

Numark

CDN88 MP3

Professional Dual CD / MP3 Player

► **REFERENCE MANUAL**
ENGLISH (3 – 21)

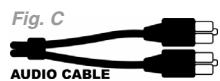
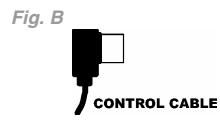
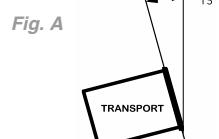
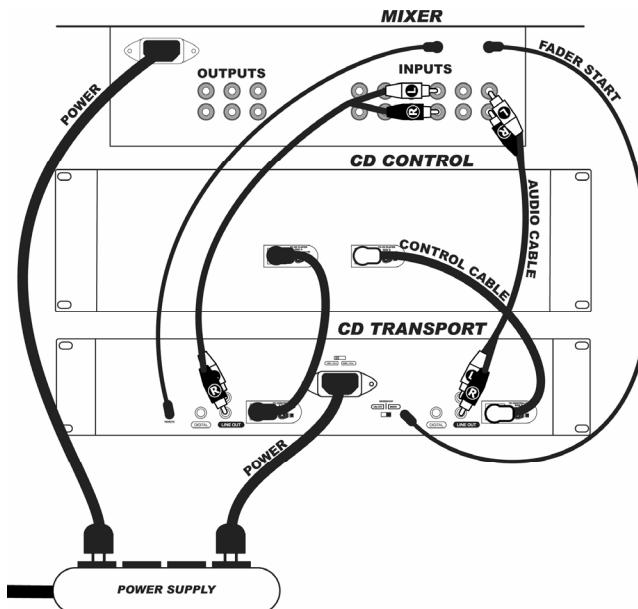
GROUND RULES

1. Make sure all items listed in the BOX CONTENTS section are included in the box.
2. **READ SAFETY & WARRANTY INFORMATION BOOKLET BEFORE USING THE PRODUCT.**
3. Study the connection diagram in this guide.
4. Place mixer in an appropriate position for operation.
5. Make sure all devices are turned off and all faders and gain knobs are set to "zero."
6. Connect all stereo input sources as indicated in the diagram.
7. Connect the stereo outputs to power amplifier(s), tape decks, and/or other audio sources.
8. Plug all devices into AC power.
9. Switch everything on in the following order:
 - Audio input sources (i.e. turntables, CD players, etc.)
 - Mixer
 - Last, any amplifiers or output devices
10. When turning off, always reverse this operation by:
 - Turning off amplifiers
 - Mixer
 - Last, any input devices

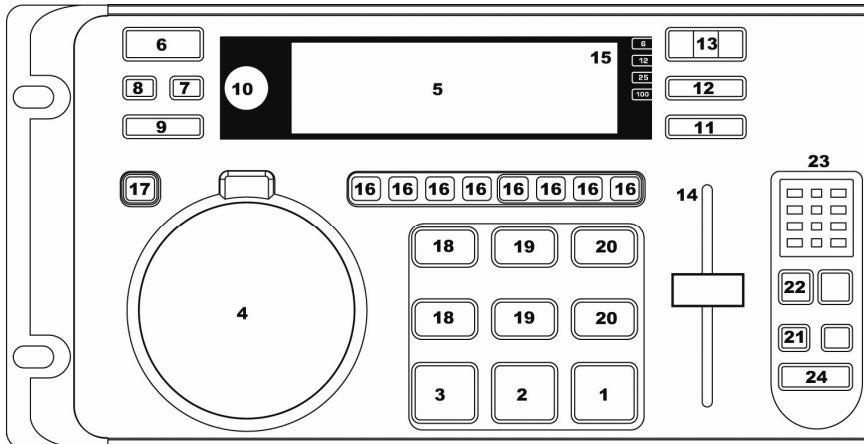
CONNECTION DIAGRAM

A typical connection with a mixer is illustrated below.

1. Mount the units in your console or rack with 19" EIA rails.
2. The transport should be mounted not to exceed an angle of 15 degrees (Fig. A).
3. Your CD player can be affected by excess vibration so mount the units in a secure environment if possible.
4. Connect the supplied Control Cables (Fig. B) between the CD Remote and CD Transport unit. (*Note: Attach the same-colored connection jacks together – yellow to yellow, black to black.*)
5. Connect the line output connections using the supplied audio cables (Fig. C) from the CD Player to the line inputs of your mixer.
6. Connect fader start cable (Fig. D, optional, not included). Attach your CD play to a similarly equipped DJ mixer. (*This connection can also be used with a remote switch.*)
7. Connect the IEC power cord to an appropriate power source. In the US and Canada, be sure to use a polarized power cord and outlets.



