

***PROFESSIONAL***

Model CDR420 User Guide

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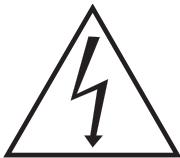
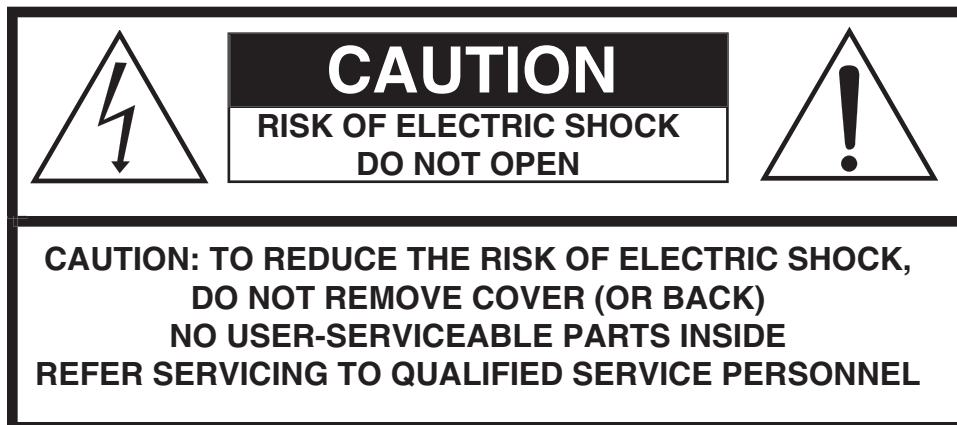
HD/CD Recorder

**marantz®**

CLASS 1 LASER PRODUCT  
LOUKAN 1 LASERLAITE  
KLASS 1 LASERAPPARAT

**COMPACT**  
**disc**  
**Recordable**  
**ReWritable**

## Warnings and Cautions



The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of un-insulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

### **WARNING**

**TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK,  
DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.**

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## **LASER SAFETY**

This unit employs lasers. Only a qualified service person should remove the cover or attempt to service this device, due to possible eye injury.

**CAUTION USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURE OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.**

### **WARNINGS FOR LASER RADIATION**

**CAUTION:** INVISIBLE LASER RADIATION WHEN OPEN, DO NOT STARE INTO BEAM.

**DANGER:** INVISIBLE LASER RADIATION WHEN OPEN, AVOID DIRECT EXPOSURE TO BEAM.

**VAROI:** AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTINANAYMÄTTÖMÄALLE LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.

**WARNING!** OSYNLIGH LASERSTÄLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRREN ÄR URKOPPLAD. BETRAKTA EJ STRALEN.

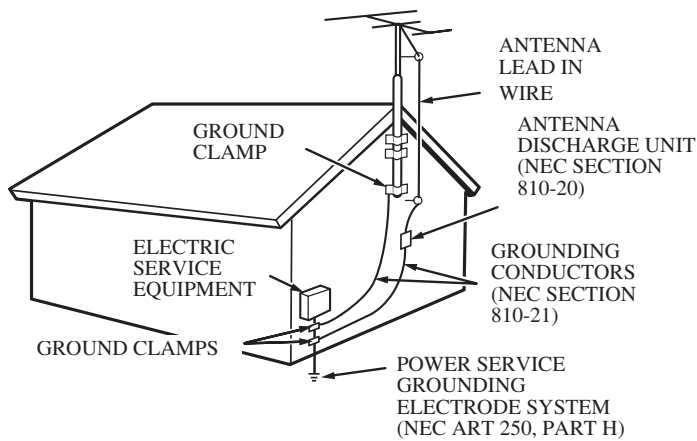


FIGURE 1  
EXAMPLE OF ANTENNA GROUNDING AS PER  
NATIONAL ELECTRICAL CODE, ANSI/NFPA 70  
NEC - NATIONAL ELECTRICAL CODE

### NOTE TO CATV SYSTEM INSTALLER:

This reminder is provided to call the CATV (Cable-TV) system installer's attention to Article 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.

### NOTE:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**NOTE: Changes or modifications may cause this unit to fail to comply with Part 15 of the FCC Rules and may void the user's authority to operate the equipment.**

### WARNINGS

- Do not expose the equipment to rain or moisture.
- Do not remove the cover from the equipment.
- Do not insert anything into the equipment through the ventilation holes.
- Do not handle the mains lead with wet hands.
- Do not cover the ventilation with any items such as tablecloths, newspapers, curtains, etc.
- No naked flame sources, such as lighted candles, should be placed on the equipment.
- When disposing of used batteries, please comply with governmental regulations or environmental public instruction's rules that apply in your country or area.
- Do not place anything about 0.1 meter above the top panel.
- Make a space of about 0.1 meter around the unit.
- No objects filled with liquids, such as vases, shall be placed on the apparatus.
- When the switch is in the OFF position, the equipment is not completely switched off from MAINS.

When setting up the recorder ensure that:

- it will not be exposed to interference from external equipment.
- it will not be exposed to electrostatic discharges.
- it will not be exposed to direct sunlight.
- heavy objects are not placed on the recorder.

### Equipment mains working system

This product complies with household power and safety requirements in your area. US units are supplied with power units that can be powered by 120 V AC only.

### This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la Classe A est conforme à la norme NMB-003 du Canada.

### Copyright

Recording and playback of any material may require consent. For further information refer to the following US ordinances:

- Copyright act of 1956
- Dramatic and Musical Performance Act 1958
- Performers Protection Acts 1963 and 1972
- any subsequent statutory enactments and orders

# Important Safety Instructions

## READ BEFORE OPERATING EQUIPMENT

This product was designed and manufactured to meet strict quality and safety standards. There are, however, some installation and operation precautions which you should be particularly aware of.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13. Unplug this apparatus during lightning storms or when unused for long periods of time.
14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.



### Additional Safety Information!

- 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.
- Apparatus shall not be exposed to dripping or splashing and that no objects filled with liquids, such as vases, shall be placed on the apparatus.
- When the switch is in the OFF position, the apparatus isn't completely switched-off from the MAINS.

### Precautions - installation

- Do not expose the CDR420 to excessive heat, excessive cold, rain, moisture, or dust this may cause damage to the unit.
- If a foreign object or water does enter the unit, contact your nearest dealer or service center.
- All players produce some heat during operation and this heat must be allowed to dissipate freely. Do not close any ventilation openings and be sure there is adequate ventilation space behind, beside and above the player so air is allowed to circulate freely around the unit.
- Be sure ventilation holes are not covered.
- Prevent extra heat from reaching the unit. Never put the CDR420 in direct sunlight or near a heat source.
- Do not expose the CDR420 to electrostatic discharges.
- Do not place heavy objects on the unit.
- Be sure the CDR420 is placed on a vibration-free surface.

### Precautions - connection

- Unplug the power adapter from the AC outlet or turn off the POWER switch before making any connection.
- Connect one cable at a time observing the 'input' and 'output' labeling. This will avoid any cross connections between channels and signal inputs and outputs.
- Insert plugs securely. An incomplete connection may result in noise.
- Before connecting other audio or video equipment to the CDR420, please read their owner's manuals.

## Specifications

### Digital Audio System

System.....	Hard Disk Recorder
Recording media .....	2.5" 20GB HDD
Burning CD media .....	CD-R, CD-RW discs
Recording audio format	
MP3 (.mp3) .....	MPEG Audio Layer 3 compression
WAVE (.wav).....	16 bit linear PCM
Recording bit rate	
MP3 Stereo .....	320, 256, 160, 128, 80, 64 kbps
MP3 Mono.....	160, 128, 80, 64, 40, 32 kbps
Sampling frequency .....	44.1 kHz
Number of channels .....	2 (stereo), 1 (mono)
Frequency response.....	20,000 Hz (-0.5dB)

### Inputs/Outputs

#### MIC/LINE IN L/R

Type.....	XLR (1:GND, 2:HOT, 3:COLD) ¼" T-R-S phone jack
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#### Line level

Input sensitivity/Impedance .....	500 mVrms/2k ohms
Signal-to-Noise ratio (IEC-A weighted) .....	80 dB
Total Harmonic Distortion (0dB, PCM).....	0.05%

#### MIC level

Input Sensitivity/Impedance.....	1 mVrms/2k ohms
Signal-to-Noise ratio (IEC-A weighted) .....	60 dB
Total Harmonic Distortion (0dB, PCM).....	0.2%

#### AUX IN L/R

Input Sensitivity/Impedance.....	1 Vrms/23k ohms
Signal-to-Noise ratio (IEC-A weighted) .....	87 dB
Total Harmonic Distortion (0dB, PCM).....	0.05%

#### LINE OUT L/R

Type.....	RCA jack
Standard level/Impedance .....	1 Vrms/2k ohms

#### MIX OUT L/R

Type.....	RCA jack
Standard level/Impedance .....	1 Vrms/2k ohms

#### DIGITAL IN/OUT

Type.....	RCA jack
Standard output level/Impedance .....	0.5 Vp-p/75 ohms
Sampling frequency.....	44.1 kHz

KEYBOARD .....

