istituito come il seguente usa due reti primarie e secondarie completamente indipendenti.

### ■ Esempio di collegamento Ridondante



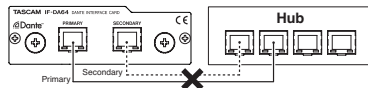
### NOTA

*Le impostazioni per connessioni commutate (cascata) e ridondanti non cambiano automaticamente. Modificare le impostazioni nella schermata Dante Network Controller Config.*

### CAUTELA

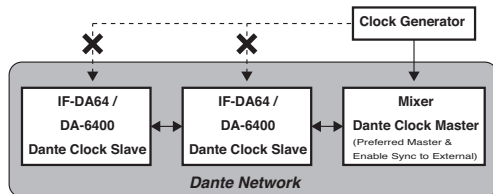
- Le reti primarie e secondarie non possono essere collegate tra loro in qualsiasi modo.

- Non collegare le reti primarie e secondarie allo stesso hub di commutazione.



## Sincronizzazione con il clock da una sorgente diversa dalla rete Dante

### ■ Esempio di utilizzo di un generatore di clock



- Quando si usa la sincronizzazione da un generatore di word clock esterno, connettere il generatore al dispositivo che è il master clock nella rete Dante.
- Se un dispositivo sincronizza il suo clock interno, un word clock esterno o un altro clock, che non è in una rete Dante, mettere sempre segni di spunta sulle voci "Enable Sync to External" e "Preferred Master" nella pagina Clock Status della schermata Dante Controller Network.

- Impostare i dispositivi Dante Slave Clock nel modo seguente.
  - Impostare il dispositivo per la sincronizzazione con la rete Dante.
  - Non sincronizzarsi a un generatore di clock esterno o il clock interno del dispositivo.
  - In Dante Controller rimuovere i segni di spunta dalle impostazioni "Enable Sync to External" e "Preferred Master".

### CAUTELA

*L'unico dispositivo in grado di sincronizzarsi al generatore di word clock esterno è quello del Master Dante Clock nella rete Dante.*

---

## Uso di Dante Controller

---

### Panoramica di Dante Controller

Questa scheda usa l'applicazione Dante Controller, che è disponibile sul sito Audinate, per connettersi con altri dispositivi che supportano Dante.

Scaricare l'ultima versione dell'applicazione Dante Controller e il manuale di istruzioni dal sito Audinate.

#### Pagina di download Audinate

<https://www.audinate.com/products/software/dante-controller>

Effettuare almeno le seguenti impostazioni utilizzando un computer che ha installato Dante Controller.

- Impostare il percorso audio.

- Regolare la frequenza di campionamento e la profondità di bit di ogni dispositivo Dante.

### NOTA

*Le impostazioni effettuate utilizzando Dante Controller sono memorizzati nella memoria interna di ciascun dispositivo Dante.*

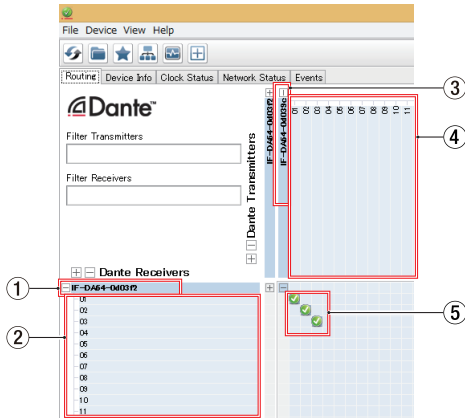
*A meno che le impostazioni vengano modificate, le connessioni non cambieranno anche se si esce da Dante Controller o il computer è disconnesso dalla rete Dante.*

---

## Impostazioni di instradamento audio

Quando Dante Controller è lanciato, si aprirà la schermata Network View illustrata di seguito.

In questa schermata, è possibile impostare e monitorare le condizioni relative alla rete di Dante.



- ① **Nome del dispositivo ricevente**  
Questo è il nome di un dispositivo ricevente sulla rete Dante.

- ② **Canali del dispositivo ricevente**  
Questi sono i nomi dei canali del dispositivo ricevente sulla rete Dante.
- ③ **Nome del dispositivo trasmittente**  
Questo è il nome di un dispositivo trasmittente sulla rete Dante.
- ④ **Canali del dispositivo trasmittente**  
Questi sono i nomi dei canali del dispositivo trasmittente sulla rete Dante.
- ⑤ **Instradamento audio**  
Instradare i canali audio dei dispositivi trasmittenti e riceventi che si desidera collegare qui.  
Fare clic sinistro sull'intersezione dei canali che si desidera collegare sulla matrice per collegarli.

#### NOTA

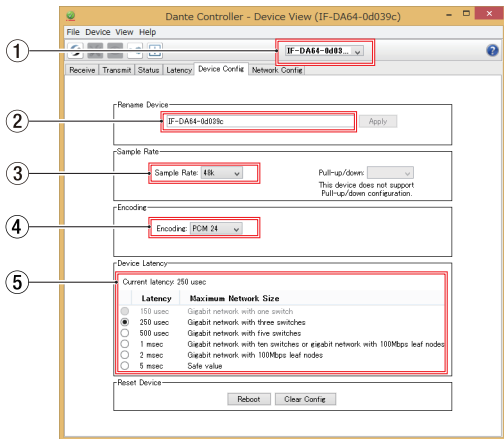
*Tenendo premuto il tasto Ctrl della tastiera del computer, fare clic sinistro su "-" all'intersezione dei nomi di dispositivo per collegare tutti i canali collegabili in una sola volta.*

## Cambiare la frequenza di campionamento e profondità bit con Dante Controller

Fare doppio clic sul nome di dispositivo sulla schermata Network View per aprire la schermata Device View.

In questa schermata, è possibile impostare e monitorare le condizioni relative ai dispositivi sulla rete Dante.

Fare clic sul tab Device Config per aprire la pagina in cui è possibile cambiare la frequenza di campionamento, bit rate e altre impostazioni del dispositivo selezionato in ① mostrato nella figura seguente.



- ① **Nome del dispositivo**  
Questo è il nome del dispositivo che può avere le sue impostazioni cambiate nel corrente Device View.
- ② **Cambiare il nome del dispositivo**  
Modificare il nome del dispositivo.
- ③ **Frequenza di campionamento**  
Impostare la frequenza di campionamento.
- ④ **Profondità di bit**

Impostare la profondità di bit.

