

TASCAM

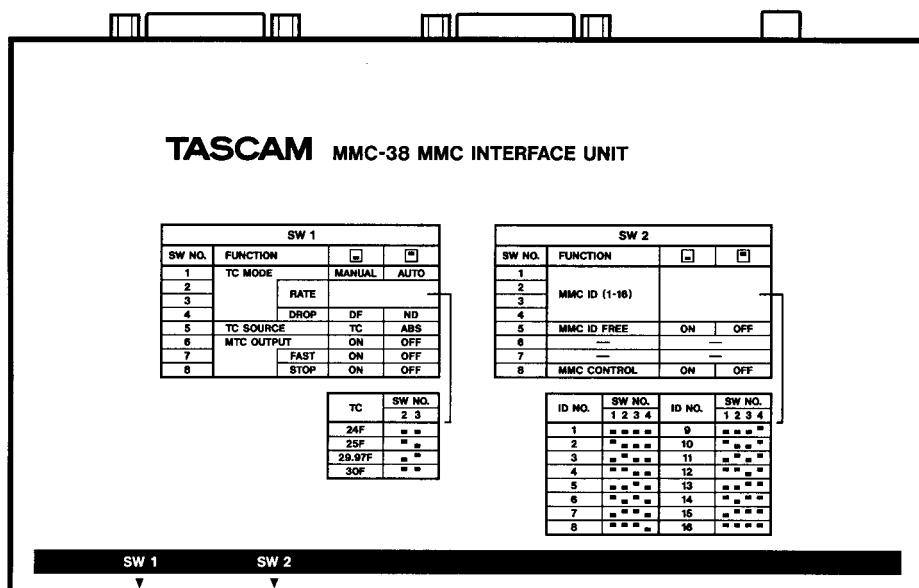
TEAC Professional Division

MMC-38

MMC Interface Unit

Unité d'interface MMC

Schnittstelleneinheit im MMC-Format



OWNER'S MANUAL
MANUEL DU PROPRIETAIRE
BEDIENUNGSANLEITUNG

MMC-38 System Configuration

WARNING

Make all connections with power OFF.