USB..... USB Type B

### General

Headphone Output (10% THD) .....	70 mW/32 ohms
Speaker Output.....	1.7 W/8 ohms
Phantom power .....	+48V, 10mA
Power requirement .....	AC100V-240V, 50/60 Hz
Power consumption (maximum).....	12V, 1.4A

continues

## Specifications continued

Dimensions (maximum)	
Width .....	279 mm (11.0")
Height .....	102 mm (4.0")
Depth .....	229 mm (9.0")
Weight.....	2.5 kg (5 lbs. 8 oz.)
Included accessories	
AC adapter.....	1
Stereo audio cable .....	2
User Guide.....	1
Optional accessories**	
Rechargeable Lead Acid battery system .....	RPS420
Additional rechargeable Lead Acid battery pack .....	RB4200
Carrying bag .....	PRC300
Attaché carrying case .....	CA300

\*\*See [www.d-mpro.com](http://www.d-mpro.com) for details.

\*Specifications subject to change without notice.

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### Introduction

The CDR420 HD/CD Recorder is a professional recorder. You record directly to the built-in Hard Disc (HD) from digital or analog inputs.

Recording to the built-in Hard Disc (HD) provides a number of advantages:

- Over 30 hours (PCM) or 1400 hours (MP3) of recording storage capacity permits long recording times.
- Recordings on the HD are in digital form and can be transferred to your computer for editing.
- Recordings can be edited in the CDR420 itself.
- More stable than directly recording to a CD. (If recording is done directly to a CD-R a disc error can interrupt the recording session.)
- Automatically records the time and date.
- Automatically names the recording file by the time and date recording begins.
  - You can change the file name later if desired, or while recording using an attached keyboard.
- PCM recordings on the CDR420 can be burned to an AUDIO CD (CD-DA).
  - A multi-session CD (EXTRA) can also record file information tags (text files-.txt) that can be read by your computer.
- PCM and/or MP3 recordings on the CDR420 can be burned to a DATA CD.
- Unattended Record Timer lets you preset the date and time for a recording to begin and how long to record.

### Editing on the CDR420

The CDR420 enables you to “assemble” a CD from audio files recorded on the HD.

The CDR420 can convert PCM tracks to MP3.

You can scrub (forward and reverse over a portion of a track to locate and mark the beginning and end points of a passage) to select a passage for editing. Editing audio on the HD *models* the common procedures used to edit text in a word processing application: mark an audio passage (highlight text), cut (cut text) [delete the audio segment and move it to the clipboard], copy (copy text) [non-destructively copy the audio segment to the clipboard], and paste (paste text) [copy the audio segment on the clipboard to a new location within the track].

When your edited file is complete you can write the file to a standard CD or MP3 data disc.

## Table of Contents

Topic	page
Warnings and Cautions .....	2
Laser Safety .....	2
Important Safety Instructions .....	4
Specifications .....	5
Introduction .....	6
Table of Contents .....	7
Package contents .....	8
Basic Operation .....	8
Features .....	10
Connections .....	11
Connect Microphones or Instruments .....	11
Connect computer .....	11
Connect analog equipment .....	11
Connect digital equipment .....	12
Connect keyboard .....	12
Power on sequence .....	12
<b>Controls, Display (top)</b>	
1 Speaker .....	14
2 Built-in microphone .....	14
3 Tone controls .....	14
4 Control buttons	
4a FILE DIR button .....	14
4b INFO button .....	15
4c JUMP button .....	16
4d PHANTOM button .....	17
4e CD/HD button .....	17
4f MARK button .....	17
4g UTILITY MENU button .....	17
4h UNDO button .....	18
4i REDO button .....	18
4j EDIT MENU button .....	18
5 <b>Display</b>	18
a Record icon ● .....	18
b Pause icon ■■ .....	18
c Play icon ▶ .....	19
d FILES label .....	19
e EDIT label .....	19
f MENU label .....	19
g BUILD label .....	19
h IN label .....	19
i OUT label .....	19
j UTILITY label .....	19
k Level meter scale .....	19
l L (left) level meter .....	19
m R (right) level meter .....	19
n ? label .....	19
o MP3 label .....	19
p PCM label .....	20
q Working label .....	20
r HD label .....	20
s CD label .....	20
t REC label .....	20
u Timer label .....	20
v Total label .....	20
w Select label .....	20
x Elapsed label .....	20
y Remaining label .....	20
z Alphanumeric display .....	20

Topic	page
6 POWER switch .....	20
7 STANDBY light .....	20
8 Jog Wheel (SELECT, PUSH ENTER) .....	21
9 IN button .....	21
How to jump to an IN mark .....	21
10 OUT button .....	21
How to jump to an OUT mark .....	22
11 REC button light ● .....	22
12 Fast Reverse button ◀◀ .....	23
13 Fast Forward button ▶▶ .....	23
14 Play/Pause button ▶▶ .....	23
15 Stop button ■ .....	23
<b>Controls, Connections (front)</b>	
1 PHONE/SPEAKER LEVEL control .....	24
2 PHONE SELECTOR .....	24
3 MIC/LINE controls and input jacks .....	24
3a Left XLR or 1/4" input jack .....	24
3b Right XLR or 1/4" input jack .....	24
3c LINE MIC INT switch .....	24
3d Left level control .....	24
3e L/R L+R switch .....	24
4 INPUT ANALOG/DIGITAL switch .....	25
5 REC LEVEL switch .....	25
6 MIC/LINE ATT switch .....	25
7 SPEAKER OFF/ON switch .....	25
8 EJECT button .....	25
9 Eject button .....	25
10 CD light .....	25
11 CD slot .....	25
12 PHONES jack .....	25
13 LINE OUT level control .....	25
<b>Controls, Connections (rear)</b>	
1 MIX OUT jacks .....	26
2 LINE OUT jacks .....	26
3 AUX IN jacks .....	26
4 DIGITAL IN and OUT jacks (SPDIF) .....	26
5 I/O jack (computer) .....	26
6 KEYB jack (keyboard) .....	26
7 DC IN .....	26
8 DCIN pinout .....	26
<b>How To</b>	
REC LEVEL adjustment .....	27
REC FORMAT .....	27
How to set or change the REC FORMAT to be recorded .....	27
Stereo or Mono recording .....	28
How to set or change the CHANNEL to be recorded .....	28
KBPS .....	29
How to set or change the BITRATE to be recorded .....	29
Auto Track Increment .....	29
How to set or change A. TRK INC HD .....	30
Record Timer .....	31
How to set the RECORD TIMER .....	31

continues

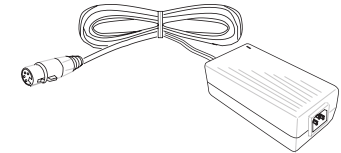
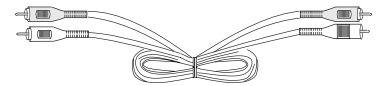
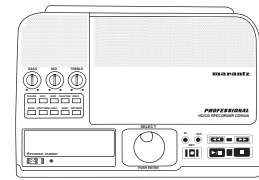


## Table of Contents continued

Topic	page
UTILITY MENU - NEW CD PROJECT .....	33
How to do a CD project.....	33
AUDIO .....	33
DATA .....	33
EXTRA .....	33
Add all tracks .....	33
How to add a track to a CD Project .....	34
How to delete a track from a CD Project....	34
How to change a track in a CD Project .....	34
How to burn your CD Project to a CD .....	35
Display messages during CD burning .....	35
How to Copy a CD .....	36
How to Rip a CD.....	37
How to RIP an Entire CD .....	37
How to RIP a single track .....	38
Date and Time.....	40
How to SET DATE/TIME.....	40
Filters .....	41
How to set Filters .....	41
PLAYBACK MODE .....	43
How to set the Playback Mode .....	43
USER SETTINGS .....	44
AUTO MAKE CD.....	44
AUTO TRK INC CD.....	45
A. TRK TIME .....	45
CD TYPE.....	46
ALLOW FORMAT .....	47
COPY B4 EDIT.....	47
LOCK EDITING .....	48
LOCK REC. SET .....	49
PRE-ROLL TRK .....	49
REQ.CONFIRM.....	50
RST DEFAULTS .....	51
FORMAT HDD.....	52
How to EDIT AUDIO .....	52
How to navigate within the track .....	53
How to mark an audio segment .....	53
Precise Editing (navigation) .....	54
Clipboard play .....	54
How to Insert Silence .....	54
How to Cut, Copy or Delete .....	55
How to Exit Edit Execute Mode.....	56
How to EDIT TAGS .....	57
DELETE TRACK.....	58
DELETE ALL TRK .....	59
COPY TRACK .....	59
SPLIT TRACK .....	59
CONVERT TO MP3 .....	60
Firmware Update .....	61
Keyboard .....	62
About Compact Discs .....	63
Optional battery supply.....	64
LIMITED WARRANTY .....	65

## Package contents

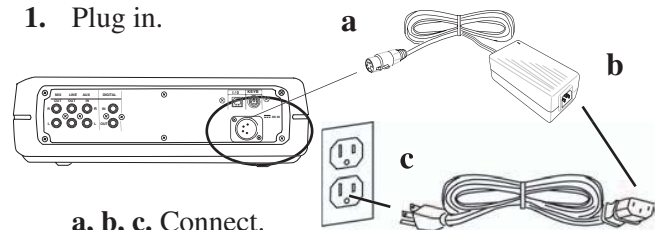
- CDR420 unit
- Audio cable (2) (stereo pair) (3' 3", 100cm)
- Power pack
- Power supply cord



## Basic operation

Install on a table or other flat, stable, surface.