## ⑤ Impostazione della latenza

Impostare la latenza.

Utilizzare le seguenti indicazioni per modificare l'impostazione della latenza.

Valore di latenza selezionabile	Linee guida per impostare la rete collegata
250usec	La trasmissione dal dispositivo di trasmissione al dispositivo di ricezione passa attraverso un hub switching da 1 gigabit.
500usec	La trasmissione dal dispositivo di trasmissione al dispositivo di ricezione passa attraverso hub switching da 5 gigabit.
1msec	La trasmissione dal dispositivo di trasmissione al dispositivo di ricezione passa attraverso hub switching da 10 gigabit.
2msec	La velocità di trasmissione del dispositivo trasmittente è di 100 Mbps.
5msec	Utilizzare questo valore massimo di latenza selezionabile durante la creazione di una rete su larga scala.

## CAUTELA

- *Cambiare il nome di un dispositivo cancella le impostazioni di instradamento audio. Per questo motivo, si consiglia di sostituire i nomi dei dispositivi con nomi facili da identificare prima di impostare i percorsi audio.*

- *A seconda delle condizioni di connessione di rete, potrebbe essere necessario impostare la latenza a un valore superiore alla linea guida.*

## NOTA

- *Impostare la frequenza di campionamento e la profondità di bit agli stessi valori degli altri dispositivi Dante che inviano e ricevono segnali audio. Impostare anche l'unità in cui l'IF-DA64 è installata sugli stessi valori.*
- *Quando si utilizza una connessione commutata (cascata), che non utilizza un hub di commutazione, impostare la latenza in base al numero di dispositivi Dante i cui i segnali passano attraverso, come mostrato qui sotto.*

## ■ Esempio di collegamento commutato (cascata)

### Passa attraverso 2 dispositivi



### Passa attraverso 1 dispositivo



## Specifiche

### Dati tecnici

#### ■ Canali e formati

Frequenza di campionamento

44.1/48 kHz: 64 canali max.

88.2/96 kHz: 32 canali max.

### Dati di ingresso/uscita

#### ■ Connettori PRIMARY/SECONDARY

Connettore: RJ-45

Protocollo di trasmissione: Dante

Gigabit Ethernet standard: 1000BASE-T (IEEE 802.3ab)

Cavi: categoria 5e o più veloci.

### Altro

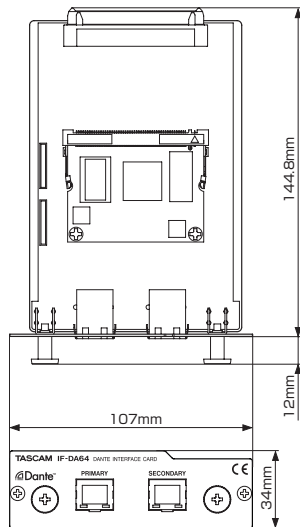
#### ■ Dimensioni

107 × 34 × 156,8 mm (altezza × larghezza × profondità, incluse le parti sporgenti)

#### ■ Peso

139 g

## Dimensioni











- Le illustrazioni in questo manuale potrebbero differire in parte dal prodotto reale.
- Specifiche e aspetto esterno possono essere modificati senza preavviso per migliorare il prodotto.

# 取扱説明書

## 安全にお使いいただくために

製品を安全に正しくお使いいただき、あなたや他の人々への危害や財産への損害を未然に防止するために、以下の注意事項をよくお読みください。

 <b>警告</b> 以下の内容を無視して誤った取り扱いをすると、人が死亡または重傷を負う可能性が想定される内容を示しています。	
 <b>注意</b>	万一、異常が起きたら煙が出たり、変なにおいや音がするときは機器の内部に異物や水などが入ったときはこの機器を落したり、カバーを破損したときは異常状態のまま使用すると、火災・感電の原因となります。販売店またはティアック修理センター（巻末に記載）に修理をご依頼ください。
 <b>禁止</b>	この機器の隙間などから内部に金属類や燃えやすい物などを差し込んだり、落としたりしない火災・感電の原因となります。
 <b>分解禁止</b>	この機器を改造しない改造すると、火災・感電の原因となります。内部の点検・修理は販売店またはティアック修理センター（巻末に記載）にご依頼ください。

 <b>注意</b> 以下の内容を無視して誤った取り扱いをすると、人が傷害を負う可能性が想定される内容および物的損害のみの発生が想定される内容を示しています。	
 <b>指示</b>	オーディオ機器を接続する場合は、各々の機器の取扱説明書をよく読み、電源を切り、説明にしたがって接続する また、接続は指定のコードを使用する
 <b>禁止</b>	プラグなどを抜くときは、ケーブルを引っ張らないケーブルが傷つき、火災・感電の原因となることがあります。 必ずプラグを持って抜いてください。
 <b>注意</b>	5年に1度は、機器内部の掃除を販売店またはティアック修理センター（巻末に記載）にご相談ください。 内部にほこりがたまったら、長い間掃除をしないと火災や故障の原因となることがあります。特に、湿気の多くなる梅雨期の前に行うと、より効果的です。なお、掃除費用については、ご相談ください。

---

## 目次

---

安全にお使いいただくために .....	63
本機の特徴 .....	64
装着可能モデルについて .....	64
ファームウェアのアップデート .....	65
装着方法について .....	65
本製品の構成 .....	65
アフターサービス .....	65
Danteについて .....	66
各部の名称 .....	66
リアパネル .....	66
Danteネットワークとの接続方法 .....	67
スイッチド（ディジーチェーン）接続 .....	68
リダンダント（二重化）接続 .....	68
Danteネットワーク以外のクロックと同期する場合 ..	69
Dante Controller 使用方法 .....	70
Dante Controllerについて .....	70
オーディオ・ルーティング設定 .....	70
Dante Controller サンプルレート/量子化 ビット数の変更 .....	71
仕様 .....	73
定格 .....	73
入出力定格 .....	73
一般 .....	73
寸法図 .....	73