FRONT PANEL FEATURES

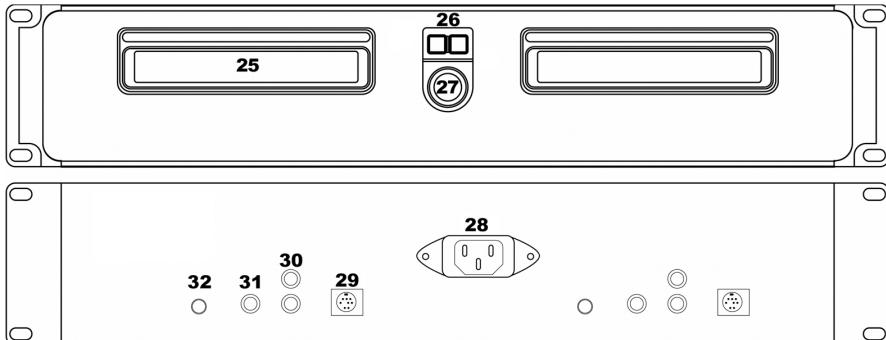


1. **PLAY / STUTTER** – To start the music from the initial Cue Point.
2. **PAUSE** – To pause the music.
3. **CUE** – To move the music to the Cue Point and preview the selection.
4. **JOG WHEEL** – Used for various functions such as cueing, scratching, pitch bend, searching, and effect control.
5. **LCD** – Indicates all the functions, as they are occurring, with the CD.
6. **EJECT** – Pressing will open or close the disc tray on the transport.
7. **SNGL** – To set play mode in single or continuous play.
8. **TIME** – Switches the time display between elapsed playing time and remaining time on the track and remaining time on the entire CD.
9. **PROGRAM** – Used for setting track order and various special commands. Depress this button and the unit will stop and the program indicator will light. Select each track to be programmed and press the PROGRAM button between selections. You can program up to 30 tracks. Press PLAY to start the program. To exit and erase program, either hold the program button down for more than 2 seconds while the unit is stopped, open the disc tray, or turn off the power.
10. **TRACK SELECT / SEARCH** –
 - Rotation – selects tracks
 - Pressing while rotating – selects tracks +10
 - Pressing once - Puts JOG WHEEL in Search Mode.
11. **KEY LOCK** – While Key Lock is enabled, adjusting the pitch of the music playing on the deck will only influence its tempo independent of its musical pitch.
12. **PITCH RANGE** – Activates and sets PITCH SLIDER range.
13. **-/+** – Works as pitch bend and controls key and pitch functions.
14. **PITCH SLIDER** – The pitch can be changed by pressing the PITCH button so a PITCH LED is lit, then moving the sliding fader. The pitch will not be changed if the PITCH LED is off.
15. **PITCH RANGE LED** – Indicates current pitch range of the PITCH SLIDER.
16. **EFFECT BUTTON** – Used to determine desired effect.
17. **EFFECT HOLD** – Used to set effect buttons to an alternate position or to engage Hold Mode for certain effects.
18. **LOOP IN** – Used for setting a start Loop Point and new Cue Points during playback.
19. **LOOP OUT** – Used for setting the end Loop Point and releasing the loop action.

Note: When playing MP3 CDs, CDN88 MP3 will display all MP3s on that disc by their file names and in a single list (i.e., not in their folders/subfolders). When creating an MP3 CD for use with CDN88 MP3, we recommend placing them in only one folder on the disc and properly naming the files.

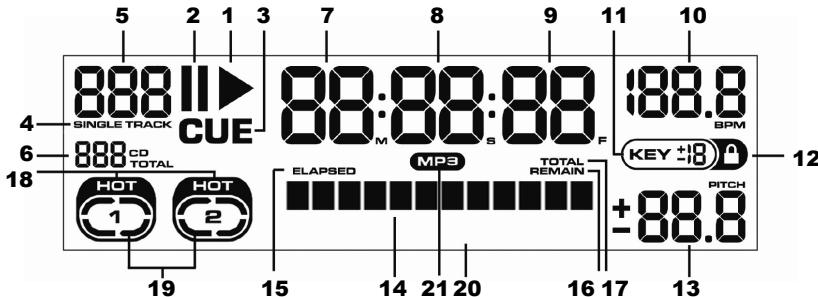
20. **RELOOP** – Used for either repeating a previously set loop or seamlessly stuttering on the last set Cue Point.
21. **AUTO START** – Used for setting alternating play start (relay play) between attached units.
22. **TAP** – Tap this button in time with the beats of the music on that deck. This will enter a new BPM ("beats per minute") reading for that track. Tap this button once only to reset the downbeat of the music at that point without entering a new BPM. Holding the button for 4 seconds will cause the BPM counter to reset and recalculate.
23. **MARCHING BAR GRAPH** – Tracks the beats and measure position of music.
24. **INTERLOCK** – Links both players for beat alignment.

CD PLAYER & REAR PANEL FEATURES



25. **CD DRAWER** – Place your CDs you wish to play in here. This unit is designed to play commercially available CDs, MP3 CDs and properly burned and finalized CD-Rs. Due to variances on the specification of certain CD burners and CDs, some homemade CDs may not play properly. We recommend burning CDs at the minimum speed possible for the best performance.
26. **EJECT** – Pressing will open or close the disc tray on the transport.
27. **POWER SWITCH** – Turn the machine on and off with this button. The unit should always be shut down with this button first before any external power is removed. Typically it is recommended that the CD player is powered on before amplifiers and powered off after amplifiers.
28. **IEC POWER PLUG CONNECTOR** – Plug your supplied power cord in here.
29. **CONTROL CABLE CONNECTOR** – Plug in the 8-pin cable included in here to connect the remote control and main CD unit together.
30. **RCA AUDIO CONNECTORS** – Connect your CD player to your mixer from this line level output.
31. **DIGITAL OUTPUT** – The format is type 2, form 1, also known as S/PDIF (Sony/Phillips Digital Interface Format). To active digital output, hold down "PROG" followed by "PITCH RANGE". This allows digital audio information to be sent. Some CDs also have information encoded in the original audio output such as CDG graphic CDs for Karaoke. *If you adjust the pitch, other devices may not read the digital output properly because the sampling rate changes.*
32. **REMOTE START CONNECTOR** – Use this connector to plug into your fader start compatible mixer or remote switch. This function is always active.
 - To use this connector for fader start, connect the supplied fader start cable to a fader start compatible mixer. Every time you move the crossfader on the mixer over to the side that the unit is on, it will automatically start playing. When you move the fader away from that side, the unit will stop. Moving the fader back to the unit side will start play again.
 - Foot switches can also be attached to this jack for creative mixing techniques and can be found in most music shops. Connector plugs are often 1/4" and an adapter to 1/8" will be needed for connection. There are also two types of footswitches that will work with this connector. The first is a typical, on/off pushbutton switch and are generally used for switching channels on guitar amps. The second switch is a momentary footswitch and is usually used for keyboard sustain pedals.