Connexions

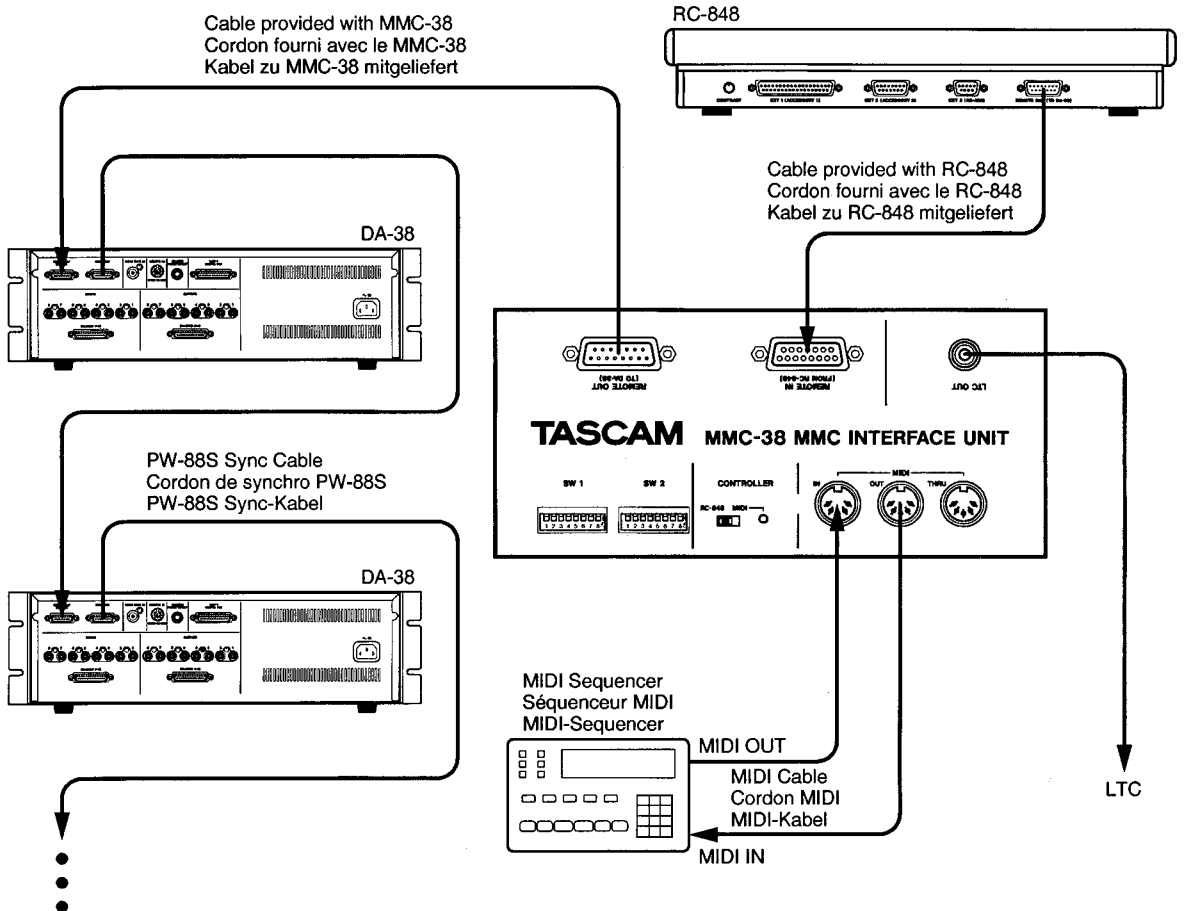
ATTENTION

Effectuer toutes les connexions quand tous les appareils sont hors tension.

MMC-38-System-Konfiguration

ACHTUNG

Anschlüsse ausschließlich bei AUSgeschalteten Geräten herstellen.



IMPORTANT

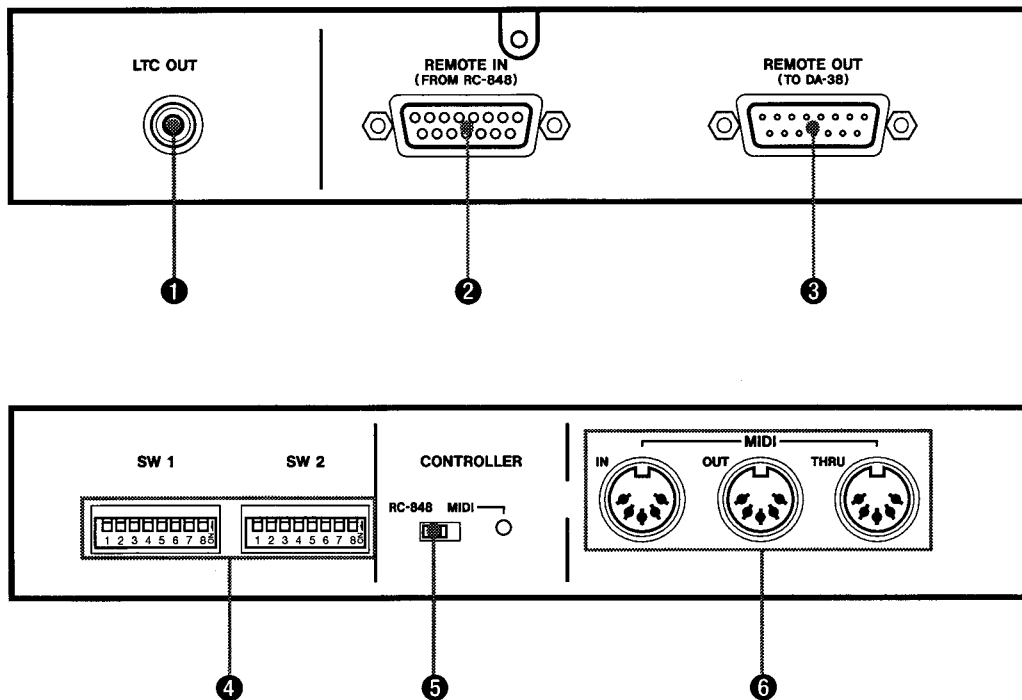
Be sure to use the cable which comes with the MMC-38 to connect it to the DA-38 (DA-88). The MMC-38 is powered through this cable. You cannot use the cable which comes with the RC-848.