このたびは、Danteインターフェースカード TASCAM IF-DA64をお買い上げいただきまして、誠にありがとうございます。

ご使用になる前に、この取扱説明書をよくお読みになり、正しい取り扱い方法をご理解いただいた上で、末永くご愛用くださいますようお願い申し上げます。お読みになった後は、いつでも見られる所に保管してください。

また取扱説明書は、TASCAMのウェブサイト (<https://tascam.jp/jp/>) からダウンロードすることができます。

---

## 本機の特徴

---

- 非圧縮デジタルオーディオ信号の送受信が可能  
    44.1k/48kHz 24bit時       : 最大64チャンネル  
    88.2k/96kHz 24bit時       : 最大32チャンネル
  - ネットワークを二重化したリダンダンシー接続に対応  
    RJ-45端子装備 x2 (Primary、Secondary)
- 

## 装着可能モデルについて

---

このカードを装着する前に、装着可能モデルの最新情報をTASCAMのウェブサイト (<https://tascam.jp/jp/>) で必ずご確認ください。



---

## ファームウェアのアップデート

---

本機は、機能追加のために下記2つのファームウェアのアップデートができる仕様になっています。

- 本機のファームウェア
- Danteモジュールのファームウェア

ファームウェアのアップデートは、それぞれ個別で行う必要があります。

最新のファームウェアおよびアップデート手順は、TASCAMのウェブサイト (<https://tascam.jp/jp/>) をご参照ください。

---

## 装着方法について

---

- カードの装着方法については、装着する機器の取扱説明書をご覧ください。
- 必ず本機を装着した機器の電源コードを抜いた状態で取り付け・取り外しを行ってください。
- カードを取り付ける前に、赤い基板がコネクタに奥まで差さっていることを確認してください。
- カードの左右にある取り付けネジは、しっかり締めた状態でご使用ください。

---

## 本製品の構成

---

本製品の構成は、以下の通りです。

梱包箱と梱包材は、後日輸送するときのために保管しておいてください。

付属品が不足している場合や輸送中の損傷が見られる場合は、タスカムカスタマーサポート（巻末に記載）までご連絡ください。

- 本体 .....x1
  - 取扱説明書（本書、保証書付き）.....x1
- 

## アフターサービス

---

- この製品には、保証書が添付（巻末に記載）されています。大切に保管してください。万が一販売店印の捺印やご購入日の記載がない場合は、無償修理保証の対象外になりますので、ご購入時のレシートなどご購入店・ご購入日が確認できるものを一緒に保管してください。
- 保証期間は、お買い上げ日より1年です。保証期間中は、記載内容によりティアック修理センター（巻末に記載）が修理いたします。その他の詳細については、保証書をご参照ください。
- 保証期間経過後、または保証書を提示されない場合の修理などについては、お買い上げの販売店またはティアック修理センター（巻末に記載）にご相談ください。修理によって機能を維持できる場合は、お客様のご要望により有償修理いたします。

- 万一、故障が発生した場合は使用を中止し、お買い上げ店またはティアック修理センター（巻末に記載）までご連絡ください。修理を依頼される場合は、次の内容をお知らせください。

なお、本機の故障、もしくは不具合により発生した付随的損害（録音内容などの補償）の責については、ご容赦ください。

本機を使ったシステム内のハードディスクなどの記憶内容を消失した場合の修復に関しては、補償を含めて当社は責任を負いかねます。

- 型名、型番（IF-DA64）
- 製造番号（Serial No.）
- 故障の症状（できるだけ詳しく）
- お買い上げ年月日
- お買い上げ販売店名
- 本機には、Audinate社製のDanteモジュール基板が搭載されています。  
Danteモジュール基板に利用されているオープンソースについては、下記のAudinate社ホームページをご参照ください。

<https://www.audinate.com/software-licensing>

- お問い合わせ先については、巻末をご参照ください。
- 本機を廃棄する場合に必要となる収集費などの費用は、お客様のご負担になります。

## Danteについて

Danteとは、Audinate社が開発した伝送プロトコルです。ギガビットイーサネット規格に基づいたネットワークにおいて、多チャンネル伝送（512ch IN / 512ch OUT）や高精度でのクロック同期などを可能としています。Danteの詳細については、Audinate社のウェブサイトをご参照ください。

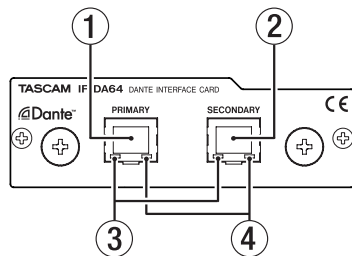
<https://www.audinate.com/>

## 各部の名称

本機は、ギガビットイーサネットに対応した2つのRJ-45端子を搭載しています。

LANケーブルを使って、この端子と外部Dante対応機器およびDanteネットワークを接続します。

## リアパネル



### ① PRIMARY端子

メインのDante通信端子です。  
常時、Danteネットワークに接続します。

### ② SECONDARY端子

サブのDante通信端子です。モードによって、用途が切り換わります。

リダundant（二重化）モード時は、二重化したDanteネットワークのうち、セカンダリーネットワークに接続します。

スイッチド（デジチェーン）モード時は、数珠つなぎでDante機器と接続する際に使用します。

### ③ リンクステータス／アクティビティインジケータ

緑色は、機器間のリンクが確立されていることを示します。

点滅は、機器間の信号のやり取りを示します。

### ④ ギガビットリンクステータスインジケータ

オレンジ色は、ギガビットイーサネットリンクが確立されていることを示します。

## Danteネットワークとの接続方法

本機を設定して使用するには、本機に接続されたイーサネットネットワーク、Dante Controllerが動作するパソコン、および他のDante対応機器の設定を行う必要があります。

### 各端子の接続に使用するLANケーブルについて

カテゴリー 5e以上のLANケーブルをご使用ください。クロスオーバー・ケーブル、ストレート・ケーブルのどちらでも使用できます。

#### 注意

- 本機は、100Mbpsのイーサネットスイッチングハブには対応していません。必ずギガビットイーサネットに対応したレイヤー 2対応のスイッチングハブを使用してください。
- 本機は、DA-6400本体に2枚装着して使用することはできません。2枚装着した場合、**SLOT1**のみ使用することができます。