LCD FEATURES



1. **PLAY** – Active while the unit is actually playing a CD.
2. **PAUSE** – Active when the unit is paused.
3. **CUE** – Flashing when the unit is setting a Cue Point. Active when the unit is paused at a Cue Point.
4. **SINGLE** – Shows when the unit is in Single Play Mode, set to play just one track at a time. When not lit, the unit is in Continuous Play Mode and will play the next track on the disc when a track reaches the end.
5. **TRACK** – Shows the currently playing track.
6. **TOTAL TRACK** – Indicates number of tracks available on the CD.
7. **MINUTES** – Indicates the minutes elapsed or remaining depending on Time Mode.
8. **SECONDS** – Indicates the seconds elapsed or remaining depending on the Time Mode.
9. **FRAMES** – The CD player breaks down one second into 75 frames for more accurate cueing. This indicates the frames elapsed or remaining, depending on Time Mode.
10. **BPM** – Indicates the current track's BPM (beats per minute).
11. **KEY** – Indicates the track's current key position when key effects (e.g., Key Change) are engaged.
12. **LOCK** – Active when the track's key has been locked by the KEY LOCK button.
13. **PITCH** – Shows the track's current pitch position.
14. **TIME BAR** – Indicates how much time is remaining on the current track, how much time is remaining on the CD, or how much time has elapsed on the current track, depending on the setting of the TIME button. (*Note: The bottom bar will follow the CD when the "Scratch" effect is on.*)
15. **TIME MODE (ELAPSED)** – Active when the LCD is showing the time elapsed of the current track.
16. **TIME MODE (REMAIN)** – Active when the LCD is showing how much time is remaining on the current track.
17. **TIME MODE (TOTAL REMAIN)** – Active when the LCD is showing how much time is remaining on the whole CD.
18. **HOT POINT INDICATOR** – Active when hot points have been set.
19. **LOOP INDICATOR** – Activates as loops are playing.
20. **TEXT DISPLAY** – Shows the current mode, parameter, or other relevant deck functions.
21. **MP3 INDICATOR** – Active when the deck is playing an MP3 (as opposed to a typical audio track).

BASIC OPERATIONS



EJECT: Press to load or eject the disc. The drawer will automatically close to protect the tray from accidental damage while open. (The tray will not open while a disc is playing.) To program the automatic close time, hold down PROGRAM and press EJECT. The LCD will indicate options of 30 seconds, 60 seconds, 120 seconds, and "no" for no auto-close. *This setting will be remembered at power down.*



PLAY / STUTTER: Starts the music from either the first set Cue Point or the last point at which it was paused. If the deck is paused, pressing PLAY / STUTTER will start playback and set a new Cue Point. If the deck is playing, pressing PLAY / STUTTER will restart playback from the last Cue Point, creating a "stutter" effect.

To adjust the speed at which playback starts hold down PROGRAM, press PLAY / STUTTER, and rotate the JOG WHEEL until the desired seconds are shown on the LCD. After this, you can toggle between a playback start time of "0" ("Start Up OFF") and the time you just set ("Start Up ON") by holding down PROGRAM then pressing PLAY / STUTTER. *This setting will be remembered at power down.*

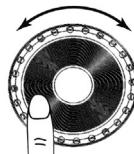


PAUSE: Pauses playback. Pressing PLAY / STUTTER while the deck is paused sets a new Cue Point. Holding down PAUSE while scratching or stuttering the music will stop the music at the current position, allowing you to capture a Loop In or Cue Point.

To adjust the braking time – the speed at which playback stops – hold down PROGRAM, press PAUSE, and rotate the JOG WHEEL until the desired seconds are shown on the LCD. After this, you can toggle between a braking time of "0" ("Brake OFF") and the time you just set ("Brake ON") by holding down PROGRAM then pressing PAUSE. *This setting will be remembered at power down.*



CUE: Returns to and pauses the music at the last set Cue Point. The Cue Point is the last place in which the track was paused and then PLAY / STUTTER was pressed. Pressing and holding CUE will start playback from this point. The deck will return to the Cue Point and pause once you release CUE.



You can edit the Cue Point by turning the JOG WHEEL. As you rotate the JOG WHEEL, you will hear it "scrubbing" through the audio of the track. Stop the JOG WHEEL and press PLAY / STUTTER to set the new Cue Point and start playback from there.

The audio you hear while rotating the JOG WHEEL in Scratch Mode can either be a smooth "scratch" sound ("TT CUEING") or a traditional "stutter" sound ("NO TT CUEING"). To toggle between these modes, hold PROGRAM then press CUE. *This setting will be remembered at power down.*



TIME: Switches the Time Mode on the LCD between elapsed playing time ("ELAPSED"), remaining time on the track ("REMAIN"), and remaining time on the entire CD ("TOTAL REMAIN"). *This setting will be remembered at power down.*

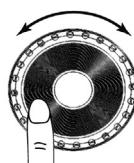


SINGLE: Toggles between Single Play Mode (playback will stop when a track ends) and Continuous Play Mode (when a track ends, the next track will play and the CD itself will restart when the last track has played). *This setting will be remembered at power down.*

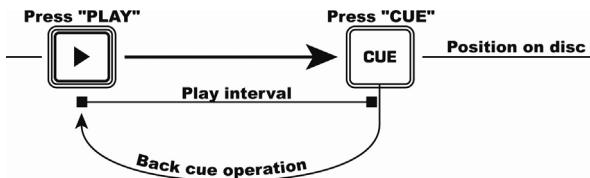


TRACK SELECTION: Rotate the TRACK SELECT / SEARCH knob to find the desired track. To skip through every tenth track, hold down the knob while rotating it.

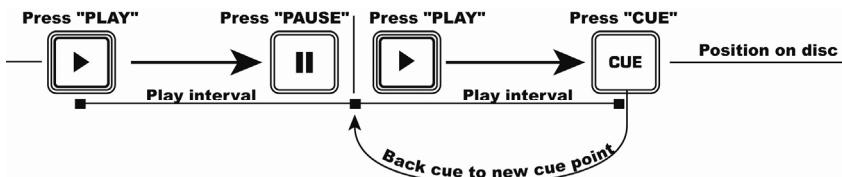
SEARCH: Pressing the TRACK SELECT / SEARCH knob puts the JOG WHEEL in Search Mode, which will remain active while the JOG WHEEL is being moved and for 8 seconds after. In Search Mode, rotating the JOG WHEEL will let you search rapidly through the track. (There are two search speeds depending on how quickly you rotate the JOG WHEEL.)



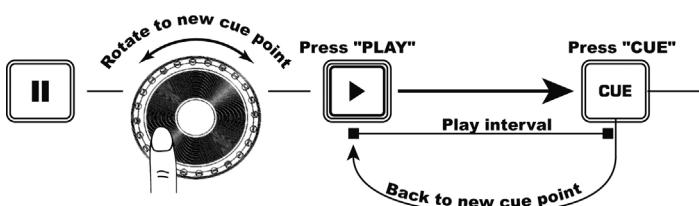
SETTING CUE POINTS



PLAY and CUE: Pressing PLAY / STUTTER starts playback. Pressing CUE will return the track to the last place playback was started. This is called the Cue Point. By alternately pressing PLAY / STUTTER and CUE, the track may be returned and played from the Cue Point any number of times. This is called "back cueing."