IMPORTANT

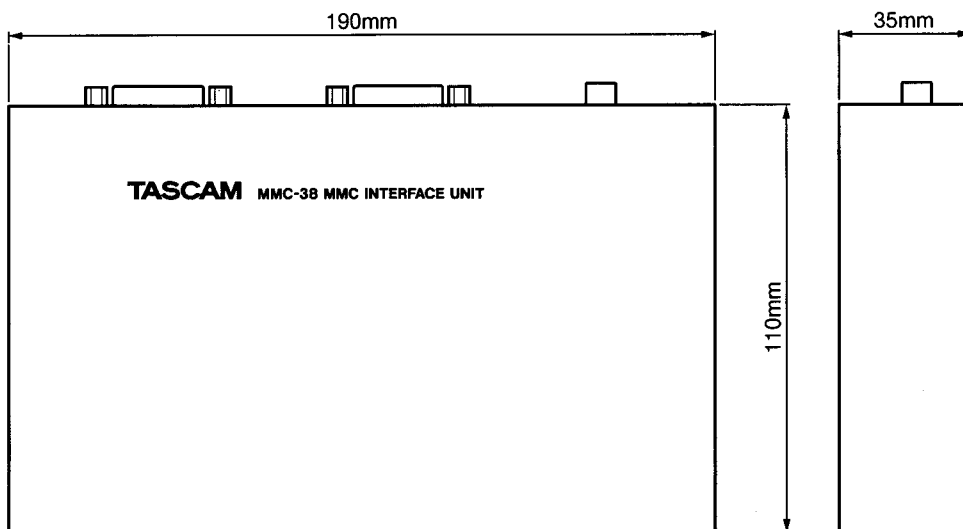
Bien utiliser le cordon de raccordement fourni avec l'interface MMC-38 pour la brancher au DA-38 (ou au DA-88). L'interface est alimentée par ce cordon. Vous ne pouvez pas utiliser à cet effet le cordon fourni avec le RC-848.

ACHTUNG

Zum Anschluß an DA-38 ausschließlich das zur MMC-38 mitgelieferte Anschlußkabel verwenden. Dieses Kabel speist die MMC-38-Spannungsversorgung. Das zu RC-848 mitgelieferte Kabel kann nicht eingesetzt werden!



Dimensions / Dimensions / Abmessungen



INTRODUCTION

Thank you for choosing the TASCAM MMC-38 Interface Unit. Before actually using the MMC-38, read this manual thoroughly at least once, so you will know where to return when you need answers.

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Unpacking

The carton contains the following :

1. MMC-38 Interface Unit (×1)
2. Accessories
 - Connecting cable (×1)
 - This manual (×1)
3. Warranty card (×1)

Precautions and Recommendations

- Operating temperature should be 5° C to 35° C (41° F to 95° F).
- Be careful not to drop the unit or subject it to severe impact.
- When cleaning the exterior of the unit, use a soft cloth. If necessary, moisten a soft cloth with mild solution of detergent and water. Do not use any type of solvents such as alcohol or benzene.

Description

The MMC-38 is an interface designed for controlling DA-38 Digital Multitrack Recorders. It can also be connected to the DA-88, but, in this case, the possibilities of MMC-38 are limited.

MIDI Machine Control (MMC) is a standard specification defined for controlling tape recorders or others under MIDI.

MIDI Timecode (MTC) is a standard specification defined for transmitting time information (data equivalent to SMPTE/EBU timecode) under MIDI.

The MMC-38 is capable of transmitting information on tape locations which is recognizable as MTC, so that you can have MTC-compatible MIDI sequencers play in sync with a tape.

If your MIDI sequencers are compatible with MTC and also with MMC, locating a tape to cue points for example can be automated, allowing you to set up a further powerful system.

From the TASCAM ES-61 Editing Control Unit can the MMC-38 be controlled either as a Master machine or as an Independent machine.

A maximum of 16 DA-38s or DA-88s can be hooked up through their SYNC IN/OUT ports. Regardless of the quantity of DA-38s (or of DA-88s) in use, the MMC-38 communicates with the first machine to get time information, and control all machines in use. Controlling the first machine from the MMC-38 triggers the same functions on the second and all the remaining machines if each of these is locally put into Chase mode, so that you can control the whole system as if it were a single machine of 128 tracks at a maximum.

As for a Track Select command only, the MMC-38 communicates with each of machines. When specified track 17 for example from the exterior, the MMC-38 controls track 1 of the third machine.

This unit is powered from the DA-38.

INTRODUCTION

This unit is connected to the SYNC IN port of the DA-38 (the first machine with a multiple DA-38 system). If you are using the RC-848 as well, it is connected to the RC-848 port of the MMC-38. Remember, however, you cannot use both the MMC-38 and the RC-848 simultaneously.