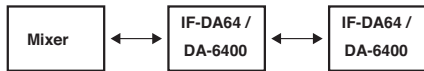
#### メモ

- パソコンはIPアドレスを自動設定するように設定してください。
- パソコンに以前のIPネットワーク設定がアクティブの状態に残っている場合は、パソコンの再起動を必要とすることがあります。

## スイッチド（デージーチェーン）接続

接続機器の台数が少ない場合や、スイッチングハブを使用しない場合に、Dante機器を数珠つなぎにする接続する方法です。以下のように接続します。

### スイッチド（デージーチェーン）接続の例



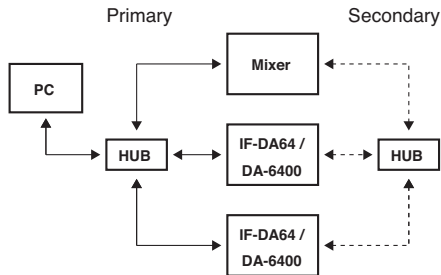
#### メモ

- スwitchド（デージーチェーン）接続の場合、PRIMARY端子とSECONDARY端子どちらの端子に接続してもかまいません。
- 接続する機器が多くなると、レイテンシーの設定を大きくする必要があります。

## リダンダント（二重化）接続

ライブ環境など録り直しができない状況での録音に対応する場合、プライマリーとセカンダリーの完全に独立した2つのネットワークを使用し、以下のように接続します。

## リダンダント（二重化）接続の例

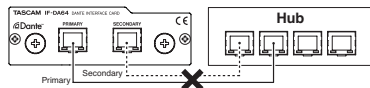


#### メモ

スイッチド（デージーチェーン）接続とリダンダント（二重化）接続の設定は、自動では切り換わりません。Dante ControllerのNetwork Config画面で設定を切り換えてください。

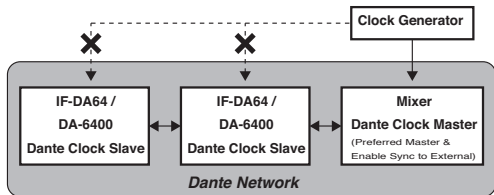
#### 注意

- プライマリーネットワークとセカンダリーネットワーク同士は、いかなる場合でも相互接続できません。
- プライマリーネットワークとセカンダリーネットワークを同一のスイッチングハブに接続しないでください。



## Danteネットワーク以外のクロックと同期する場合

### クロックジェネレーターを使用した接続の例



- 外部のワードクロックジェネレーターに同期する場合は、Danteネットワーク内でClock Masterになっている機器にのみ外部のワードクロックジェネレーターを接続します。
- Danteネットワーク以外のクロック（機器の内部クロックや外部ワードクロックなど）と同期する機器は、Dante ControllerのNetwork View画面からClock Statusタブ画面を開き、必ずEnable Sync to ExternalとPreferred Masterにチェックマークを設定してください。

- Dante Clock Slave機器は、以下のように設定してください。

- Danteネットワークに同期するように機器を設定してください。
- 外部のクロックジェネレーターや機器の内部クロックに同期させないでください。
- Dante ControllerにおいてEnable Sync to ExternalとPreferred Masterのチェックマークを外してください。

### 注意

外部のワードクロックジェネレーターに同期できる機器は、Danteネットワーク内でDante Clock Masterとなっている1台だけです。

## Dante Controller 使用方法

### Dante Controllerについて

本カードは、Audinate社のホームページにて公開されているDante Controllerを使用して、他のDante対応機器と接続します。

Dante Controller本体および取扱説明書は、Audinate社のホームページより最新版をダウンロードしてください。

#### Audinate ダウンロードページ

<https://www.audinate.com/products/software/dante-controller>

パソコンにインストールしたDante Controllerで最低限以下を設定してください。

- オーディオ・ルーティングを設定します。
- 各Dante機器のサンプリング周波数および量子化ビット数を合わせます。

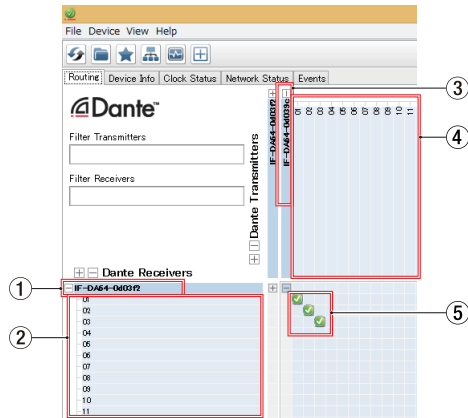
#### メモ

Dante Controllerで設定したデータは、各Dante機器内の内部メモリーに記憶されます。  
Dante Controllerを終了した場合やパソコンをDanteネットワークから切断した場合でも、設定を変更しない限り接続は変わりません。

### オーディオ・ルーティング設定

Dante Controllerを起動すると、下図のNetwork View画面が開きます。

ここでは、Danteネットワークに関する状態を設定・監視することができます。



#### ① 受信デバイス名

Danteネットワーク上に存在する受信デバイスの名前です。

## ② 受信デバイスチャンネル

Danteネットワーク上に存在する受信デバイスのチャンネル名です。

## ③ 送信デバイス名

Danteネットワーク上に存在する送信デバイスの名前です。

## ④ 送信デバイスチャンネル

Danteネットワーク上に存在する送信デバイスのチャンネル名です。

## ⑤ オーディオ・ルーティング

送信機と受信機の接続したいオーディオチャンネル同士をここでルーティングします。マトリクス上の接続したいチャンネル同士の交点を、マウスの左クリックで接続します。

### メモ

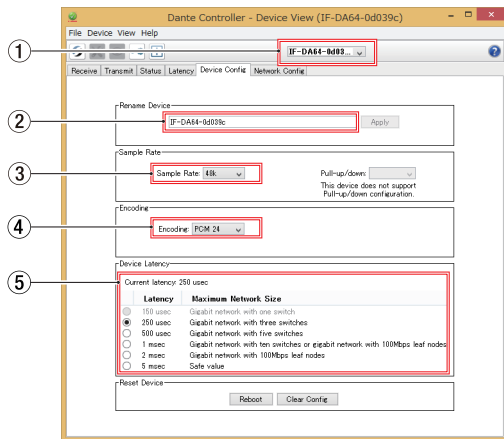
パソコンキーボードのCtrlキーを押しながら、デバイス名の交点にある《-》を左クリックすると、接続可能な全てのチャンネルが一括で接続でき便利です。

