

# TASCAM

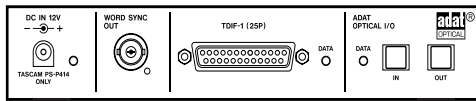
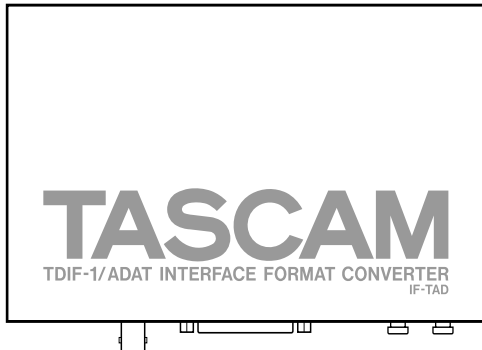
D00442800A

## TEAC Professional Division

# IF-TAD

## Interface Format Converter

# OWNER'S MANUAL



# Important Safety Precautions

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## IMPORTANT (for U.K. Customers)

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**DO NOT cut off the mains plug from this equipment.**

If the plug fitted is not suitable for the power points in your home or the cable is too short to reach a power point, then obtain an appropriate safety approved extension lead or consult your dealer.

If nonetheless the mains plug is cut off, remove the fuse and dispose of the plug immediately, to avoid a possible shock hazard by inadvertent connection to the mains supply.

If this product is not provided with a mains plug, or one has to be fitted, then follow the instructions given below:

**IMPORTANT. DO NOT** make any connection to the larger terminal which is marked with the letter E or by the safety earth symbol  $\perp$  or coloured GREEN or GREEN-and-YELLOW.

The wires in the mains lead on this product are coloured in accordance with the following code:

**BLUE:**                      **NEUTRAL**

**BROWN:**                    **LIVE**

As these colours may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

When replacing the fuse only a correctly rated approved type should be used and be sure to re-fit the fuse cover.

**IF IN DOUBT — CONSULT A COMPETENT ELECTRICIAN.**

**For U.S.A.**

### **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.

# Important Safety Precautions

## **For the consumers 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.

## **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.

## **Für Kunden in Europa**

### **Warnung**

Dies is eine Einrichtung, welche die Funk-Entstörung nach Klasse A besitzt. Diese Einrichtung kann im Wohnbereich Funkstörungen verursachen ; in diesem Fall kann vom Betreiber verlangt werden, angemessene Maßnahmen durchzuführen und dafür aufzukommen.

# Important Safety Instructions

## CAUTION:

- **Read all of these Instructions.**
  - **Save these Instructions for later use.**
  - **Follow all Warnings and Instructions marked on the audio equipment.**
- 1) Read Instructions** — All the safety and operating instructions should be read before the product is operated.
  - 2) Retain Instructions** — The safety and operating instructions should be retained for future reference.
  - 3) Heed Warnings** — All warnings on the product and in the operating instructions should be adhered to.
  - 4) Follow Instructions** — All operating and use instructions should be followed.
  - 5) Cleaning** — Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
  - 6) Attachments** — Do not use attachments not recommended by the product manufacturer as they may cause hazards.
  - 7) Water and Moisture** — Do not use this product near water — for example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool; and the like.
  - 8) Accessories** — Do not place this product on an unstable cart, stand, tripod, bracket, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. Use only with a cart, stand, tripod, bracket, or table recommended by the manufacturer, or sold with the product. Any mounting of the product should follow the manufacturer's instructions, and should use a mounting accessory recommended by the manufacturer.
  - 9) A product and cart combination should be moved with care.** Quick stops, excessive force, and uneven surfaces may cause the product and cart combination to overturn.



## Important Safety Instructions

**10) Ventilation** — Slots and openings in the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, rug, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer's instructions have been adhered to.

**11) Power Sources** — This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company. For products intended to operate from battery power, or other sources, refer to the operating instructions.

**12) Grounding or Polarization** — This product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

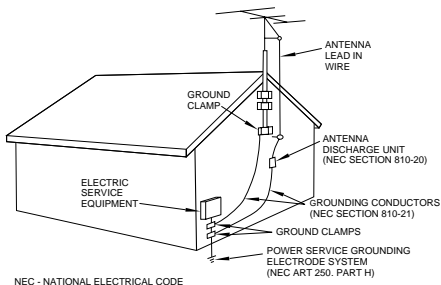
**13) Power-Cord Protection** — Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

**14) Outdoor Antenna Grounding** — If an outside antenna or cable system is connected to the product, be sure the antenna or cable system is grounded so as to provide some protection against voltage surges and built-up static charges. Article 810 of the National Electrical Code, ANSI/NFPA 70, provides information with regard to proper grounding of the mast and supporting structure, grounding of the lead-in wire to an antenna discharge unit, size of grounding conductors, location of antenna-discharge unit, connection to grounding electrodes, and requirements for the grounding electrode.