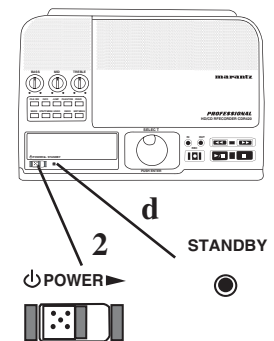
### 1. Plug in.



a, b, c. Connect.

d. The red STANDBY light will be lit.

2. Slide the POWER switch to the right and release. The display will document the power up sequence, then display the date and time.

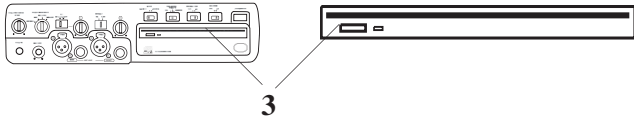


Date and time are displayed when the CDR420 is idle (example shown).

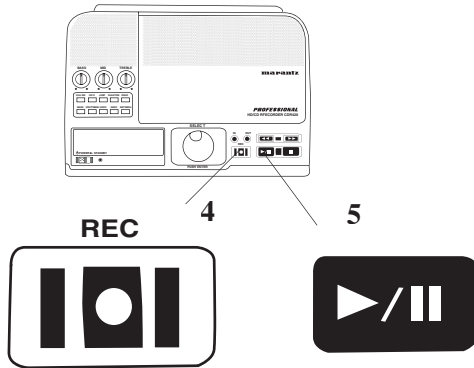


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3. Insert a blank (8x or greater) CD (optional).



4. Press and release the REC button ●. The Play/Pause button ►/|| (5) will be flashing.
5. Press and release the flashing Play/Pause button ►/|| to begin recording.

While recording both the red REC button ● and the green Play/Pause button ►/|| are lit and steady.

To pause recording press and release the Play/Pause button ►/||. Press and release the Play/Pause button ►/|| again to resume recording.

6. Press and release the Stop button ■ to stop recording.

The CDR420 will ask you if you want to MAKE a CD NOW?



7a. To exit without making a CD press and release the Jog Wheel.

7b. To immediately burn a CD of the recording you just made turn the Jog Wheel so MAKE CD NOW? Y is displayed, then press and release the Jog Wheel.



The CDR420 checks for a blank CD in the CD drive.

If not, INS. BLANK CD is displayed.



If a non-blank CD is in the drive it is ejected.

When you insert a blank CD it is automatically prepared, burned, finalized, ejected, and you are asked if you want to make another copy.

Answer N (no), or press and release the Stop button ■ to exit.

NOTES

- If your recorded track is longer than will fit on a single CD, the CDR420 will tell you how many blank CDs are needed.
- Whether or not a CD is made, the recording remains on the HD.

## Features

The CDR420 records directly to the Hard Drive (HD).

### Immediate CD

At the end of a recording session (a recording session or track ends when you press and release the Stop button ■) you can immediately and easily burn a CD of that track. The track remains on the HD if you burn a CD or not.

The CDR420 incorporates a suite of professional features for audio recording, editing and CD burning.

### HD (Hard Drive)

- Direct to HD recording is more stable (CD-R disc errors can interrupt recording.)
- Long recording time
  - Over 30 hours of WAV (PCM)
  - 1400 hours of MP3
- Automatically names files by date and time recorded for easy file location and recall
  - Allows you to easily change file names
- Non destructive editing lets you relocate or remove unwanted audio segments
- Allows simple file conversion previously available only via computer
  - Allows you burn a CD in CDA or MP3 format
- Provides USB output for file transfer and hard disc backup
- Provides connection for your PS-2 keyboard permitting easier editing and CD Text entry

### Record Functions

- Records MP3 and PCM mono and stereo
- Recordable bit rates
  - Mono: 32, 40, 64, 80, 128, 160
  - Stereo: 64, 80, 128, 160, 256, 320
- Records PCM 44.1 kHz
- Automatic time/date stamp at start of recording
- Accepts Digital or Analog input
- Unattended Record Timer can power up the CDR420 and begin recording at the time/date you select

## Playback functions

Includes playback functions that let you check your recording.

- One button (CD/HD button) toggles between CD and HD playback operation
  - Play
  - Stop
  - Pause
  - Audio search Fast Forward (3 speeds)
  - Audio search Fast Reverse (3 speeds)
  - Next track
  - Previous track

## File/Track Editing functions

- Scrub
- Cut
- Delete
- Insert
- Erase
- Insert silence
- Save as new file
- Name file (track)

## Conversion and Make CD functions

- Assemble project (assemble tracks to make a CD)
- Make audio CD
  - Recording date/time
  - PCM 44.1 kHz
  - length and file size
  - CD Spanning (if project is too long to fit on one CD)
- Make a data CD (MP3/WAV)
  - name
  - recording date/time
  - bit rate
  - file size

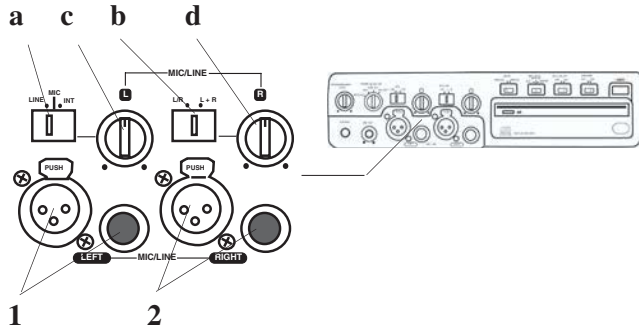
## Utilities

- Delete file (track)
- Set time/date
- Setup record defaults
- Copy a CD
- Make audio CD
- Make MP3 CD
- Rip CD to HD
- Show available disc space
- Format HD
- Download file via USB
- Split long files into smaller, more manageable files
- Back up HD via USB

## Connections\*

\*Except for power, all input and output connections are optional.

### Connect Microphones or Instruments



Left and Right microphones or instruments via phone or XLR plugs are input via the MIC/LINE jacks.

1. Plug microphone or instrument to be recorded on the LEFT channel into the LEFT jack.
2. Plug microphone or instrument to be recorded on the RIGHT channel into the RIGHT jack.

#### NOTE:

- a Set the LINE MIC INT switch to LINE for line level input(s) or MIC for microphone level input(s).
- For microphone(s) requiring Phantom power, press the PHANTOM button on the top of the CDR420.
- To mix two microphones from the front inputs with a stereo line input, use the AUX input jacks on the rear for the stereo line input.
- b Set the L/R L+R switch to L/R for stereo recording. Set to L+R to record both left and right inputs to both channels.
- Use the L (c) and R (d) level controls to adjust left and/or right recording levels.

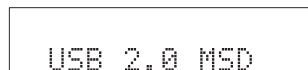
### Connect computer (optional)

Plug the supplied I/O cable in here and connect the other end to your computer (PC or MAC).



If the CDR420 is on, slide and release the POWER switch to connect to your computer.

If the CDR420 is off, it will automatically connect.



USB 2.0 MSD is displayed on the CDR420 and the CDR420 HD appears as a volume on your computer.

The connection makes it easy to copy audio files between the CDR420 HD and your computer's hard drive. The I/O connection can only be made active when the CDR420 is off (neither recording or during playback).

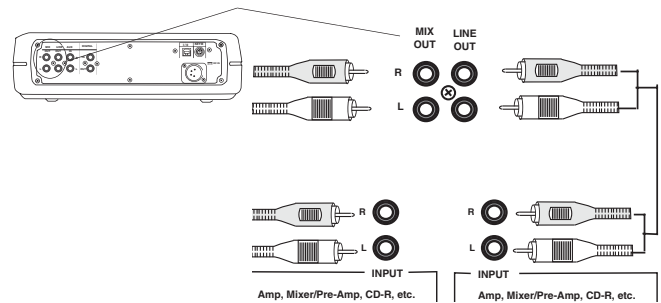
To disconnect, put the CDR420 hard drive away\* on your computer, then disconnect the I/O cable.

\*It is a common and safe practice to "stop" or "eject" an external hard drive before disconnecting it from your computer. Failure to do this could damage files on the CDR420 or the HD itself. Refer to your computer's operating system "help" section for instructions on using the "Safely Remove Hardware" tool (PC).

### Connect Analog equipment (optional)

Connect CD/HD output to analog equipment for playing (or recording).