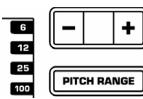


PLAY, PAUSE, and CUE: Pressing PLAY / STUTTER to start playback, pressing PAUSE, and pressing PLAY / STUTTER again will set a new Cue Point. Pressing CUE will return the track to where it was last paused, which will become the new Cue Point.

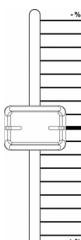


EDITING CUE POINTS: When the track is paused, you can rotate the JOG WHEEL to locate the position for a new Cue Point. By pressing PLAY / STUTTER from this paused position, you will set the new Cue Point.

ADJUSTING PITCH

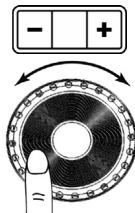


PITCH RANGE: Activates or deactivates the PITCH SLIDER and adjusts the amount of control it has on the speed of deck. You can select 6, 12, 25, or 100% as the range of the PITCH SLIDER by holding down PITCH RANGE and pressing "-/+ to cycle through the options (shown in the LCD's PITCH indicator). *This setting will be remembered at power down.*



PITCH SLIDER: By moving the PITCH SLIDER down, the pitch and tempo of the music will increase. Move it up to decrease it. If the selected Pitch Range is 100%, the PITCH SLIDER's extreme positions can play the track at twice its original speed or reduce its playback speed to zero.

To match the tempos of two decks, you can either monitor the music of both decks by ear or use the automatic BPM indicators and shift the PITCH SLIDER so the BPMs match. (You may still need to align the beats of the two tracks after the tempos are matched.) See MATCHING BPMs for more information.

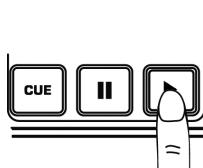


PITCH BEND and JOG WHEEL: These controls temporarily change the tempo of the music so the beats of the two decks can be aligned. The faster you rotate the JOG WHEEL or the longer you hold the "-/+" buttons, the greater the change in tempo. When the button or wheel is released, the deck will return to its usual tempo.

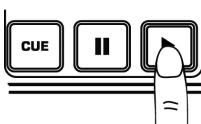
MATCHING BPMs (BEATS PER MINUTE)

You can match the tempos of the two decks either by ear or by looking at the BPM indicator on the LCD and adjusting a deck's pitch with the PITCH SLIDER until they match. If the deck whose tempo you want to match is faster, increase the tempo with the PITCH SLIDER on the opposite deck. If the deck whose tempo you want to match is slower, decrease the tempo with the PITCH SLIDER on the opposite deck. (You may still need to align the beats of the two tracks after the tempos are matched.)

The following example describes how to match the pitch of Deck B to the pitch of Deck A.



Press PLAY on Deck A



Press PLAY on Deck B.
Listen to Deck B or look
at the BPM on the LCD.



If Deck B is faster
than Deck A, slow
down Deck B.

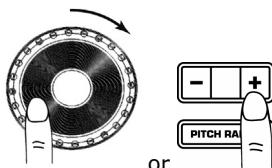


If Deck B is slower
than Deck A, speed
up Deck B.

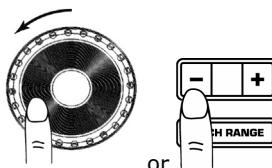
MATCHING BEATS WITH PITCH BEND

Even when the BPMs (beats per minute) are matched, you may still need to synchronize drums beats of the two tracks. To do this, you will need to adjust the tempo/pitch of a track temporarily with the pitch bend buttons ("-/+") or with the JOG WHEEL.

The following example describes how to sync the beats of Deck B to the beats of Deck A. After matching the BPM's, adjust the pitch temporarily as follows:



If Deck B is behind, rotate its JOG WHEEL clockwise or press "+" to bend the pitch up until its beats are synced with those of the other deck.



If Deck B is ahead, rotate its JOG WHEEL counterclockwise or press "-" to bend the pitch down until its beats are synced with those of the other deck.

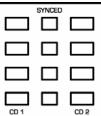
The faster you rotate the JOG WHEEL or the longer you hold the "-/+" buttons, the greater the change in pitch. When you release the JOG WHEEL or "-/+" buttons, the deck will return to its usual tempo.

BEATKEEPER & INTERLOCK

The CDN88 MP3 includes the Numark-patented Beatkeeper™ technology. The Beatkeeper automatically tracks beats based on the frequencies and rhythmic patterns in the music. It detects and displays the track's BPM in the LCD and displays four-count information (i.e., where you are in a four-beat measure) in the MARCHING BAR GRAPH.



MARCHING BAR GRAPH: Most dance and rock music is structured around four-beat increments called measures. The MARCHING BAR GRAPH's bottom LED is for the first beat of a measure – the "downbeat." Most music starts on the downbeat so the music will begin from this point. Occasionally this may not be the case, or you may wish to reset it. To reset the downbeat, simply press the TAP button once where you want to set the new downbeat as the music is playing or paused.

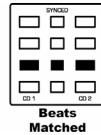
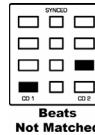


TAP: This button can recalculate a track's BPM or reset its downbeat.



- To recalculate a track's BPM: tap the TAP button on the downbeat of a measure (during playback) and hold it for four seconds. The Beatkeeper will automatically detect the track's BPM. You can also tap the TAP button in time with the beats of the track, which will manually enter a new BPM (this BPM reading will be based upon the average of your last eight taps).
- To reset a track's downbeat: press the TAP button once on the downbeat during playback.

SYNCED BAR GRAPH: The bar graph between the two decks' MARCHING BAR GRAPHS compares the music from both units. When the BPMs and downbeats of the two decks are matched and synced, the SYNCED BAR GRAPH's green LEDs will light up.



Beats Not Matched

Beats Matched

INTERLOCK: This button will automatically match both decks' BPMs and sync their downbeats. Before using this function, be sure the "Master Deck" (the deck whose BPM and downbeat will determine the BPM and downbeat when using INTERLOCK) has the correct BPM and downbeat. *The Master Deck is always the first unit to be playing.* The deck whose BPM and downbeat will be changed to match the Master Deck is called the Slave Deck. As soon as the Master Deck is stopped, the Slave Deck becomes the new Master Deck.