### "Note to CATV system installer:

This reminder is provided to call the CATV system installer's attention to Section 820-40 of the NEC which provides guidelines for proper grounding and, in particular, specifies that the cable ground shall be connected to the grounding system of the building, as close to the point of cable entry as practical.

Example of Antenna Grounding as per  
National Electrical Code, ANSI/NFPA 70



**15) Lightning** — For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the antenna or cable system. This will prevent damage to the product due to lightning and power-line surges.

**16) Power Lines** — An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits as contact with them might be fatal.

**17) Overloading** — Do not overload wall outlets, extension cords, or integral convenience receptacles as this can result in risk of fire or electric shock.

**18) Object and Liquid Entry** — Never push objects of any kind into this product through openings as they may touch dangerous volt-

# Important Safety Instructions

age points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

**19) Servicing** — Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified service personnel.

**20) Damage Requiring Service** — Unplug this product from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- a) when the power-supply cord or plug is damaged.
- b) if liquid has been spilled, or objects have fallen into the product.
- c) if the product has been exposed to rain or water.
- d) if the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the operating instructions as an improper adjustment of other controls may result in damage and will often require extensive work by a qualified technician to restore the product to its normal operation.
- e) if the product has been dropped or damaged in any way.
- f) when the product exhibits a distinct change in performance – this indicates a need for service.

**21) Replacement Parts** — When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or have the same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

**22) Safety Check** — Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

**23) Wall or Ceiling Mounting** — The product should be mounted to a wall or ceiling only as recommended by the manufacturer.

**24) Heat** — The product should be situated away from heat sources such as radiators, heat registers, stoves, or other products (including amplifiers) that produce heat.



## IF-TAD Interface

The IF-TAD interface allows you to transfer up to eight channels of digital audio data between digital audio devices equipped with a TDIF-1 interface, and those equipped with an adat<sup>1</sup> optical interface.

The units may be multitrack tape recorders, hard disk recorders, digital mixing consoles fitted with the appropriate interfaces, D/A converters, or any combination of these.

Either unit may act as the word clock master.

Data may be transferred in either direction, or in both directions simultaneously.

A BNC connector provides a word clock signal derived from the adat unit's signals. When the adat unit is set to be the clock master, this word clock signal can be used as the word clock source for the TDIF-1 unit.

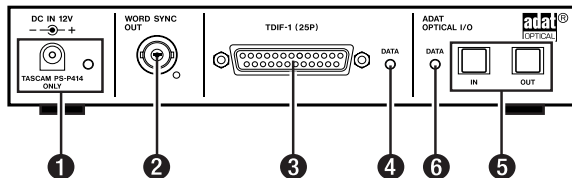
The LEDs on the IF-TAD give a continuous visual indication of the status of the link between the units, as well as the power supplied to the IF-TAD.

The IF-TAD supports the standard sampling frequencies of 44.1 kHz and 48 kHz.

The IF-TAD supports a variety of word lengths, up to 24 bits. When 20-bit or 24-bit data is transmitted to 16-bit units, rounding or truncation is performed by the receiving device.

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1. *adat* is a registered trademark of Alesis Corporation, Inc. All other product names mentioned in this manual are trademarks or registered trademarks of their respective owners.

## 1 Connectors and indicators



### 1 Power connector and indicator

Connect the PS-P414 adapter supplied with the IF-TAD to this inlet. When power is supplied at the correct voltage, the green indicator will light.

#### **WARNING**

*Always use only the PS-P414 power supply designed for use with the IF-TAD. Do not use any other power adapter, or damage may occur to the IF-TAD.*

### 2 WORD SYNC OUT

This BNC connector provides a standard word clock output, based on the word clock derived from the unit to the connected adat device.

### 3 TDIF-1 connector

Use this connector with a unit equipped with a TDIF-1 interface (for example, a DTRS recorder or a digital mixing console).