NOTES

- This interface has no capability of having tapes be referenced to timecode from the exterior.
- From MIDI sequencers can tapes be controlled via this interface, and you can also have sequencers play by referencing them to MTC (MIDI timecode). But, it is useless to reference tapes to MTC by sending it to this interface.
- You can control this interface from the TASCAM ES-61 Editing Control Unit only as a Master or Independent machine, and not as a Slave.
- This interface has a terminal for connection to the RC-848. But, this interface can be controlled only either from the RC-848 or from a MIDI device, as selected by means of a switch. It is impossible to control from both at the same time.
- This interface has no capability of recording timecode on tape.
- When connecting this interface to the DA-88 (instead of to the DA-38), SMPTE/EBU timecode numbers on the tape cannot be sent out as LTC or MTC data. But, it is possible to convert the ABS data into those formats before sending out.

Besides, the Track Copy function is not available since it is not implemented on the DA-88.

CONNECTORS AND CONTROLS

① LTC OUT

Available at this output is an LTC (Linear Timecode) data.

② REMOTE IN (FROM RC-848)

For connection to the RC-848 by means of the cable which comes with the remote.

③ REMOTE OUT (TO DA-38)

For connection to the DA-38 by means of the cable which comes with this interface.

④ SW 1 and SW 2

These DIP switches are used for various optional settings, as discussed later.

⑤ CONTROLLER

Setting this switch to MIDI places the system under MIDI control. When controlling from the RS-848, set this switch to RC-848.

NOTE

You cannot control from both a MIDI device and the RC-848 at the same time.

⑥ MIDI

The IN port is for connection of the output of sequencers or other MIDI devices with a MIDI cable. The OUT port connects to the input of sequencers or other MIDI devices. The THRU port passes along an exact copy of information received at the IN port.

SETTINGS

CONTROLLER selector switch

When setting this switch to the RC-848 position, all the functions of MMC-38 are disabled.

When setting this switch to the MIDI position, the associated LED is lit (provided that the DA-38 is turned on, the DA-38 to which the MMC-38 is connected) to indicate that this interface is active.

The same LED has another function ; MIDI messages this interface receives include information specifying the receiver, and when receiving messages addressed to this interface, the LED momentarily turns off.

DIP switches

The DIP switches must be set before switching on power to the DA-38 to which this interface is connected. If you change any of the DIP switch settings after powering up, then switch off power before switching on power again.

SW 1

#1 TC MODE : MANUAL/AUTO

Determines how to select a frame rate of timecode to be sent out.

↓ MANUAL

SW-1-2, 3 and 4 are used to select a frame rate.

In this manual, the up arrow mark ("↑") shows setting of DIP switches to their upper position, and the down arrow mark ("↓") shows their setting to the lower position.

↑ AUTO

If TC SOURCE is TC (SW1-5 ↓) :

SMPTE/EBU timecode is sent out at the same frame rate as when recorded on tape.

If TC SOURCE is ABS (SW1-5 ↑) :

The frame rate is manually selected the same as at the MANUAL position.

#2, 3 & 4 TC MODE RATE, DROP

When TC MODE is MANUAL (SW1-1 ↓) or when SOURCE is TC (SW1-5 ↓), this group of switches selects the output frame rates as follow :

	#2	#3	#4
24	↓	↓	—
25	↑	↓	—
29.97DF	↓	↑	↓
29.97ND	↓	↑	↑
30DF	↑	↑	↓
30ND	↑	↑	↑

- The #4 switch can be at the upper or lower position for selection of 24 or 25.

#5 TC SOURCE : TC/ABS

↓ TC

The SMPTE/EBU timecode recorded on tape is sent out as LTC and MTC.

If no SMPTE/EBU timecode exists on the tape, no TC output is available.

When this interface is connected to the DA-88, too, no TC output is available.

↑ ABS

The ABS time on tape is converted into SMPTE/EBU code and sent out as LTC and MTC.

Since tapes formatted on DTRS recorders (such as DA-88, DA-38, etc.) have the ABS time on them, the TC output is available.

- Switches #6 through 8 determine the initial configuration upon powering up. Thereafter, this configuration can be modified by means of MMC commands.

#6 MTC OUTPUT : ON/OFF

This switch determines whether MTC is sent out or not.

↓ ON

MTC is sent out.