## Dante Controller サンプルレート／量子化ビット数の変更

Network View画面でデバイス名をダブルクリックすると、Device View画面が開きます。

ここでは、Danteネットワーク上に存在するデバイスの状態を設定・監視することができます。

Device Configタブを選択すると、下図①で選択されているデバイスのサンプルレートや量子化ビット数などの設定を変更できます。



## ① デバイス名

Device Viewにて設定を変更するデバイスの名前です。

## ② デバイス名変更

デバイス名を変更します。

## ③ サンプリングレート

サンプリングレートを変更します。

## ④ 量子化ビット数

量子化ビット数を変更します。

## ⑤ レイテンシー設定

レイテンシー設定を変更します。

レイテンシー設定は、下表を目安に変更してください。

選択可能なレイテンシー値	接続ネットワーク環境の目安
250usec	送信機から受信機までの伝送経路がギガビット対応スイッチングハブを1台経由する場合
500usec	送信機から受信機までの伝送経路がギガビット対応スイッチングハブを5台経由する場合
1msec	送信機から受信機までの伝送経路がギガビット対応スイッチングハブを10台経由する場合
2msec	送信機の伝送速度が100Mbpsの場合
5msec	選択できるレイテンシー値の最大値で大規模なネットワークを構築する場合

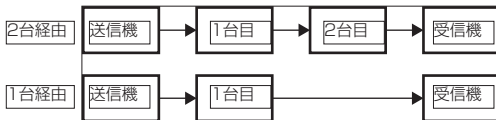
## 注意

- デバイス名を変更するとオーディオ・ルーティング設定がクリアされます。そのため、オーディオ・ルーティングを設定する前に分かりやすいデバイス名に変更することをお勧めします。
- ネットワークの接続環境によっては、目安以上のレイテンシー値を設定しなければならない場合があります。

## メモ

- サンプリングレートや量子化ビット数は、音声信号を送受信する他のDante機器と同じ設定にし、IF-DA64が装着された本体機器も同様に設定にしてください。
- スwitchングハブを使用しないスイッチド（デジチェーン）接続の場合は、以下のように経由するDante機器の台数を目安にレイテンシーを設定してください。

## スイッチド（デジチェーン）接続の場合の例





## 仕様

### 定格

#### チャンネル&フォーマット

Sampling Frequency

44.1k/48kHz : Max 64 channels

88.2k/96kHz : Max 32 channels

### 入出力定格

#### PRIMARY / SECONDARY端子

コネクタ : RJ-45

伝送プロトコル : Dante

Gigabit Ethernet規格 : 1000BASE-T  
(IEEE 802.3ab)

ケーブル : カテゴリー 5e以上

### 一般

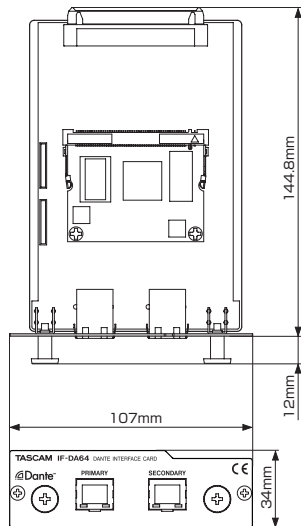
#### 外形寸法

107 x 34 x 156.8 mm (幅 x 高さ x 奥行き、突起を含む)

#### 質量

139g

## 寸法図



- 取扱説明書のイラストが一部製品と異なる場合があります。
- 製品の改善により、仕様および外観が予告なく変更することがあります。

# ティアック株式会社

〒206-8530 東京都多摩市落合1-47

この製品の取り扱いなどに関するお問い合わせは

タスカム カスタマーサポート 〒206-8530 東京都多摩市落合1-47



**0570-000-809**

- 携帯電話、またはナビダイヤルがご利用いただけない場合

電話：042-356-9137 / FAX：042-356-9185

受付時間は、10:00～12:00 / 13:00～17:00です。(土・日・祝日・弊社指定休日を除く)

故障・修理や保守についてのお問い合わせは

ティアック修理センター 〒358-0026 埼玉県入間市小谷田858



**0570-000-501**

- 携帯電話、またはナビダイヤルがご利用いただけない場合

電話：04-2901-1033 / FAX：04-2901-1036

受付時間は、9:30～17:00です。(土・日・祝日・弊社指定休日を除く)

- 住所や電話番号は、予告なく変更する場合があります。あらかじめご了承ください。

---

## ソフトウェアに関する重要なお知らせ

---

ソースコードの入手をご希望されるお客様は、以下のURLにアクセスの上、登録フォームからご要求ください。

<http://teac-global.com/support/opensource/form/>

なお、ソースコードの内容等についてのご質問はお答えできませんので、あらかじめご了承ください。

---

## Important Notice Regarding Software

---

To request the source codes, please access the following URL and fill in the registration form.

<http://teac-global.com/support/opensource/form/>

Please note that we are unable to answer any inquiries or questions about the contents of the source codes.

---

## Software Licensing

---

### ■ ezXML - XML Parsing C Library (v0.8.5)

Copyright 2004, 2005 Aaron Voisine

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,

EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.

IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

### ■ xnprintf for C/C++ (February 26 2005)

Copyright 2004, 2005 Aaron Voisine

Permission is hereby granted, free of charge, to any person obtaining

a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND,

EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT.

IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.

### ■ **tropicssl (v6a6997f)**

Copyright (c) 2009, StackFoundry LLC < support@stackfoundry.com >.

Based on XySSL: Copyright (c) 2006-2008, Christophe Devine.

Based on PolarSSL: Copyright (c) 2009, Paul Bakker <polarssl\_maintainer at polarssl dot org>

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- \* Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
- \* Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.
- \* Neither the names of PolarSSL or XySSL nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

### ■ **Precision Time Protocol daemon (v1b2)**

Copyright (c) 2009-2012 George V. Neville-Neil, Steven Kreuzer, Martin Burnicki, Jan Breuer, Gael Mace, Alexandre Van Kempen

Copyright (c) 2005-2008 Kendall Correll, Aidan Williams  
All Rights Reserved

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following

disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## ■ mDNSResponder

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

### 1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

"Licensor" shall mean the copyright owner or entity authorized by the copyright owner that is granting the License.