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## WARNING

*Note that you should always use genuine TASCAM cables, or cables which have been approved for use with TDIF-1 interfaces by TASCAM.*

*Although these cables appear similar to certain types of computer cables and use similar connectors, the cables themselves are very different, and the different electrical characteristics of the cables can cause damage to the equipment connected with the wrong cables.*

*If the use of cables other than TASCAM cables causes or results in damage, the warranty is voided.*

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### 4 TDIF-1 indicator

This indicator lights orange when a valid DTRS signal is received at the TDIF-1 connector.

If this indicator is not lit, it means that the unit has become disconnected, or is not switched on.

If the indicator is flashing, it means that both units (the TDIF-1 and the adat device) have been selected as the clock master, or both have been selected as the clock slave. Make sure that one unit is selected as the word clock master, and the other as the word clock slave.

### 5 adat IN and OUT connectors

Use these connectors to make the appropriate connections (IF-TAD **IN** to the adat device's optical **OUT** and the IF-TAD **OUT** to the adat device's optical **IN**). Use only optical audio cables as recommended by the manufacturer of the adat device.

### ⑥ adat indicator

This indicator will light orange when a valid adat signal is received at the **IN** connector.

If the indicator is not lit, the connection may not be made correctly, or the adat device may be turned off.

If the indicator is flashing, it means that both units (the TDIF-1 and the adat device) have been selected as the clock master, or both have been selected as the clock slave. Make sure that one unit is selected as the word clock master, and the other as the word clock slave.

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#### **NOTE**

*If this indicator and the TDIF-1 indicator are both flashing, this probably means that both the TDIF-1 device and the adat device have been selected as clock sources. Rectify this situation by selecting one device as a clock master and the other as a clock slave.*

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## 2 Operation

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We suggest (though it is not absolutely necessary) that all equipment is turned off when making connections to and from the IF-TAD.

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### **WARNING**

*Since the word clock source will probably be changed for one of the devices, causing an audible “glitch”, you should turn down the levels of all monitoring equipment, to avoid damage to speaker systems, etc.*

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### 2.1 Word clock selection

As mentioned earlier, one, and only one, of the devices connected to the IF-TAD must be acting as a word clock master. If both devices are selected as a word clock master device, the indicators **4** and **6** will flash, and the IF-TAD will not function.

Likewise, if neither is selected as a word clock master, there will be no digital audio transfer possible (data will not be converted using the IF-TAD).

Note that the **WORD SYNC OUT** connector also provides a clock signal, based on the signals from the adat unit connected to the IF-TAD, and this clock can be used to synchronize other units in the system.

Refer to the units' documentation for full details of how to set up the units as word clock masters and slaves. A few examples of how to use some commonly-used units are given below (however your best source of reference is always the documentation provided with the unit):

## IF-TAD Interface

- On the TASCAM DA-98 and DA-88 DTRS recorders, the **CLOCK** key is used to select between the different clock sources available. If this is set to **INT**, the word clock is internally derived, or if a word clock is available at the BNC **WORD IN** connector, the word clock is taken from there.
- On the TASCAM DA-38 DTRS recorder, the **WORD SYNC IN** key is used to select between internal clocking and an external word clock received at the **WORD IN** connector.
- To set the TASCAM TM-D8000 digital mixing console clock source, use the **DIGITAL I/O CLOCK** screen.
- To set the TASCAM TM-D1000 digital mixer clock source, use the **Master Clock Select** sub-menu of the **Option** menu.

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### NOTE

*As well as the word clock selection, you should also make sure that the audio input source and output connectors for all units are set to the digital input receiving data from the IF-TAD and the digital output transmitting data to it.*

*On the TASCAM DTRS series of recorders, this is done using the **DIGITAL IN** key.*

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## 2.2 Problems which may occur

Clock loss on the adat unit may be corrected by changing the pitch on the ADAT recorder away from standard pitch, and then returning it to standard pitch. This will force a re-locking of the clock.

Alternatively, you may have to turn off the adat recorder, wait for a short while and then turn it on again.

## 2.3 Notes on word length

Some models of ADAT recorder record and play back digital data at 20-bit resolution.

- On the TASCAM DA-38 and DA-98 recorders, if a 16-bit input word length is selected, 20-bit data will be truncated to the 16 bits recorded on the DTRS recorder. If 20-bit or 24-bit is selected as the input word length, the 20-bit data will be rounded to 16 bits, using the dither facilities built into the DTRS recorder.
- On DA-88 DTRS recorders, the data is truncated (rather than rounded) to 16-bit resolution.
- On the TM-D8000, use the **OPTION** page of the **DIGITAL I/O** screen to set the word length.