During play, Quarter Frame is sent out. In any other transport modes, Full Message is sent out as specified by switches #7 & #8.

↑ OFF

No MTC is sent out.

#7 MTC OUTPUT FAST : ON/OFF

This switch determines whether MTC and LTC are sent out or not when the tape is shuttling or fast winding in the forward direction or when the tape is winding in reverse at whatever speeds.

↓ ON

MTC and LTC are sent out.

↑ OFF

No MTC and LTC are sent out.

#8 MTC OUTPUT STOP : ON/OFF

This switch determines whether MTC is sent out or not when the tape is stopped.

↓ ON

MTC is sent out.

↑ OFF

No MTC is sent out.

SW2

#1 through 4 MMC ID (1-16)

MMC requires that each machine has its proper address (also called ID or DEVICE ID). A controller communicates with a particular machine by first designating its address.

Among addresses 1-127 the MMC standard allows, the MMC-38 uses only 1-16.

Addresses must be assigned not only to machines in use but also to your controller.

On the ES-61 controller for example, you can select an address from among 1-127.

When addresses available on a controller starts from "1" as in the case of the ES-61, the same address assigned to the controller must be selected on the MMC-38. Set the DIP switches for that address number by referring to the ID NO. table on the MMC-38's panel.

When addresses available on your controller starts from "0", select a plus-1 number on the MMC-38 (2 if 1 is assigned to the controller).

If the controller is used to control other MMC devices than the MMC-38 as well, be sure to assign to the MMC-38 an address which is not assigned to any other devices.

MMC also uses what is called Broadcast for controllers to designate machines to communicate with.

This is used to send the same commands to all

SETTINGS

machines in the system, so that the individual machines act as instructed regardless of their addresses. Most of the MIDI sequencers use this method to send out MMC commands.

If your controller has no capability of selecting MMC addresses, it probably uses Broadcast. With this kind of controller, there is no need of setting SW2-1 through 4.

#5 MMC ID FREE : ON/OFF

When this switch is set to the lower/ON position, the MMC-38 receives and executes commands directed to whatever addresses. Which means that, if you are using only one MMC device, you can omit to assign it an address. Remember, this omni-address mode does not ensure the correct functions depending on the controllers.

When connecting the MMC-38 to the ES-61, set this switch to the upper/OFF position, and assign addresses to them.

When receiving commands sent in Broadcast, or when receiving commands with MMC ID FREE set to ON, the LED concerned on the MMC-38 flashes as if it received commands addressed to it.

#8 MMC CONTROL : ON/OFF

When this switch is set to the upper/OFF position, the MMC-38 overrides whatever MIDI commands it receives.

Even though this switch is set to OFF, the MMC-38 sends out MTC depending on the settings of SW1-6, 7 & 8.

LTC Output

This interface is capable of transmitting LTC (Linear Timecode, that is, the normal SMPTE/EBU timecode), too.

The selection of a TC Source and also the selection of a Frame Rate you make for MTC are valid as they are for LTC as well.

The LTC output expresses the exact tape locations during Play. It is not available when the tape is stopped. In any other transport modes, that is, when the tape is shuttling or fast winding in the forward direction, or when the tape is winding in reverse at whatever speeds, the LTC output is or is not available depending on the setting of SW1-7 (MTC OUTPUT FAST).

When the tape is in motion except in Play, LTC is issued using a "5-frame pattern". This way of output consists in issuing LTC the same as in Play during the interval of 5 frames. Code numbers are calculated from the tape location at a given moment and are issued, incrementing in the same direction and at the same speed as in Play. The sequence calculation and output repeats at the end of each 5-frame interval.

MIDI Messages

The MMC-38 issues and receives the following MIDI messages :

Reception

MMC command
Identity Request command

Transmission

MMC response
MTC
Identity Reply

MMC (MIDI Machine Control)

The MMC-38 is capable of handling the following MMC Commands and Information Fields :

[Command]

STOP	PLAY	DEFERRED PLAY
F.FWD	REW	REC STROBE
REC EXIT	COMMAND ERROR RESET	
MMC RESET	WRITE	MASKED WRITE
READ	UPDATE	LOCATE
SHUTTLE	MTC COMMAND EVENT	

[Information Field]