"Legal Entity" shall mean the union of the acting entity and all other entities that control, are controlled by, or are under common control with that entity. For the purposes of this definition, "control"

means (i) the power, direct or indirect, to cause the direction or management of such entity, whether by contract or otherwise, or (ii) ownership of fifty percent (50%) or more of the outstanding shares, or (iii) beneficial ownership of such entity.

"You" (or "Your") shall mean an individual or Legal Entity exercising permissions granted by this License.

"Source" form shall mean the preferred form for making modifications, including but not limited to software source code, documentation source, and configuration files.

"Object" form shall mean any form resulting from mechanical transformation or translation of a Source form, including but not limited to compiled object code, generated documentation, and conversions to other media types.

"Work" shall mean the work of authorship, whether in Source or Object form, made available under the License, as indicated by a copyright notice that is included in or attached to the work (an example is provided in the Appendix below).

"Derivative Works" shall mean any work, whether in Source or Object form, that is based on (or derived from) the Work and for which the editorial revisions, annotations, elaborations, or other modifications represent, as a whole, an original work of authorship. For the purposes of this License, Derivative Works shall not include works that remain separable from, or merely link (or bind by name) to the interfaces of, the Work and Derivative Works thereof.

"Contribution" shall mean any work of authorship, including the original version of the Work and any modifications or additions to that Work or Derivative Works thereof, that is intentionally submitted to Licensor for inclusion in the Work by the copyright owner or by an individual or Legal Entity authorized to submit on behalf of the copyright owner. For the purposes of this definition, "submitted" means any form of electronic, verbal, or

written communication sent to the Licensor or its representatives, including but not limited to communication on electronic mailing lists, source code control systems, and issue tracking systems that are managed by, or on behalf of, the Licensor for the purpose of discussing and improving the Work, but excluding communication that is conspicuously marked or otherwise designated in writing by the copyright owner as “Not a Contribution.” “Contributor” shall mean Licensor and any individual or Legal Entity on behalf of whom a Contribution has been received by Licensor and subsequently incorporated within the Work.

2. Grant of Copyright License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable copyright license to reproduce, prepare Derivative Works of, publicly display, publicly perform, sublicense, and distribute the Work and such Derivative Works in Source or Object form.

3. Grant of Patent License. Subject to the terms and conditions of this License, each Contributor hereby grants to You a perpetual, worldwide, non-exclusive, no-charge, royalty-free, irrevocable (except as stated in this section) patent license to make, have made, use, offer to sell, sell, import, and otherwise transfer the Work, where such license applies only to those patent claims licensable by such Contributor that are necessarily infringed by their Contribution(s) alone or by combination of their Contribution(s) with the Work to which such Contribution(s) was submitted. If You institute patent litigation against any entity (including a cross-claim or counterclaim in a lawsuit) alleging that the Work or a Contribution incorporated within the Work constitutes direct or contributory patent infringement, then any

patent licenses granted to You under this License for that Work shall terminate as of the date such litigation is filed.

4. Redistribution. You may reproduce and distribute copies of the Work or Derivative Works thereof in any medium, with or without modifications, and in Source or Object form, provided that You meet the following conditions:

You must give any other recipients of the Work or Derivative Works a copy of this License; and

You must cause any modified files to carry prominent notices stating that You changed the files; and

You must retain, in the Source form of any Derivative Works that You distribute, all copyright, patent, trademark, and attribution notices from the Source form of the Work, excluding those notices that do not pertain to any part of the Derivative Works; and

If the Work includes a “NOTICE” text file as part of its distribution, then any Derivative Works that You distribute must include a readable copy of the attribution notices contained within such NOTICE file, excluding those notices that do not pertain to any part of the Derivative Works, in at least one of the following places: within a NOTICE text file distributed as part of the Derivative Works; within the Source form or documentation, if provided along with the Derivative Works; or, within a display generated by the Derivative Works, if and wherever such third-party notices normally appear. The contents of the NOTICE file are for informational purposes only and do not modify the License. You may add Your own attribution notices within Derivative Works that You distribute, alongside or as an addendum to the NOTICE text

from the Work, provided that such additional attribution notices cannot be construed as modifying the License. You may add Your own copyright statement to Your modifications and may provide additional or different license terms and conditions for use, reproduction, or distribution of Your modifications, or for any such Derivative Works as a whole, provided Your use, reproduction, and distribution of the Work otherwise complies with the conditions stated in this License.

5. Submission of Contributions. Unless You explicitly state otherwise, any Contribution intentionally submitted for inclusion in the Work by You to the Licensor shall be under the terms and conditions of this License, without any additional terms or conditions. Notwithstanding the above, nothing herein shall supersede or modify the terms of any separate license agreement you may have executed with Licensor regarding such Contributions.

6. Trademarks. This License does not grant permission to use the trade names, trademarks, service marks, or product names of the Licensor, except as required for reasonable and customary use in describing the origin of the Work and reproducing the content of the NOTICE file.

7. Disclaimer of Warranty. Unless required by applicable law or agreed to in writing, Licensor provides the Work (and each Contributor provides its Contributions) on an "AS IS" BASIS, WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied, including, without limitation, any warranties or conditions of TITLE, NON-INFRINGEMENT, MERCHANTABILITY, or FITNESS FOR A PARTICULAR PURPOSE. You are solely responsible for determining the appropriateness of using or redistributing

the Work and assume any risks associated with Your exercise of permissions under this License.

8. Limitation of Liability. In no event and under no legal theory, whether in tort (including negligence), contract, or otherwise, unless required by applicable law (such as deliberate and grossly negligent acts) or agreed to in writing, shall any Contributor be liable to You for damages, including any direct, indirect, special, incidental, or consequential damages of any character arising as a result of this License or out of the use or inability to use the Work (including but not limited to damages for loss of goodwill, work stoppage, computer failure or malfunction, or any and all other commercial damages or losses), even if such Contributor has been advised of the possibility of such damages.