We recommend activating KEY LOCK before using INTERLOCK, which will automatically change the pitch of the Slave Deck. Once INTERLOCK is pressed, you will see the BPM of the Slave Deck change to match the Master Deck and the PITCH (in the LCD) change the amount needed to match the two decks. While INTERLOCK is engaged, all pitch functions of the Slave Deck will be inactive and only follow the pitch changes to the Master Deck. Other functions, such as looping, on the Slave Deck will now also be beat-synced with the Master Deck.

Please note:

- If both decks are playing, the Slave Deck will adjust to match to the nearest beat of the Master Deck.
- If PLAY / STUTTER is pressed, the Slave Deck will start with the next beat of the Master Deck.
- If the Slave Deck's AUTOSTART button is pressed during INTERLOCK, it will automatically start the next time its beats are matched with the Master Deck.
- INTERLOCK may automatically deactivate when effects are engaged that can not be beat-aligned, such as Scratch.

During playback, if the Slave Deck becomes the Master Deck or is released from INTERLOCK, its new pitch will often be different than the current position of the PITCH SLIDER. The PITCH SLIDER will not function until it is brought to the new position. Adjust the PITCH SLIDER as indicated in the LCD.

Example: If the LCD says "PITCH INC → 4.5," move the PITCH SLIDER in the positive direction 4.5%. If it says "PITCH DEC → 13.1," then move the PITCH SLIDER in the negative direction 13.1%. As you get closer to the correct position, the number in the LCD's PITCH indicator will reduce until you are at the current pitch. After this has been achieved, all pitch functions will be re-enabled and can be adjusted normally. If the unit is stopped, the pitch will automatically reset to the current position of the PITCH SLIDER.

KEY LOCK & KEY CHANGE

The CDN88 MP3 uses exclusive technology to lock the key of the music in place at the current pitch or change it from the current position. This is different than "master tempo" often found on many modern units because KEY LOCK locks to whatever the current pitch position is (rather than the "0%" pitch position). This means you can lock the track to any key – not just its original key – then change the speed of the song without changing the key.

KEY LOCK: Pressing KEY LOCK holds the key in place. The LCD will show a "lock" icon to indicate the current key is locked. If the tempo is changed with the PITCH SLIDER, the key of the track will remain unchanged (though you can change it with the "-/+ buttons). If KEY LOCK is engaged and the deck's track changes, the track will be locked at 0%. If KEY LOCK is deactivated when the deck is paused, the deck's pitch will reset to match the current pitch position.

KEY CHANGE: Pressing "+" or "-" when KEY LOCK is engaged will change the locked key. The KEY indicator in the LCD will show the new key. The key can be raised up to one octave above the original key (or up to two octaves above it when the Slide effect is used). The key can be lowered as many as five octaves below the original key. The LCD will limit to 19 half steps above or below normal key. If the key is higher than the original, "H" will be displayed; if it is lower, "L" will be displayed.



AUTOSTART

The AUTOSTART button serves two functions, depending on how it is set.

Interlock Play Start: If the Slave Deck's AUTOSTART button is pressed during INTERLOCK, it will automatically start the next time its beats are matched with the Master Deck..

Relay Play: This function will automatically start play on that deck (which becomes the Slave Deck) after the track on the opposite deck (now the Master Deck) is finished. To activate Relay Play, press the AUTOSTART button (without INTERLOCK engaged) on the Slave Deck. The LCD will read "RELAY." When the Master Deck has finished playing, it will send a signal to the Slave Deck to start playback. The Slave Deck will start automatically and the Master Deck will pause and cue to the beginning of its next track. The Master Deck will now become the Slave Deck.

In Continuous Play Mode, Relay Play allows the Master Deck to play the full CD before the Slave Deck is allowed to play. In Single Play Mode, each deck will play one track before switching to the other.

You can designate how much time Relay Play takes to switch from one deck to the other by holding down PROGRAM and pressing the AUTOSTART button. From here, you can:

- select "0" to relay playback immediately after the track
- select "1," "2," "3," or "4" to add that many seconds between playback of the decks
- select "-1," "-2," or "-3" to assign the Slave Deck to start playing that many seconds **before** playback on the Master Deck has ended (creating an automatic segue)

To deactivate Relay Play, press the AUTOSTART button so the LCD reads "NO RELAY."

Note: This feature will also work in Program Mode, but if both decks are also in Single Play Mode, the number of tracks programmed should be the same on each deck (to ensure playback does not stop prematurely).

FADER START / REMOTE SWITCH START

This function allows for CD player control using most standard fader start-compatible mixers and switches. First, follow the directions for connecting to your fader start-compatible mixer or switch.

1. Hold down PROGRAM and press TIME to toggle through the following options:

- **REMOTE FADER:** The deck will activate with fader start. If you move your mixer's crossfader toward that channel, the attached deck will start playback. When the crossfader is moved away the unit will cue or pause depending upon CD player setting.
- **REMOTE ON – OFF:** The deck will activate with an on/off push-button switch (typically used for switching channels on guitar amps).
- **REMOTE ON – ON:** The deck will activate with a momentary switch (typically used for keyboard sustain pedals).

2. Hold down the TIME button for two seconds.

- **FADER PAUSE:** The deck will pause when stopped.
- **FADER CUE:** The deck will pause and return to the Cue Point when stopped.

Note: You can also use a momentary switch in the "ON-OFF" setting. In this case, the deck will play only while the switch is depressed. When it is released, it will either cue or pause depending upon the mode.

LOOPING OPERATIONS

LOOPING

A loop is any area of a CD that you choose to repeat with no breaks ("seamless"). On the CDN88 MP3, you can set up to two loops per deck.

LOOP IN: The Loop In Point is where you want the loop to start. The track's initial Cue Point is also the default Loop In Point for both loops and a Stutter/Hot Start Point. To set a new Loop In Point, press LOOP IN at the desired point while the track is playing. The LOOP IN button will light up, indicating a new loop is set.

The RELOOP button will light up and "HOT" will be shown in the LCD, indicating a point has been set and is accessible for stuttering. (By default, the Loop In Point also becomes the Stutter/Hot Start Point.)