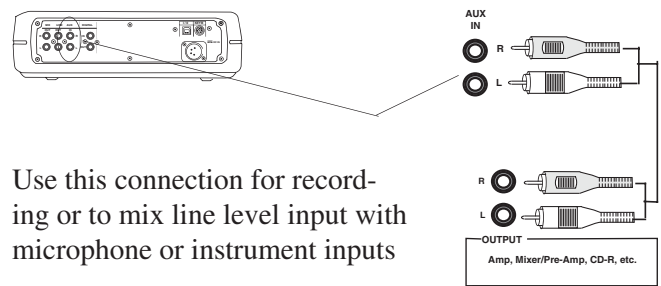
**Output:** Connect Right and Left RCA audio cables to MIX OUT and/or LINE OUT and then connect to the input of an amplifier, preamplifier, receiver or other recording device.



LINE OUT signal is available only while playing or recording.

MIX OUT signal is available while playing or recording and passes input signals through while the CDR420 is not playing or recording.

**Input:** Connect Right and Left RCA audio cables to AUX IN and then connect to the line level output of an amplifier, mixer, receiver or other audio device.



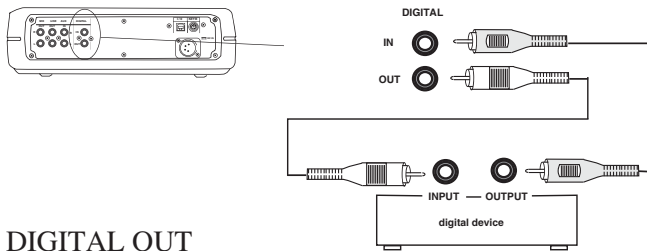
Use this connection for recording or to mix line level input with microphone or instrument inputs

## Connect Digital equipment

Connect CD/HD input and/or output to digital equipment for playing or recording\*.

\*The CDR420 can only accept S/PDIF digital signals at the Sample Frequency of 44.1 kHz.

Connect 2 coaxial digital cables to DIGITAL IN and/or DIGITAL OUT and then to output and/or input of your digital device.



### DIGITAL OUT

Signal is available only while playing.

### DIGITAL IN

Use this connection for recording. Digital input cannot be mixed with microphone or instrument inputs on the front of the CDR420, or line level input via the AUX IN jacks.

#### NOTE:

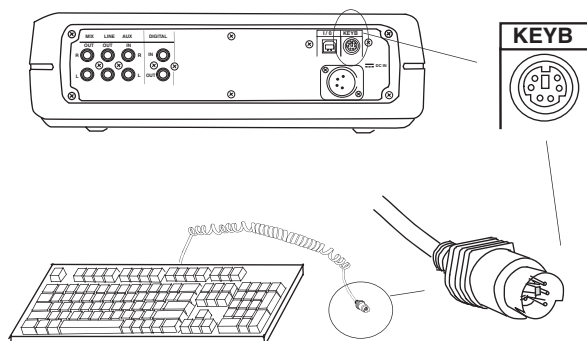
**Digital In:** The CDR420 can only receive and record a 16 bit, 44.1kHz digital audio signal. Should you input any other format of digital audio, the display will read "NO SPDIF LOCK" and recording is not possible.

**Digital Out:** The CDR420 is only capable of playing back files that have been recorded at 44.1kHz. If you place a file on the HDD that is any other frequency than 44.1kHz, playback will cease and the display will read "44.1KHZ ONLY".

**Monitoring:** The CDR420 is not capable of monitoring audio by any analog means, other than the level meters, when recording digitally. Please monitor the audio at the source.

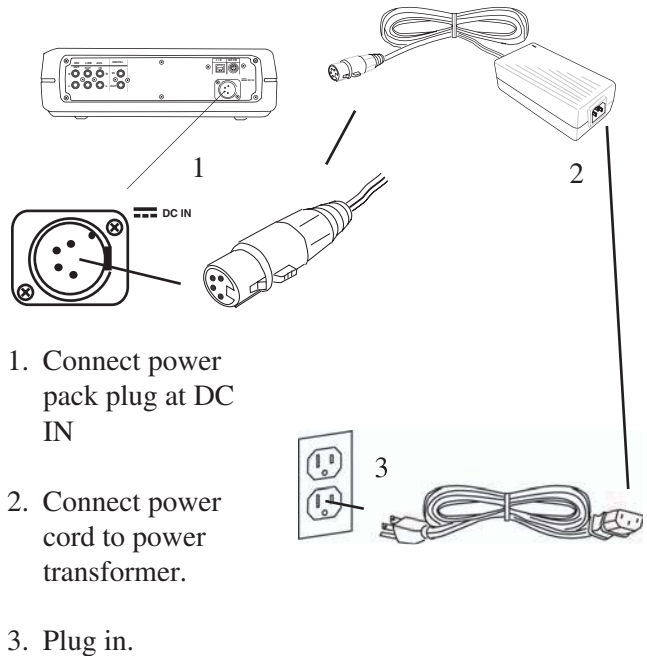
## Connect keyboard

Connect your standard PS/2 PC keyboard for direct keyboard control of the CDR420.



See page 62 for keyboard operation.

## Power on sequence

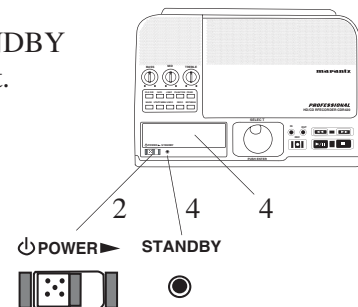


1. Connect power pack plug at DC IN
2. Connect power cord to power transformer.
3. Plug in.

#### NOTE:

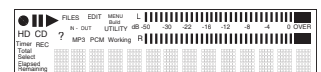
- The Power supply switching adapter can accept 120 VAC 60 Hz (US standard) or 230 VAC 50 Hz (European standard) power.

4. The red STANDBY light will be lit.



5. Slide the POWER switch to the right and release. The display will document the power up sequence.

All elements of the display are briefly lit.



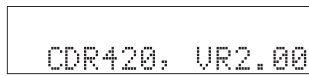
All elements of the



display are briefly off.

continues

The model name and firm-ware version are displayed briefly.



CPU TEST is displayed\* while the Central Processing Unit is being tested.

CPU TEST: PASS is displayed briefly when the CPU passes.

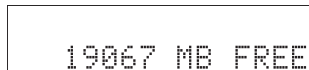


\*The CPU TEST is normally so fast you won't see the pass message unless you are watching for it.

HDD TEST: PASS then CDR TEST: PASS are briefly displayed while the Hard Drive Disc and CDR are being tested and pass.



The amount of remaining free space on the Hard Disc is briefly displayed.



Example display

The CDR420 checks the CD drive for a disc and briefly displays the result.



Example display

When the Power on sequence is complete the display shows the date and time.



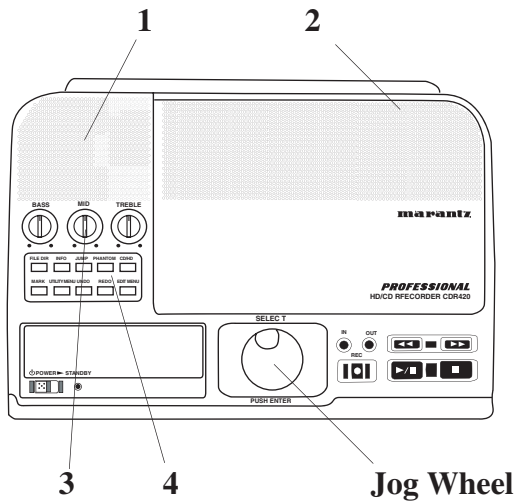
Example display

The date and time are displayed when the CDR420 is idle and ready to receive commands.

NOTE:

If a power on test fails an error procedure is followed. See page 64.

## Controls, Display (top)

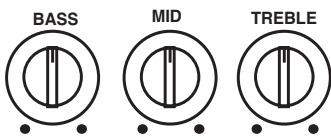


### 1. Speaker

The built in full range speaker allows listening to a recording without having to connect to other equipment for amplification.

### 2. Built in microphone

The built in microphone (internal mic) is near the top right corner.



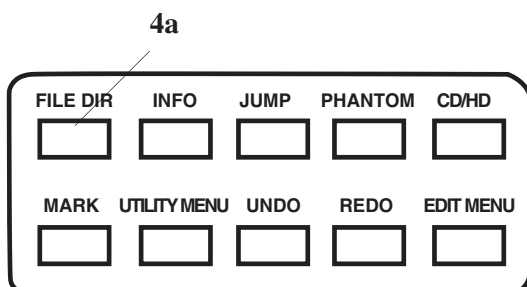
### 3. Tone controls

Turning a knob controls the level of the corresponding frequency range of

the recording being played. Level adjustments apply to the internal speaker, PHONES jack and LINE OUT output. Turn clockwise to boost the frequency and counterclockwise to attenuate it. Level adjustments do not apply to MIX OUT.

**TREBLE** High frequencies (18 kHz)  
**MID** Middle frequencies (2 kHz)  
**BASS** Low frequencies (150 Hz)

### 4. Control buttons



### 4a FILE DIR button

#### FILE DIR



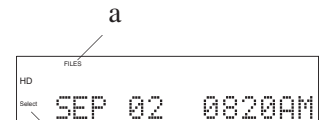
Press and release to select the File Directory. Turn the Jog Wheel to select a file (track):

**To play** press and release the Jog Wheel or Play/Pause button ►/|| while the track name is displayed.

**To view file information** press and release the INFO button while the track name is displayed.

**To edit the file** press and release the EDIT MENU button while the track name is displayed. See How to EDIT AUDIO, page 52.