9. Accepting Warranty or Additional Liability. While redistributing the Work or Derivative Works thereof, You may choose to offer, and charge a fee for, acceptance of support, warranty, indemnity, or other liability obligations and/or rights consistent with this License. However, in accepting such obligations, You may act only on Your own behalf and on Your sole responsibility, not on behalf of any other Contributor, and only if You agree to indemnify, defend, and hold each Contributor harmless for any liability incurred by, or claims asserted against, such Contributor by reason of your accepting any such warranty or additional liability.

## ■ PetaLinux (v0.10-rc1)

### **GNU GENERAL PUBLIC LICENSE**

Version 2, June 1991

Copyright (C) 1989, 1991 Free Software Foundation, Inc.

59 Temple Place, Suite 330, Boston, MA 02111-1307 USA  
Everyone is permitted to copy and distribute verbatim copies of this license document, but changing it is not allowed.

## Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get

the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

## ■ GNU GENERAL PUBLIC LICENSE

### TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative



work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.

b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.

c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is

to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,

c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License.

However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on

the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does

not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

#### NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED

TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

#### END OF TERMS AND CONDITIONS

Precision Time Protocol daemon (v1b2)

<http://sourceforge.net/projects/ptpd/files/>

Copyright (c) 2009-2012 George V. Neville-Neil, Steven Kreuzer, Martin Burnicki, Jan Breuer, Gael Mace, Alexandre Van Kempen

Copyright (c) 2005-2008 Kendall Correll, Aidan Williams  
All Rights Reserved

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

1. Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.
2. Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

THIS SOFTWARE IS PROVIDED BY THE AUTHORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY

AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE AUTHORS OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## ■ FastCGI (v2.4.0)

This FastCGI application library source and object code (the "Software") and its documentation (the "Documentation") are copyrighted by Open Market, Inc ("Open Market"). The following terms apply to all files associated with the Software and Documentation unless explicitly disclaimed in individual files.

Open Market permits you to use, copy, modify, distribute, and license this Software and the Documentation for any purpose, provided that existing copyright notices are retained in all copies and that this notice is included verbatim in any distributions. No written agreement, license, or royalty fee is required for any of the authorized uses. Modifications to this Software and Documentation may be copyrighted by their authors and need not follow the licensing terms described here. If modifications to this Software and Documentation have new licensing terms, the new terms must be clearly indicated on the first page of each file where they apply.

OPEN MARKET MAKES NO EXPRESS OR IMPLIED WARRANTY WITH RESPECT TO THE SOFTWARE OR THE DOCUMENTATION, INCLUDING WITHOUT LIMITATION ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL OPEN MARKET BE LIABLE TO YOU OR ANY THIRD PARTY FOR ANY DAMAGES ARISING FROM OR RELATING TO THIS SOFTWARE OR THE DOCUMENTATION, INCLUDING, WITHOUT LIMITATION, ANY INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES OR SIMILAR DAMAGES, INCLUDING LOST PROFITS OR LOST DATA, EVEN IF OPEN MARKET HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE SOFTWARE AND DOCUMENTATION ARE PROVIDED "AS IS". OPEN MARKET HAS NO LIABILITY IN CONTRACT, TORT, NEGLIGENCE OR OTHERWISE ARISING OUT OF THIS SOFTWARE OR THE DOCUMENTATION.

## ■ lighttpd

Copyright (c) 2004, Jan Kneschke, incremental

All rights reserved.

Redistribution and use in source and binary forms, with or without modification, are permitted provided that the following conditions are met:

- Redistributions of source code must retain the above copyright notice, this list of conditions and the following disclaimer.

- Redistributions in binary form must reproduce the above copyright notice, this list of conditions and the following disclaimer in the documentation and/or other materials provided with the distribution.

- Neither the name of the 'incremental' nor the names of its contributors may be used to endorse or promote products derived from this software without specific prior written permission.

THIS SOFTWARE IS PROVIDED BY THE COPYRIGHT HOLDERS AND CONTRIBUTORS "AS IS" AND ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE DISCLAIMED. IN NO EVENT SHALL THE COPYRIGHT OWNER OR CONTRIBUTORS BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, OR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES; LOSS OF USE, DATA, OR PROFITS; OR BUSINESS INTERRUPTION) HOWEVER CAUSED AND ON ANY THEORY OF LIABILITY, WHETHER IN CONTRACT, STRICT LIABILITY, OR TORT (INCLUDING NEGLIGENCE OR OTHERWISE) ARISING IN ANY WAY OUT OF THE USE OF THIS SOFTWARE, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE.

## ■ **libsodium (v1.0.3.2)**

Copyright (c) 2013-2016  
Frank Denis <j at pureftpd dot org>

Permission to use, copy, modify, and/or distribute this software for any purpose with or without fee is hereby granted, provided that the above copyright notice and this permission notice appear in all copies.

THE SOFTWARE IS PROVIDED "AS IS" AND THE AUTHOR DISCLAIMS ALL WARRANTIES WITH REGARD TO THIS SOFTWARE INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS. IN NO EVENT SHALL THE AUTHOR BE LIABLE FOR ANY SPECIAL, DIRECT, INDIRECT, OR CONSEQUENTIAL DAMAGES OR ANY DAMAGES WHATSOEVER RESULTING FROM LOSS OF USE, DATA OR PROFITS, WHETHER IN AN ACTION OF CONTRACT, NEGLIGENCE OR OTHER TORTIOUS ACTION, ARISING OUT OF OR IN CONNECTION WITH THE USE OR PERFORMANCE OF THIS SOFTWARE.









# WARRANTY / 保証書

## < In the United States >

This warranty gives you specific legal rights and you may also have other rights which vary from state to state. This warranty is only valid within the country the unit was originally purchased.

### WHAT IS AND IS NOT COVERED

Except as specified below, this warranty covers all defects in materials and workmanship in this product. The following are not covered by the warranty:

1. **Damage to or deterioration of the external cabinet.**
2. **Damages resulting from accident, misuse, abuse or neglect.**
3. **Damage resulting from failure to perform basic daily maintenance and/or calibration or otherwise resulting from failure to follow instructions contained in your owner's manual.**
4. **Damage occurring during shipment of the product. (Claims must be presented to the carrier)**
5. **Damage resulting from repair or attempted repair by anyone other than TEAC or an authorized TASCAM service station.**
6. **Damage resulting from causes other than product defects, including lack of technical skill, competence, or experience of the user.**
7. **Damage to any unit which has been altered or on which the serial number has been defaced, modified or is missing.**

### WHO MAY ENFORCE THE WARRANTY

This warranty may be enforced only by the original purchaser. This warranty is not valid if the product was purchased through an unauthorized dealer.