SELECTED TC	GP0-7
Short SELECTED TC	Short GP0-7
SIGNATURE	RESPONSE ERROR
COMMAND ERROR	COMMAND ERROR LEVEL
SELECTED TC SOURCE	SELECTED TC USERBITS
MOTION CONTROL TALLY	RECORD MODE
RECORD STATUS	TRACK REC STATUS
TRACK REC READY	GLOBAL MONITOR
RECORD MONITOR	MTC COMMAND TALLY
MTC SETUP	EVENT RESPONSE
FAILURE	

Identity Reply

The MMC-38 responds with the following messages when receiving an Identity Request command :

F0 system exclusive message header
7E universal system exclusive non realtime header

<channel> a number which is obtained by subtracting 1 from the number set with SW-2-1 through 4 : ID NO. in the table on the panel (in binary notation).
06 sub-id #1 = general information
02 sub-id #2 = device identity replay
4E TEAC id
01 category = recorder
04 type = digital cassette
04 interface = MMC-38
0C machine = DA-38
"01" in the case of the DA-88
<VH> Software version of MMC-38. Numbers above the decimal point expressed in binary notation.
<VL> Numbers (of the software version) below the decimal point regarded as a 2-digit number and expressed in binary notation.
00 no meaning given for the present
00 no meaning given for the present
F7 end of sys ex

TASCAM exclusive message

This TASCAM-exclusive message developed for controlling DTRS recorders (such as DA-88, DA-38, etc.) controls each of the DA-38s (DA-88s) connected each other via SYNC IN. The message follows the following format :

F0 system exclusive message header
4E TEAC id
<channel> a number which is obtained by subtracting 1 from the number set with SW-2-1 through 4 : ID NO. in the table on the panel (in binary notation).
11 operation code = DTRS SYNC IN
<an> MACHINE ID set on each DA-38
<cc> command code
<data> data whose format varies depending on commands
<cs> checksum = lower 7 bits of the sum of all numbers after (and including) <cc> and all numbers before <cs>
F7 end of sys ex

MIDI Messages

<cc> = 04	Delay Track	<p><data> = 5 bytes consisting of <tk>, <da>, <db>, <dc>, and <dd></p> <p>Allowable delay values : -200 to +7200</p> <p><tk> = 0s000ttt</p> <p>s = 1: negative</p> <p>ttt = track #</p> <p><da> = 1's place of Delay Values</p> <p><db> = 10's place of Delay Values</p> <p><dc> = 100's place of Delay Values</p> <p><dd> = 1000's place of Delay Values</p>
<cc> = 05	Cross Fade	<data> is a single byte 1-9. Unit : 10 mS
<cc> = 06	Machine Offset	<p>This command instructs the second and the following machines to chase with offset in regard to the first machine. The command addressed to the first machine has no effect.</p> <p><data> consists of 4 bytes : <hh>, <mm>, <ss>, and <ff></p> <p>Each byte : hours, minutes, seconds, and frames expressed in binary notation. Time format is ABS.</p> <p><hh> also expresses codes :</p> <p><hh> = 0sssuuuu</p> <p>uuuu : hours</p> <p>sss : with sss = "000" for positive, "001" for negative</p> <p>The limits within which the time is expressed with the whole of the bytes depend on the recorders :</p> <p>With DA-38, from -2h 00m 00s 00f to +2h 00m 00s 00f</p> <p>With DA-88, from -1h 00m 00s 00f to +1h 00m 00s 00f</p> <p>Avoid specifying times beyond the limits or else the maximum/minimum values allowed will be set.</p>
<cc> = 09	Track Copy Setup	<p><data> = <destination track> <source></p> <p><destination track> = tape track # - 1 (00-07)</p> <p><source> = input channel # - 1 (00-07)</p> <p>tape track # - 1 + 8 (08-0F)</p> <p>This Track Copy Setup command and the next Track Copy Enable command have no effect on the DA-88.</p>
<cc> = 0A	Track Copy Enable	<p><data> = <Enable/Disble></p> <p><Enable/Disable> = 0: Disable</p> <p>1: Enable</p>

SPECIFICATIONS

I/O port

D-sub 15pin: REMOTE IN (FROM RC-848)
D-sub 15pin: REMOTE OUT (TO DA-38)
DIN 5pin: MIDI IN
DIN 5pin: MIDI OUT
DIN 5pin: MIDI THRU
RCA: LTC OUT, Output level : 1 V p-p

Dimensions (WxDxH) :

190 mm x 110 mm x 35 mm

Weight: 0.73 kg

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 ist 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.

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