When FILE DIR is pressed:



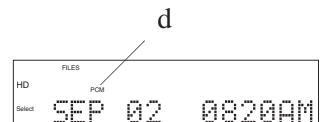
- a FILES is displayed indicating that the display is the file directory.
- b 'Select' tells you to turn the Jog Wheel to select the file to display.
- c The file name is displayed.

#### NOTE:

- If the file was recorded recently the file name can be confused with the date. For example, if it was 9:20 am on September 2 when you pressed FILE DIR and the file name is SEP 02 0820AM. Look for the "FILES" icon (a above) in the display to be sure you are in the File Directory.

Turn the Jog Wheel to scroll through the File Directory.

- d The audio file format is displayed.

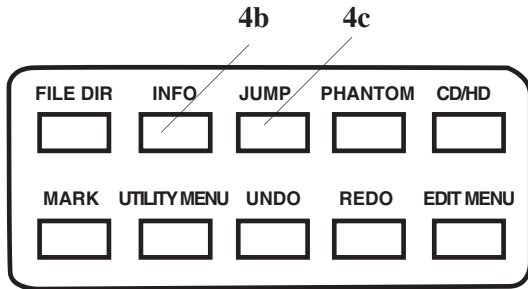


- If a file name is longer than 14 characters, after about two seconds the file name scrolls across the display.
- All audio recordings on the Hard Disc are presented in order, from most recent to oldest.
- Turn the Jog Wheel forward or backward to scroll through the files in the File Directory.

Press and release the Play/Pause button ►/|| to play the track, press and release the INFO button for full information about the track, press and release the EDIT MENU button to edit the track, or press and release the Stop button ■ to exit the File Directory.



#### 4. Control buttons continued



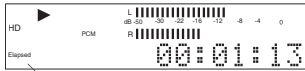
#### INFO



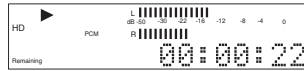
#### 4b INFO button

Press and release repeatedly to tab through the currently selected file's (TRACK's) properties.

During playback press and hold for 2 seconds to switch the playing time display between elapsed and remaining time.



Elapsed

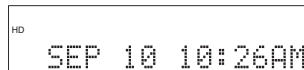


Remaining

#### Track INFO

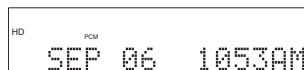
INFO is available from idle, playback or recording.

From the idle screen showing the current date and time, or playback the first press and release of the INFO button switches the display to the currently selected track.



Example idle screen display

In the example that track was recorded a couple of days earlier.



Example display

After about one second the track name scrolls across the display.



Example display

In the example the full track name is "SEP 06 1053AM\_01.WAV"

Press and release the INFO button to tab through the track information displays.

#### NOTE:

- An information display is only displayed briefly. If the next information display is not selected the CDR420 returns to idle mode.

After the track name the date and time the recording was begun is displayed.

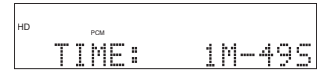


Example display

#### NOTE:

If you have changed the track name the date and time of the recording is thus still available.

The length of the track in minutes and seconds is displayed.



Example display

The file type and bitrate/sample frequency are displayed.



The CHANNEL(s) recorded (Stereo or Mono) is displayed.



The artist is displayed.



The genre is displayed.



The album is displayed.



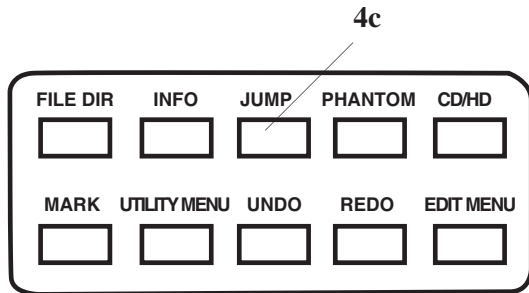
If a comment tag has been entered it is displayed.

During **recording** press and release the INFO button to tab through the name, type and channel.

During **recording** you can also press and hold the INFO button for 2 seconds to switch from elapsed record time to remaining record time on the HD.

#### 4. Control buttons continued

- Jump backwards is available if audio is cued within the audio track and at least one second of audio has elapsed.



#### JUMP

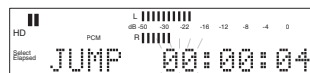


#### 4c JUMP button

Press and release to JUMP, advance or reverse to a specific time, during playback, play/pause or during editing.

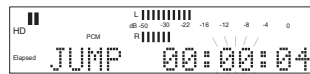
When first pressed the display prompts JUMP and the largest time flashes.

In the example, playback was paused 4 seconds into the track.



Example display

Turn the Jog Wheel to select the hour you want to jump to, then press and release the Jog Wheel.



Example display

In the example, jumping to a point within the first hour was selected.

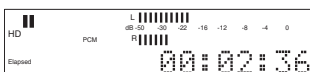
Turn the Jog Wheel to select the minute you want to jump to, then press and release the Jog Wheel.



Example display

In the example, jumping to minute two of the recording was selected.

Turn the Jog Wheel to select the second you want to jump to, then press and release the Jog Wheel.

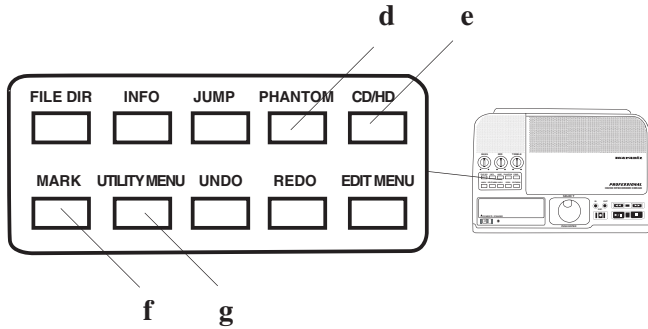


Example display

In the example, jumping to the 36th second was selected. When playback is resumed from play/pause playback will begin at 2 minutes and 36 seconds into the recording.

- Jump cannot be used to jump past the beginning or end of a track.

#### 4. Control buttons continued



#### PHANTOM



#### 4d PHANTOM button

PHANTOM provides a power supply for condenser microphone(s) plugged into the MIC/LINE jack(s).

Press and release to turn PHANTOM microphone power on or off. The display will show the new state of PHANTOM power.

Example display



When correct, wait, the display will automatically return to the previous display after about 2 seconds.

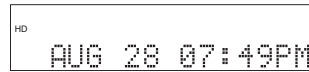
#### 4e CD/HD button

#### CD/HD



Press and release to toggle between the CD drive and the Hard drive.

Example display



Example display



#### MARK



#### 4f MARK button

Press and release to begin the process of marking a location of

playback as the beginning "IN" or ending "OUT" point of a segment of audio. SET MARK AS . . . appears in the display.

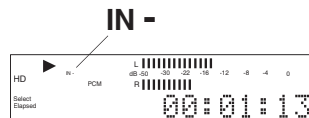
If playing, playing continues, if paused, play pause continues.



Example display

While SET MARK AS? is displayed press and release either the IN or OUT button.

Example display showing an IN- mark set, and no OUT mark set yet.



#### NOTE:

- IN and/or OUT marks are not remembered if you change the selected track.
- After an IN and/or OUT mark is present, you can jump to the IN or the OUT mark by pressing and releasing the IN or OUT button.
- You can mark an audio segment during playback or in Edit Mode. If during normal playback, you can switch to Edit Mode with the IN and/or OUT marks if you don't change the selected track.
- A marked audio segment can be copied, cut, deleted, or pasted in Edit Mode.

#### UTILITY MENU 4g UTILITY MENU button



Press and release to enter the Utility/ Setup menu.

Press and release to tab through the menu categories:

#### RECORD SETTING



#### CDR FUNCTIONS

and



#### PRODUCT SET-



#### UP.

#### NOTE:

- Turning the Jog Wheel also tabs through the menu categories.
- Utility Menu mode times out if there is no activity for one minute.

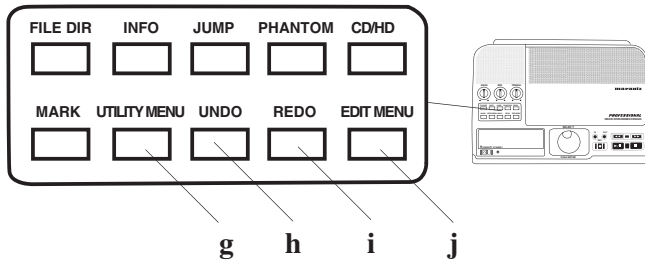
To set or change a menu parameter:

1. Press and release the UTILITY MENU button to select a menu category.
2. Turn the Jog Wheel to select a menu parameter, then press and release the Jog Wheel to confirm.
3. Turn the Jog Wheel to change the value of the parameter,
4. then press and release the Jog Wheel to confirm and switch to the next Utility Menu category.
5. Edit the next menu item or press and release the Stop button ■ to exit the UTILITY MENU.