### LENGTH OF WARRANTY

All parts except heads and disk drives are warranted for one (1) year from the date of original purchase. Heads and disk drives are warranted to ninety (90) days from date of original purchase. Labor is warranted for ninety (90) days from date of original purchase.

### WHAT WE WILL PAY FOR

We will pay all labor and material expenses for items covered by the warranty. Payment of shipping charges is discussed in the next section of this warranty.

### HOW YOU CAN GET WARRANTY SERVICE

Your unit must be serviced by an authorized TASCAM service station in the United

States. (This warranty is not enforceable outside the U.S.) If you are unable to locate an authorized TASCAM service station in your area, please contact us. We either will refer you to an authorized service station or instruct you to return the unit to the factory. Whenever warranty service is required, you must present a copy of the original dated sales receipt from an Authorized TASCAM Dealer.

You must pay any shipping charges if it is necessary to ship the product to service. However, if the necessary repairs are covered by the warranty, we will pay return surface shipping charges to any destination within the United States.

### LIMITATION OF IMPLIED WARRANTIES

Any implied warranties, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, are limited in duration to the length of this warranty.

### EXCLUSION OF DAMAGES

TEAC's liability for any defective product is limited to repair or replacement of the product, at TEAC's option. TEAC shall not be liable for:

1. **Damages based upon inconvenience, loss of use of the product, loss of time interrupted operation or commercial loss; or**
2. **Any other damages, whether incidental, consequential or otherwise.**

Some states do not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

### To locate an Authorized Service Center in Your Area

CALL 1-800-447-8322

## < Europe >

This product is subject to the legal warranty regulations of the country of purchase. In case of a defect or a problem, please contact the dealer where you bought the product.

Ce produit est sujet aux réglementations concernant la garantie légale dans le pays d'achat. En cas de défaut ou de problème, veuillez contacter le revendeur chez qui vous avez acheté le produit.

Dieses Gerät unterliegt den gesetzlichen Gewährleistungsbestimmungen des Landes, in dem es erworben wurde. Bitte wenden Sie sich im Gewährleistungsfall an den Händler, bei dem sie das Gerät erworben haben.



Questo apparecchio è conforme alle norme sulla garanzia vigenti nel rispettivo Paese in cui esso è stato acquistato. Si prega di rivolgersi al proprio commerciante, presso il quale è stato acquistato l'apparecchio, nel caso in cui si voglia richiedere una prestazione in garanzia.

Las condiciones de garantía de este aparato están sujetas a las disposiciones legales sobre garantía del país en el que ha sido adquirido. En caso de garantía, debe dirigirse al establecimiento donde adquirió el aparato.

## <日本>

### 無料修理規定 (持ち込み修理)

1. 取扱説明書、本体貼付ラベルなどの注意書きにしたがった正常な使用状態で保証期間内に故障が発生した場合には、ティアック修理センターが無料修理いたします。
2. 本体の保証期間は、お買い上げの日から1年です。
3. 保証期間内に故障して無料修理を受ける場合は、本書をご提示の上、ティアック修理センターまたはお買い上げの販売店に修理をご依頼ください。商品を送付していただく場合の送付方法については、事前にティアック修理センターにお問い合わせください。
4. ご転居、ご贈答品などでお買い上げの販売店に修理をご依頼に出来ない場合は、ティアック修理センターにご連絡ください。
5. 次の場合には、保証期間内でも有料修理となります。
  - (1)ご使用上の誤りおよび不当な修理や改造による故障および損傷
  - (2)お買い上げ後の輸送・移動・落下などによる故障および損傷
  - (3)火災、地震、水害、落雷、その他の天災地変、公害や異常電圧による故障および損傷
  - (4)接続している他の機器に起因する故障および損傷
  - (5)業務上の長時間使用など、特に苛酷な条件下において使用された場合の故障および損傷
  - (6)メンテナンス
  - (7)本書の提示がない場合
  - (8)本書にお買い上げ年月日、お客様名、販売店名(印)の記入のない場合、あるいは字句を書き換えられた場合

6. 本書（日本語記載部）は日本国内においてのみ有効です。

These warranty provisions in Japanese are valid only in Japan.

7. 本書は再発行いたしませんので、紛失しないよう大切に保管してください。

※ この保証書は、本書に明示した期間・条件のもとにおいて無料修理をお約束するものです。この保証書によって保証書を発行しているもの（保証責任者）、およびそれ以外の事業者に対するお客様の法律上の権利を制限するものではありません。保証期間経過後の修理などについてご不明の場合は、ティアック修理センターにお問い合わせください。

### < In other countries/areas >

This warranty gives you specific legal rights, and you may also have other rights that vary by country, state or province.

If you have a warranty claim or request, please contact the dealer where you bought the product.

该保证书赋予了顾客特定的合法权利，并且因国家，州或省等地域的不同，顾客可能拥有其他权利。如需申请或要求保修，请与购买本产品的销售店进行联系。

If you require repair services for your **TASCAM** equipment, please contact the dealer where the product was purchased from or the **TASCAM** Distributor in your country. A list of **TASCAM** Distributors can be found on our website at: <http://teac-global.com/>

# WARRANTY / 保証書



Model / 型名

Owner's name / お名前

**IF-DA64**

Serial No. / 機番

Address / ご住所

Date of purchase / お買い上げ日

Dealer's name / 販売店

**Sample**

**TASCAM**

<http://teac-global.com/>

Dealer's address / 住所

Memo / 修理メモ

お客様にご記入いただいた保証書の控えは、保証期間内のサービス活動およびその後の安全点検活動のために記載内容を利用させていただく場合がございますので、ご了承ください。

**ティアック株式会社**

〒206-8530 東京都多摩市落合1-47

**ティアック修理センター**

〒358-0026 埼玉県入間市小谷田 858

電話：0570-000-501 / 04-2901-1033