Note: The deck will always remember a new set point as the Loop In or Stutter/Hot Start Point until you actually set a new Loop In Point or load a new CD. The new point will be accessible until you eject the CD. If you change tracks and you previously set a Loop In Point on another track, pressing RELOOP will jump to that point.

LOOP OUT: The Loop Out Point is the end point of a loop. The first time you press LOOP OUT while playing a track, the LOOP OUT button will flash as the song automatically returns to the Loop In Point and continues to play. When the song reaches that Loop Out Point, it will return to the Loop In Point and repeat. (The LOOP IN button will also be flashing during a loop.)

START TRACK
Initial "CUE" point and
default "LOOP IN" point



Press "LOOP IN"
New "LOOP IN" point
and "HOT" point set

LOOP IN



OR

RELOOP

Press "LOOP IN"
New "LOOP IN" point
and "HOT" point set

Position on CD

LOOP IN

Press "LOOP OUT"
New "LOOP OUT" point is set
Looping will occur until "LOOP OUT"
is pressed again

LOOP OUT

Return to "LOOP IN" point

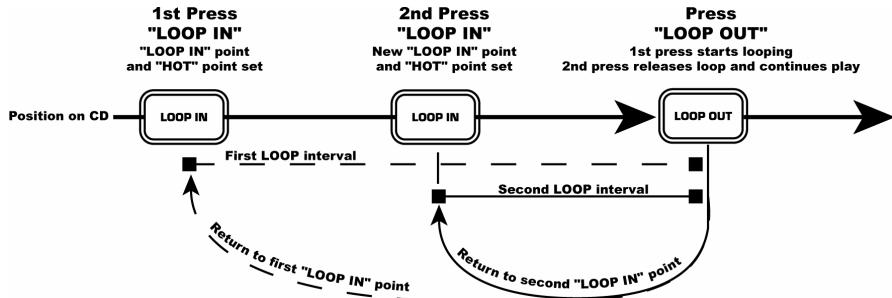
To release the loop, press LOOP OUT while in the loop. Playback will continue forward when the track passes the previously set Loop Out Point. The LOOP OUT button will be lit solid indicating that the loop will be remembered if RELOOP is pressed.

Note: The Loop Out Point will be erased if LOOP IN is pressed or if a new Cue Point is set **after** the Loop Out Point. If this happens, RELOOP will not be possible.

SMART LOOPING: The Beatkeeper and looping functions can work together to set perfect loops every time. For this to work correctly, the Beatkeeper must be on the beat. To activate Smart Looping, hold down PROGRAM and press RELOOP. All Loop Points and stuttering will now play perfectly to the beat of the music.

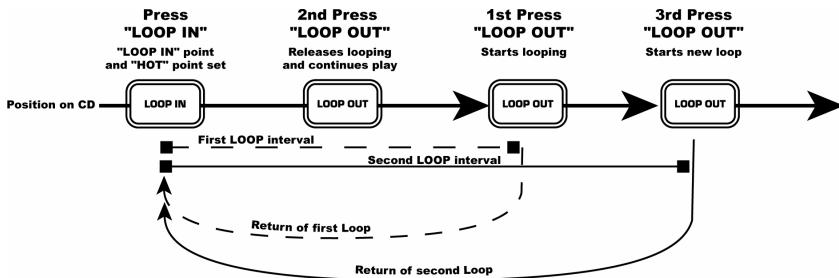
MOVING LOOP POINTS

The Loop In Point can be moved while the music is playing by pressing LOOP IN wherever you want to set it. The next time the Loop Out Point is reached, the track will return to this new Loop In Point. If LOOP IN is pressed after the Loop Out Point, it will clear that Loop Out Point.



The Loop In Point can also be edited while paused by holding down CUE, pressing LOOP IN, then rotating the JOG WHEEL to search for a new Cue Point location. Press LOOP IN again to set the new Loop In Point at this location. (You can check your Loop In Point by pressing RELOOP.)

The Loop Out Point can also be moved while a loop is playing. Press LOOP OUT to release the old Loop Out Point and press it again at the new desired point.



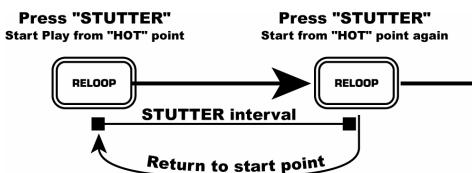
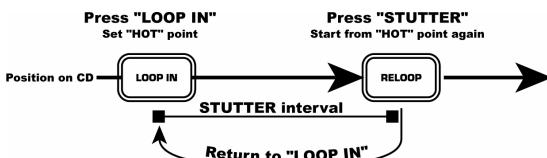
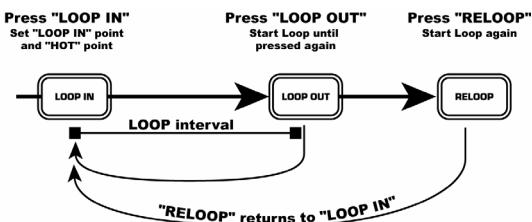
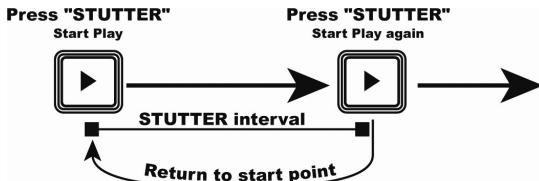
RELOOPING / STUTTERING

The RELOOP button performs two different functions, depending on the loop setting:

Reloop: This function can only be used if Loop In and Loop Out Points are set. RELOOP automatically returns the track to the Loop in point and will play the loop until it is released with the LOÖP OUT button.

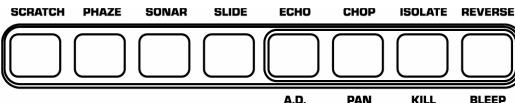


Stutter: This function starts playback from previously set Stutter/Hot Start Points. Set your Stutter/Hot Start Point the same way you would set a Loop In Point. (Remember that this button also serves as a reloop button, so if a loop out has been set, the deck will also loop until released.) This function lets you set three Stutter/Hot Start Points. The first is based on the Cue Point while the second two are based on the Loop In Points.



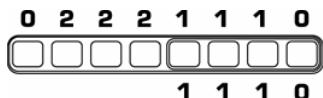
Note: The deck will always remember new Stutter/Hot Start Points until you actually set a new Loop In Point or load a new CD. The new point will be accessible until you eject the CD. If you change tracks and you previously set a Loop In Point on another track, pressing RELOOP will jump to that point.