Descriptions of the menu items and how to set or change them are on the following pages:

<b>RECORD SETTING</b> .....	page
• TRACK TYPE (PCM or MP3) .....	27
• CHANNEL (Stereo or Mono) .....	28
• BITRATE (if MP3) .....	29
• A. TRK INC HD (auto track increment) .....	29
• RECORD TIMER .....	31

#### 4. Control buttons continued



#### 4g UTILITY MENU button continued

##### CDR FUNCTIONS .....page

- NEW CD PROJECT ..... 33
- COPY CD..... 36
- RIP CD ..... 37

##### PRODUCT SETUP .....page

- SET DATE/TIME ..... 40
- RECORD FILTERS ..... 41
- PLAYBACK MODE..... 43
- USER SETTINGS ..... 44
  - AUTO MAKE CD ..... 44
  - A. TRK INC CD..... 45
  - A. TRK TIME ..... 45
  - CD TYPE ..... 46
  - ALLOW FORMAT ..... 47
  - COPY B4 EDIT ..... 47
  - LOCK EDITING..... 48
  - LOC REC.SET ..... 49
  - PRE-ROLL TRK..... 49
  - REQ.CONFIRM..... 50
  - RST DEFAULTS ..... 51
  - FORMAT HDD..... 52

#### UNDO



#### 4h UNDO button

During audio file editing (4j) press and release to sequentially undo edits. Unlimited undo's are possible.

Press and release the UNDO button to undo one edit step.

Example display



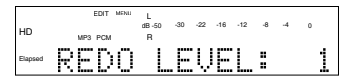
#### REDO



#### 4i REDO button

Reverses UNDO. During audio file editing (4j) press and release to sequentially redo edits that were undone by UNDO. All current undoes can be redone.

Example display



#### EDIT MENU



#### 4j EDIT MENU button

Press and release to select the Edit Menu.

Press and release the EDIT MENU button, or turn the Jog Wheel to tab

through the Edit Menu choices:

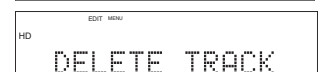
#### EDIT AUDIO



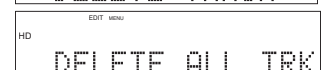
#### EDIT TAGS



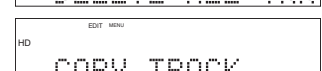
#### DELETE



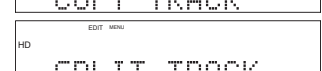
#### TRACK



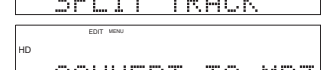
#### DELETE ALL TRK



#### COPY TRACK



#### SPLIT TRACK



#### CONVERT TO MP3

#### NOTE:

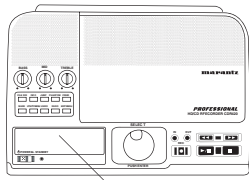
- Turning the Jog Wheel also tabs through the Edit Menu categories.
- Edit Menu mode times out if there is no activity for one minute.

Descriptions of the Edit Menu items and how to set or change them are on the following pages:

#### EDIT MENU .....page

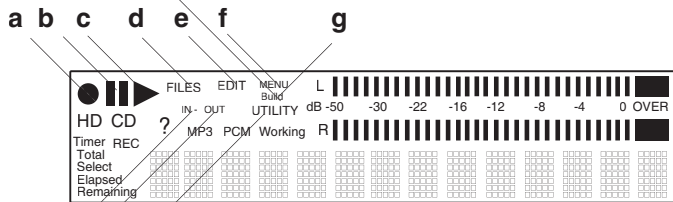
- EDIT AUDIO ..... 52
- EDIT TAGS ..... 57
- DELETE TRACK ..... 58
- DELETE ALL TRK ..... 59
- COPY TRACK ..... 59
- SPLIT TRACK ..... 60
- CONVERT TO MP3 ..... 60

## 5 Display



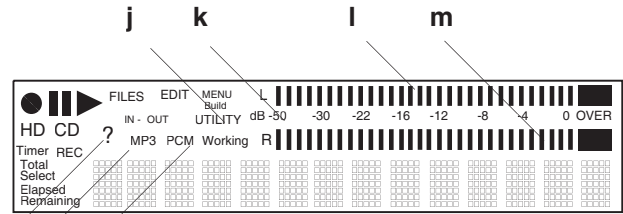
### 5 Display

Labels, icons, meters and alphanumeric messages communicate the status of the CDR420.



h i j

- a Record icon**  
The red record icon is lit when in record mode.
- b Pause icon**  
The Pause icon appears when the CDR420 is in playback pause, or record pause.
- c Play icon**  
The Play icon appears when the CDR420 is in playback or recording.
- FILES d FILES label**  
Displayed after the FILE DIR button is pressed. When present display information refers to a track in the file directory.
- EDIT e EDIT label**  
Displayed when in EDIT MENU mode.
- MENU f MENU label**  
Displayed when in a Menu mode.
- BUILD g BUILD label**  
Displayed when in CD Build mode.
- IN- h IN- label**  
Displayed when an IN point is set.
- OUT i OUT label**  
Displayed when an OUT point is set.
- UTILITY j UTILITY label**  
Displayed when in UTILITY MENU mode.



n o p

dB -50 -30 -22 -16 -12 -8 -4 0 OVER

### k Level meter scale

The Level meter scale is in decibels (dB). Displayed when in Record or Playback. OVER is displayed when the level clips or is over 0 dB.



### l L (left) level meter

Lit rectangles provide a visual display of the level of the left channel during playback or recording. The red OVER block on the left is displayed when the level of the left channel clips or is over 0 dB.



### m R (right) level meter

Lit rectangles provide a visual display of the level of the right channel during playback or recording. The red OVER block on the right is displayed when the level of the right channel clips or is over 0 dB.

? n ? label

Lit when the CDR420 is waiting for your input.

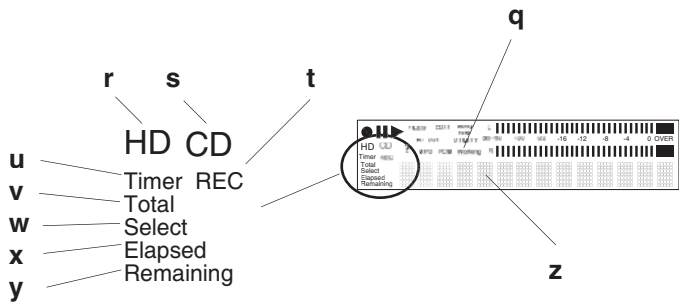
MP3 o MP3 label

Displayed when the file being recorded, played back, or being viewed in the File Directory is in MP3 format.

PCM p PCM label

Displayed when the file being recorded, played back, or being viewed in the File Directory is in PCM (standard audio CD format).

7 Display continued



**Working q Working label**  
Flashing when the CDR420 is processing information. The Alphanumeric display bars show progress of the operation. Wait for the operation to be completed. Pressing and releasing Stop ■ will cancel some operations.

**HD r HD label**  
The HD label appears when the Hard Drive is selected/active.

**CD s CD label**  
The CD label appears when the CD drive is selected/active.

**REC t REC label**  
The REC label appears when the CDR420 is in record mode.

**Timer u Timer label**  
Displayed when a preset time for recording has been set.

**Total v Total label**  
Displayed when the alphanumeric display shows the total time for the selected track (file).

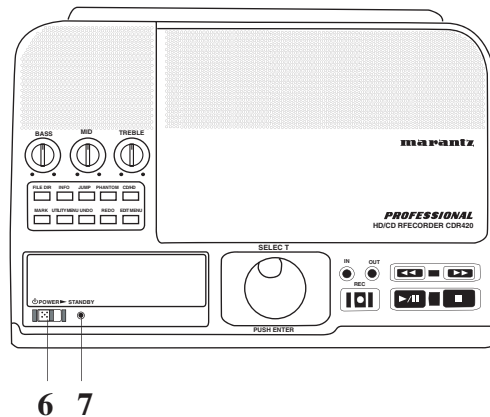
**Select w Select label**  
Displayed when the CDR420 expects you to make a choice.

**Elapsed x Elapsed label**  
Displayed when the alphanumeric display shows the elapsed time (time from the beginning) of the selected track (file). Default

**Remaining y Remaining label**  
Press and hold the INFO button for 2 seconds so the alphanumeric display shows the remaining time (time to the end) of the selected track (file) or the remaining record time on the HD.



**z Alphanumeric display**  
Displays a variety of information including remaining recording time, menu settings, etc. Displays of more than 14 characters may scroll.

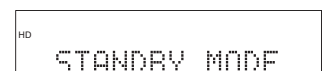


**6 POWER switch**  
Slide the POWER switch to the right to turn power on or off.

When power is ON the display is lit and the STANDBY light is off.