You should be aware of differences in word length in the system, and make the appropriate adjustment on the different units in the system, referring to the unit's documentation if necessary.

## 2.4 Note on metering

There are differences in the way that digital audio devices from different manufacturers display levels on bargraph meters. In the case of TASCAM equipment, levels over the digital full-scale level are displayed as **OVER**. On other equipment, levels within 1 dB or 2 dB of full-scale may be indicated as **MAX** on the topmost segment of the display.

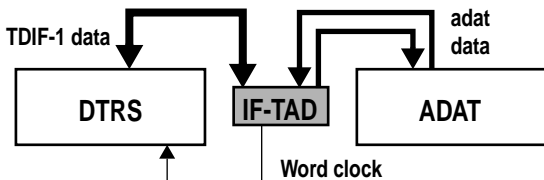
Accordingly, when transferring data between devices, you may notice that some louder portions of the material will cause red segments of the meter on one unit to light, but not on the other unit. This is usually not a problem, and simply reflects the way in which different manufacturers choose to inform you of digital signal levels.

## 3 Examples

The following provide examples of simple connections which use the IF-TAD to convert between digital audio formats.

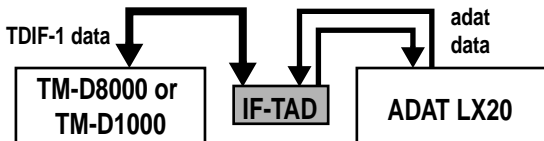
### 3.1 DTRS and ADAT recorders

This simple example allows data transfer between a DTRS recorder and an ADAT multitrack recorder:



Note that here the ADAT recorder acts as the word clock master, and the DTRS recorder takes its clock reference from the IF-TAD through the IF-TAD's **WORD SYNC OUT** connector.

### 3.2 TASCAM digital mixer and ADAT LX20 recorder



In this example, the TM-D8000 or the TM-D1000 acts as the word clock master, providing the clock through the TDIF-1 interface and the ADAT recorder acts as the slave, receiving the clock



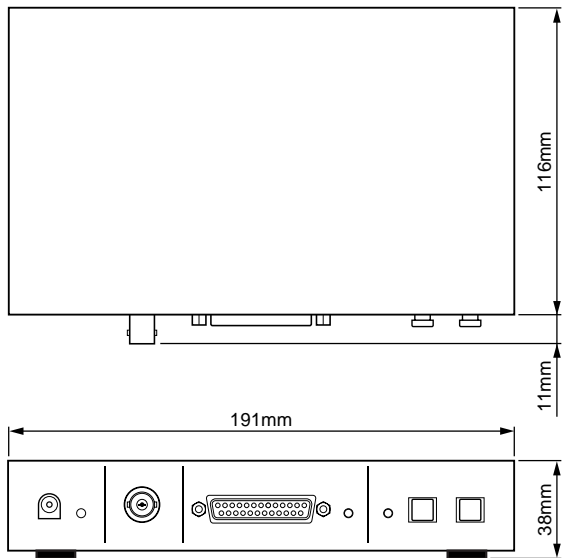
through the optical interface. No dedicated word clock connections are required in this setup.

However, as described earlier, the ADAT LX20 may sometimes experience problems at first with the word clock synchronization, but using the **PITCH UP** and **PITCH DOWN** keys to change the pitch away from standard, and then re-set to standard pitch will usually re-lock the word synchronization (as described in 2.2, "Problems which may occur").

## 4 Specifications

TDIF-1 interface	Bi-directional 8-channel, conforms to TDIF-1 specifications
TDIF indicator	Lights orange when valid TDIF data received
adat IN	Optical, 8-channel input conforms to adat specifications
adat OUT	Optical, 8-channel output conforms to adat specifications
ADAT indicator	Lights orange when valid data received at the adat IN
WORD SYNC OUT	75Ω BNC connector
Power input and indicator	For use with PS-P414 only
Dimensions (w x h x d)	191 x 38 x 116 (mm), 7.5 x 1.5 x 4.6 (in)
Weight (IF-TAD only)	750 g (1.65 lbs)
Power requirements (PS-P414)	USA/Canada 120 VAC, 60 Hz UK/Europe 230 VAC, 50 Hz Australia 240 VAC, 50 Hz
PS-P414 output	9 VDC, 6W

## 4.1 Dimensional drawing



# TASCAM

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