USING EFFECTS



EFFECT SELECTION (Single Effect Mode): To select and activate an effect, press its button. It will light and the effect will be indicated in the LCD. To put the effect into Hold Mode or to activate additional effects press the HOLD button. The button will light indicating "hold" has been activated and "HOLD" will be shown in the LCD. To deactivate an effect, tap it again.

EFFECT SELECTION (Multiple Effects Mode): Hold PROGRAM and press HOLD to activate or deactivate Multiple Effect Mode. The LCD will indicate "MULTIFX" or "NO MULTIFX." Select an effect by pressing an EFFECT BUTTON and move the JOG WHEEL to the desired parameter. Then, press a second EFFECT BUTTON. The first EFFECT BUTTON will flash while the second effect will be solidly lit. To deactivate the second effect, press the solidly lit EFFECT BUTTON. You can use up to four effects at the same time (this includes both decks together).



Some effects, like Scratch and Reverse, are always available. Others, like Phaze, Sonar, and Slide, use two effect values while the remaining effects allow one. If more than the allowed values are attempted, they will not activate.

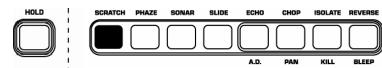
For example:

- You can have Echo and Isolate engaged on Deck A and Scratch and Sonar on Deck B.
- You can have Phaze engaged on Deck A and Slide on Deck B
- You can have Phaze and Slide engaged on Deck A but only Scratch or Reverse on Deck B.

EFFECT PARAMETER SELECTION: Once an effect is engaged, rotate the JOG WHEEL to set the desired parameter for that effect. The parameter for most effects will be shown in the LCD's TEXT DISPLAY and will be "remembered" if that effect is disengaged then reengaged. (*Note: For all effects except Reverse, the JOG WHEEL will not be able to pitch bend while adjusting parameters, so you must use the "-/+ buttons to pitch bend in these cases.*)

EFFECTS

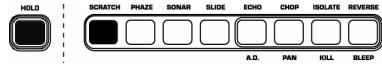
SCRATCH – This effect enables the JOG WHEEL to scratch the music while it is playing. Moving the JOG WHEEL emulates the scratching of a record (by moving the platter).



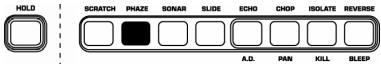
This effect has four modes. By holding PROGRAM then the Scratch EFFECT BUTTON, you can toggle between the following options:

- **Scratch 1:** The deck automatically resumes playback when the wheel stops moving.
- **Scratch 2:** The deck will stop when the JOG WHEEL is brought to a stop and will resume playback when the JOG WHEEL is pushed forward.
- **Scratch 3:** The deck will scratch the audio from the buffer until the JOG WHEEL is released. When released, the track will jump ahead to the point where the music would have been if it had not been interrupted (similar to the Bleep effect).
- **Scratch 4:** The deck scratches from the last set Cue Point until the JOG WHEEL is pushed forward. When released, the track will play from that point. This allows you to scratch from a set "sample."

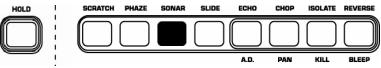
SCRATCH HOLD – This effect works like Scratch except playback will not resume when the JOG WHEEL is pushed forward. Instead, it emulates scratching a record on a platter with the motor off.



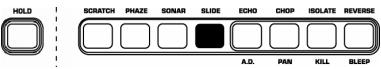
PHAZE – Creates an effect similar to the sound of an airplane taking off. The JOG WHEEL controls the rate of this effect. If the JOG WHEEL stops, the effect will automatically return to the "0." If the effect is in Hold Mode, the sound (as set by the JOG WHEEL) will stay constant until it is adjusted with the JOG WHEEL, deactivated, or taken out of Hold Mode.



SONAR – Creates a hollow, metallic effect. The JOG WHEEL controls the rate of this effect. If the JOG WHEEL stops, the effect will automatically return to "0." If the effect is in Hold Mode, the sound (as set by the JOG WHEEL) will stay constant until it is adjusted with the JOG WHEEL, deactivated, or taken out of Hold Mode.

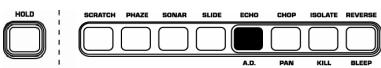


SLIDE – Smoothly changes the key of the music with the motion of the JOG WHEEL. The LCD's KEY indicator will show the key change as the JOG WHEEL is moved. If the JOG WHEEL stops, the effect will automatically return to "0." If the effect is in Hold Mode, the sound (as set by the JOG WHEEL) will stay constant until it is adjusted with the JOG WHEEL, deactivated, or taken out of Hold Mode.

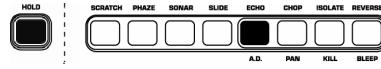


ECHO – Adds echo to the music based on the Beatkeeper. The default parameter is "0" (no echo). If you move the JOG WHEEL to the right the EFFECT PARAMETER display will read "1-64," "1-32," "1-16," "1-8," "1-4," "1-2," and "1-1," indicating the amount of echo added to the unit. If you move the wheel to the left you will create Reverse Echo. (Reverse Echo essentially plays the music before the sound actually occurs in playback. This means the audio will be played out of the buffer. If the buffer becomes unavailable, Reverse Echo will stop until the buffer is regained.)

At "1-1," the echo will last for one full measure (four beats). If you deactivate then reactivate Echo, the last set parameter will be remembered.



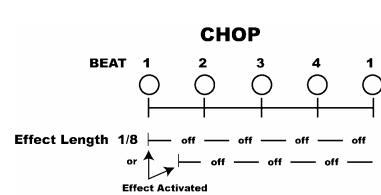
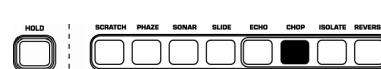
A.D. (Artificial-Dissemination) – Reduces the bitrate of the music creating distortion with increasing intensity.



CHOP – Chop breaks up the music by turning the volume on and off based upon the BPM of the Beatkeeper. (This effect works best when the Beatkeeper is properly aligned.) When the effect is first activated the music will play the section then turn off for a section.

The first activation of Chop occurs at every eighth note (half of every beat). The LCD's BPM indicator will show "1-8," which means one measure (four beats) of music has been broken into eight parts.