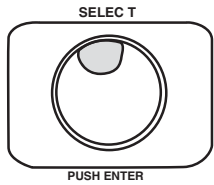
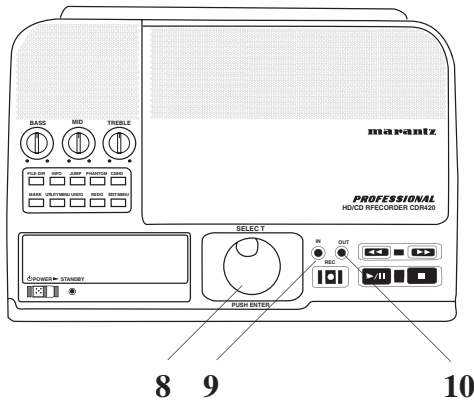
**7 STANDBY light**  
Lit when in STANDBY MODE.

When power is switched off STANDBY MODE is briefly displayed.



STANDBY MODE retains the state of the record timer.





**8 Jog Wheel (SELECT, PUSH ENTER)**  
This is the “master” control for the CDR420.

For most operations you **turn to display**, toggle, or tab through, an option, or adjust the position of a variable, then **press and release to select**, enter, that option or position.

For a few operations, a press and release of the Jog Wheel tabs through the options and a **double click**, two successive presses and releases of the Jog Wheel, selects, enters, the option or position.

- FILE DIR selects the Track
- UTILITY MENU selects the menu item
- Within a menu selects the value of a parameter

The Jog Wheel is also used for fine searching (scrubbing) forward and backwards during Edit Mode.



**9 IN button**  
Press and release to set or skip to an IN mark.

To set or change an IN mark, during playback or play pause, press and release the MARK button.

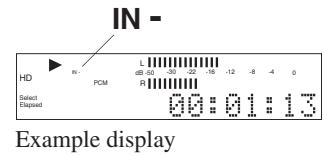
SET MARK AS? is displayed. If playing, playing continues, if paused, play pause continues.



Then press and release the IN button.

If an IN mark is already present, that position is cleared and replaced by the new IN position.

In the example neither an IN or an OUT mark had been set.



The IN- mark is set at time in the track when the MARK button is pressed.

**How to jump to an IN mark:**

If an IN mark is set, press and release the IN button to jump to the IN mark (beginning mark) of an audio selection.

During playback, play skips to the IN mark and continues playing.

During play pause or stop, audio is cued to the IN mark and remains paused or stopped.

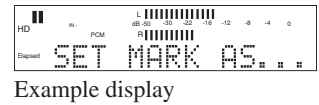
The IN mark remains only as long as the track is selected.



**10 OUT button**  
Press and release to set or skip to an OUT mark.

To set or change an OUT mark, during playback or play pause, press and release the MARK button.

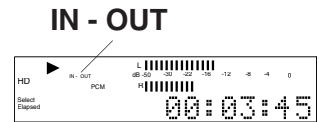
SET MARK AS? is displayed. If playing, playing continues, if paused, play pause continues.



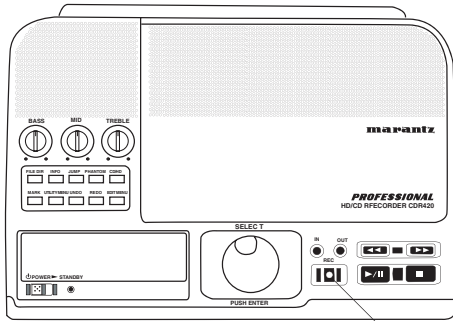
Then press and release the OUT button.

If an OUT mark is already present, that position is cleared and replaced by the new OUT position.

In the example both an IN and OUT mark have been set.



**Controls, Display (top) continued**



**11**

**How to jump to an OUT mark:**

If an OUT mark is set, press and release the OUT button to jump to the OUT mark (end mark) of an audio selection.

During playback, play skips to the OUT mark and continues playing.

During play pause or stop, audio is cued to the OUT mark and remains paused or stopped.

The OUT mark remains only as long as the track is selected.

**NOTE:**

IN and OUT points can be transferred to the Edit Audio mode as long as the track has remained the current track.

Press and release the Play/Pause button/light ►/|| again to begin recording.

Recording parameters (track type, channel, bitrate, auto track increment) currently set in the UTILITY MENU / RECORD SETTING are used.

During recording, turn the Jog Wheel to adjust REC LEVEL.

The REC button/light ● flashes during a CD Project to indicate that tracks are waiting to be written to a CD. Pressing the the REC button while it is flashing begins the process of writing the selected tracks to the CD.



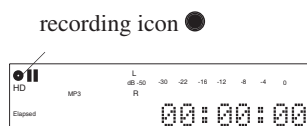
**11 REC button/light ● (red)**

From stop press and release to enter recording mode. During recording press and release to make a new track and continue recording.

The red REC button/light ● and the green Play/Pause button/light ►/|| are lit and steady during recording.

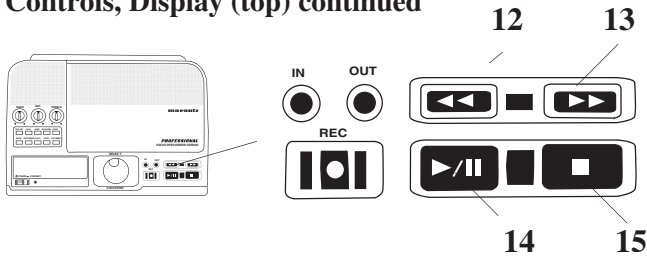
During rec pause the REC button/light ● is lit and steady and the Play/Pause button/light ►/|| flashes.

During recording and rec pause the recording icon is displayed.



Example display

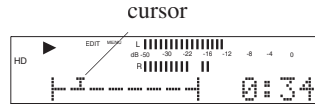
**Controls, Display (top) continued**



**12 Fast Reverse button ◀◀**  
During playback, play pause, or edit play press and hold to play audio at high speed in reverse.

During play and edit play audio snippets are heard.

The Example display shows an edit screen with the cursor at the current point in the audio.



Example display

Play continues from the new point on releasing the Fast Reverse button ◀◀ during play or edit play.

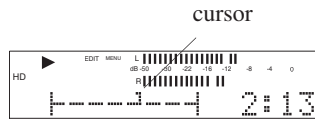
Speeds are 2x for 3 seconds and then 10x (audible).



**13 Fast Forward button ▶▶**  
During playback, play pause, or edit play, press and hold to play audio at high speed.

During play and edit play audio snippets are heard.

The Example display shows an edit screen with the cursor at the current point in the audio.



Example display

Play continues from the new point on releasing the Fast Forward button ▶▶ during play or edit play.

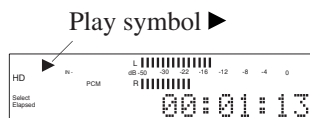
Speeds are 2x for 3 seconds and then 10x (audible).



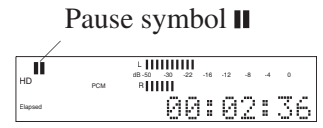
**14 Play/Pause button ▶/||**  
Press and release to start play of a stopped or paused track. Press and release during playback or recording to pause.

Button lit during play or record, flashing during pause.

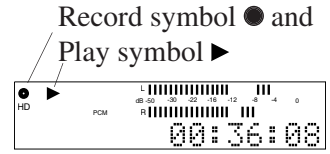
Example display during playback.



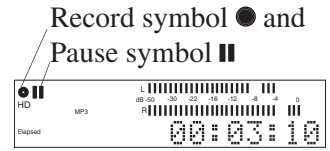
Example display while playback is paused.



Example display during recording.



Example display during record pause.



**15 Stop button ■**  
Press and release to Stop or cancel the current operation.

Button lit and steady when recording or playback is stopped.

If playback was stopped, resuming playback resumes playback from the beginning of the selected track.

If recording was stopped, starting playback begins playback at the beginning of the recorded track. Resuming recording begins a new track.

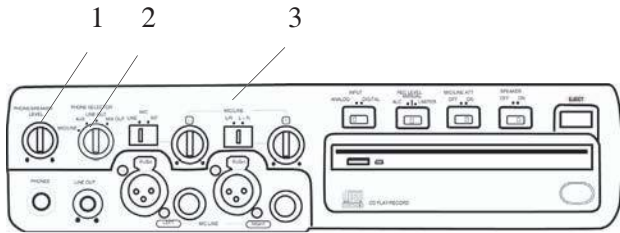
During menu, or other functions press and release the Stop button ■ to cancel the function and return the CDR420 to idle mode.

**During Editing**

During editing the Stop button ■ does not exit edit mode. It controls playback along with the Play/Pause button ▶/||. During editing after pressing the Stop button ■ then pressing the Play/Pause button ▶/||, play starts at the beginning of the track.

To exit edit mode see How to Exit Edit Execute Mode on page 56.

## Controls, Connections (front)

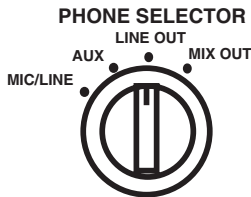


### PHONE/SPEAKER LEVEL



### 1 PHONE/SPEAKER LEVEL control

Turn to adjust the level (volume) of the built-in speaker and headphones plugged into the PHONE jack. (To listen to headphones only turn the SPEAKER OFF/ON switch to OFF.)



### 2 PHONE SELECTOR

Turn to select the audio input to the PHONE jack

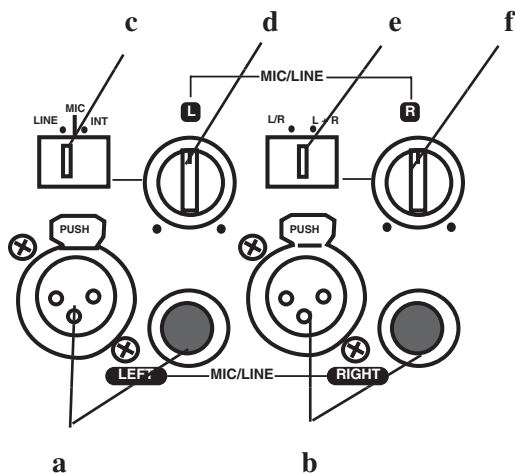
and internal Speaker.

**MIC/LINE** – Audio being input via the MIC/LINE input jacks.

**AUX** – Audio being input via the AUX IN jack.

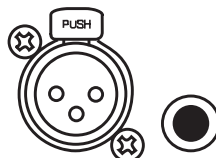
**LINE OUT** – Audio available at the LINE OUT output jacks.

**MIX OUT** – Audio available at the MIX OUT output jacks.



## 3 MIC/LINE controls and input jacks

Left and right microphones or instruments via phone



jacks or via XLR connectors are input here.

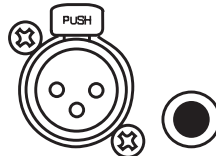
### 3a Left XLR or 1/4" input jack

Plug in an instrument or other line level audio device here to

provide audio to the left stereo channel.

NOTE: To avoid feedback, turn the internal SPEAKER OFF/ON switch OFF or reduce the PHONE/SPEAKER LEVEL control, and reduce the LINE OUT level control if connected to an external

amplifier.



### 3b Right XLR or 1/4" input jack

Plug in an instrument or other line level audio device here to provide audio to the right stereo

channel.

### 3c LINE MIC INT switch

Switch to LINE for a line level input, to MIC for a microphone level input, or to INT for input from the internal micro-

phone to the left recording channel.

NOTE: To mix two microphones from the front inputs with a stereo

line input, use the AUX input on the rear for the stereo line input.

### 3d Left level control

Turn to adjust the level of the left

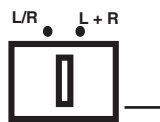


input.

### 3e L/R L+R switch

**L/R** records the Left input onto the left channel of the recording and the Right input onto the right channel of the recording.

**L+R** records Left and Right inputs onto both channels of the recording.



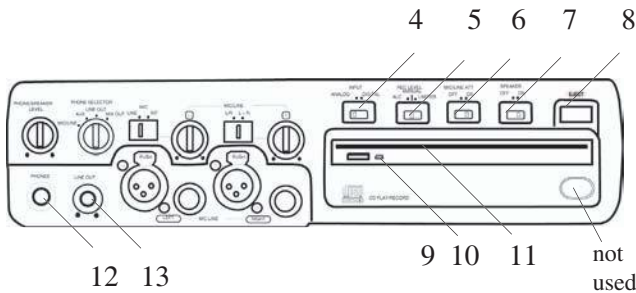
### 3f Right level control

Turn to adjust the level of the right input.

NOTE: When internal mic is selected both the Left level control and the Right level control are active. To record the internal microphone to both the left and right channels adjust both Left and



## Controls, Connections (front) continued



### 4 INPUT ANALOG/DIGITAL switch

Select between analog or digital external input.

Connect digital output of the source machine to the DIGITAL IN jack on the rear of CDR420\*. Connect analog input to either the MIC/LINE input jacks on the front of the CDR420, and/or the AUX IN jacks on the rear of the CDR420, or use the internal microphone.

\*The CDR420 can only accept S/PDIF digital input signals at the Sample Frequency of 44.1 kHz.



### 5 REC LEVEL switch

Record level limiter for analog input during recording.

**ALC** – Limits any input signal greater than -12 dB. Left and right MIC/LINE (or INT MIC) level

controls do not have any function when using ALC.

**MANUAL** – Set level using left and right MIC/LINE level controls. When recording via AUX IN control the level using the output level control on the external device. Levels in excess of 0 dB may be recorded and may result in distorted recordings.

**LIMITER** – Same as manual: Set level using left and right MIC/LINE level controls. Levels in excess of 0 dB are automatically limited.

NOTE: REC LEVEL adjustment is not available with this switch at ALC.



### 6 MIC/LINE ATT switch

Determines if the signal from the MIC/LINE inputs is attenuated.

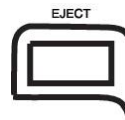
**OFF** – the signal(s) is not attenuated.

**ON** – Overdrive of the signal is attenuated (limited).



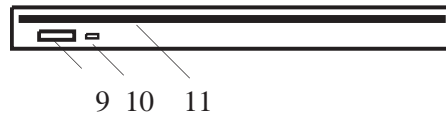
### 7 SPEAKER OFF/ON switch

Turns the built-in speaker OFF or ON.



### 8 EJECT button

Press and release to eject a CD in the CD drive.



### 9 Eject button

The small Eject button on the CD drive mechanism can also be pressed and released to eject a CD in the CD drive.

\*Neither the Eject button on the face of the unit or the small Eject button on the CD mechanism are functional when a CD is being written.

### 10 CD light (yellow)

The CD light flashes when the CD drive is active, reading or writing a CD.

### 11 CD slot

Insert a CD here.

The CD drive is used for recording and can record CD-R and CD-RW discs. The CD drive can also playback CD, CD-R and CD-RW disks

### PHONES



### 12 PHONES jack

Plug stereo headphones in here. Adjust headphone volume with the PHONES/SPEAKER LEVEL control.

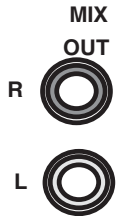
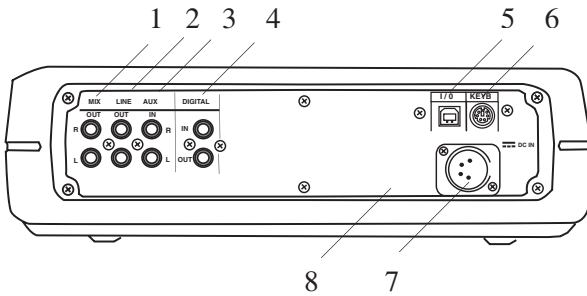
### LINE OUT



### 13 LINE OUT level control

Turn to adjust the level of the output to the LINE OUT jacks.

## Controls, Connections (rear)



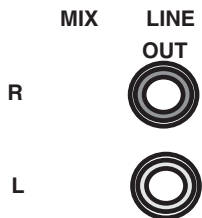
### 1 MIX OUT jacks

Plug Right and Left RCA audio cables in here to connect to the input of an amplifier or other external unit. Use for recording onto an external recorder.

Input from MIC/LINE (or INT MIC) and/or AUX jacks are

output as line level output to an external recorder or amplifier. The signal is output before going to the HD/CD drive, so it is available for monitoring or recording even if recording is paused or stopped.

This signal cannot be equalized by the CDR420 tone controls.



### 2 LINE OUT jacks

Plug Right and Left RCA audio cables in here to connect to the input of an amplifier or other external unit.

This signal can be equalized by the CDR420 tone controls.



### 3 AUX IN jacks

Plug Right and Left RCA audio cables in here to connect to the output of an external unit.

Use for recording from an external audio source such as a cassette deck.

### DIGITAL

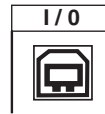


### 4 DIGITAL IN and OUT jacks (SPDIF)

Plug RCA coaxial cables in here to connect to the input and/or output of an external digital unit.

Use IN for recording from an external 44.1 kHz digital audio source.

Use OUT for going to an external digital device.



### 5 I/O jack (computer)

Plug a USB cable in here and connect the other end to your computer (PC or MAC).

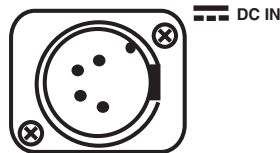
The HD on the CDR420 appears as an external hard drive on your computer. That makes it easy to copy audio files from the CDR420 HD to your computer's hard drive or a CD, or from your computer's hard drive to the CDR420. The I/O connection can only be made active when the CDR420 is off (neither recording or during playback).



### 6 KEYB jack (keyboard)

Plug your PS/2 computer keyboard in here for direct input into the CDR420.

See page 62 for details.



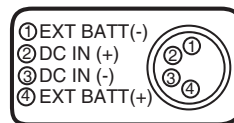
### 7 DC IN

Plug the supplied power supply into a wall outlet and in here.

The CDR420 is shipped

with a power supply suitable for your area. If you are traveling or want battery power, see [www.d-mpro.com](http://www.d-mpro.com) for available power supplies. Search for "CDR420 accessories."

### 8 DCIN pin out



- 1 External Battery -
- 2 DC IN +
- 3 DC IN -
- 4 External Battery +