Rotate the JOG WHEEL counterclockwise to decrease the parts to "1-4," "1-2," and "1-1" (at "1-1," the music plays for four beats then is silent for four beats). Rotate the JOG WHEEL clockwise to increase the parts to "1-16," "1-32," or "1-64." If you deactivate then reactivate Chop, the last set parameter will be remembered.

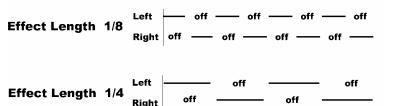
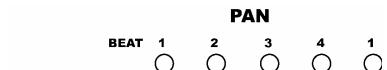


PAN – Pan alternates between playing right and left audio channels based upon the BPM of the Beatkeeper. (This effect works best when the Beatkeeper is properly aligned.)

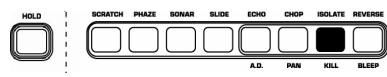
The first activation of Pan alternates between right and left audio channels every eighth note (half of every beat). The LCD's BPM indicator will show "1-8," which means one measure (four beats) of music has been broken into eight parts.

Rotate the JOG WHEEL counterclockwise to decrease the parts to "1-4," "1-2," and "1-1" (at "1-1," the right channel plays for four beats then the left channel plays for four beats). Rotate the JOG WHEEL clockwise to increase the parts to "1-16," "1-32," or "1-64." If you deactivate then reactivate Pan, the last set parameter will be remembered.

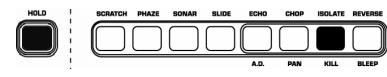
ISOLATE – This isolation filter lets you play only a specific frequency in the music. Rotate the JOG WHEEL to move the selected frequency through the audio spectrum. If you deactivate then reactivate Isolate, the last set parameter will be remembered.



KILL – This filter eliminates a specific frequency in the music. Rotate the JOG WHEEL to move the selected frequency through the audio spectrum. If you deactivate then reactivate Kill, the last set parameter will be remembered.



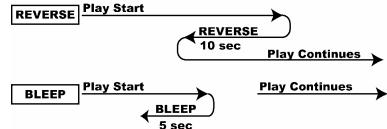
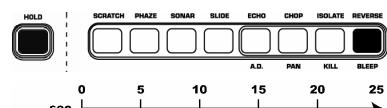
REVERSE – Plays the music backwards until it is deactivated. There is no limit to the amount of time you can reverse.



BLEEP – A temporary "forward reverse" function for "bleeping" obscene lyrics or creating interesting effects. Once its EFFECT BUTTON is pressed, the music will play backwards from buffer until Bleep is deactivated or until the buffer runs out. At that point, the music will play forward from the point where the track would have been if the button had never been pressed.

For example, if Bleep is activated for five seconds at the 0:10 mark of a song, you will hear the audio from 0:05 – 0:10 in reverse. When you deactivate Bleep, normal (forward) playback will resume at 0:15.

Note: The buffer time allotted for this operation varies with the number of loops set and anti-shock buffer available.



PROGRAM FUNCTIONS

The PROGRAM button provides several functions depending upon the combination of other buttons used.



Track Sequence Programming – Press PROGRAM while the deck is stopped with a loaded CD and "PROGRAM" will light. Select each track to be programmed, pressing PROGRAM between each selection. Press PLAY / STUTTER to play the Track Sequence Program. To exit and erase program, hold PROGRAM for more than two seconds while the deck is stopped, eject the CD, or turn off the power.

◀◀ TRACK ▶▶

You can activate the following functions by holding down the PROGRAM button then pressing the appropriate button:

SCRATCH



HOLD



SNGL



CUE



II



►



AUTOSTART

TIME

EJECT

Effect Options * – Pressing PROGRAM and an EFFECT BUTTON will offer alternate options to that effect (if available). For instance, pressing the Scratch EFFECT BUTTON will allow you to toggle between "Scratch 1," "Scratch 2," "Scratch 3," and "Scratch 4." See USING EFFECTS for more information.

Multiple Effect Mode * – Switches the deck between Single and Multiple Effects Modes. See USING EFFECTS for more information.

End-of-Track Silence Elimination * – This will let you eliminate the silence at the end of tracks. (The CDN88 MP3 already removes any silence at the beginning of tracks automatically.) This is useful for eliminating all the gaps between songs when playing a CD in Continuous Play Mode. The LCD will indicate "NO SPACE" when this function is engaged or "_SPACE" when the function is disengaged (allowing the silence at the end of tracks to play).

Cueing Style Selection * – This will let you hear a smooth "scratch" sound or traditional "stutter" sound when cueing with the JOG WHEEL. The LCD will indicate "SCRATCH" when the "scratch" style is active. This indication will be absent when the style of cue is "stutter." While "Video" is selected in Digital Out Mode, autocue will be disabled to prevent video clipping. See DIGITAL OUTPUT for more information.

Braking Time * – To adjust the braking time – the speed at which playback stops – press PROGRAM, press PAUSE, and rotate the JOG WHEEL until the desired seconds are shown on the LCD. After this, you can toggle between a braking time of "0" and the time you just set by pressing PROGRAM then PAUSE twice.

Startup Time * – To adjust the startup time – the speed at which playback begins – press PROGRAM, press PLAY / STUTTER, and rotate the JOG WHEEL until the desired seconds are shown on the LCD. (The stutter function will not be affected by this setting.) After this, you can toggle between a braking time of "0" and the time you just set by pressing PROGRAM then PLAY / STUTTER twice.

Relay Time * – You can designate how much time Relay Play takes to switch from one deck to the other by holding down PROGRAM and pressing the AUTOSTART button. From here, you can:

- select "0" to relay playback immediately after the track
- select "1," "2," "3," or "4" to add that many seconds between playback of the decks
- select "-1," "-2," or "-3" to assign the Slave Deck to start playing that many seconds **before** playback on the Master Deck has ended (creating an automatic segue).

Remote Start * – This will let you decide the fader start or remote switch start settings for the deck. See FADER START / REMOTE SWITCH START for more information.

Automatic Door Close Protection * – This option automatically closes the door at the specified time. The LCD will indicate options of 30 seconds, 60 seconds, 120 seconds, and "no" for no auto close.

PITCH RANGE

Digital Output * – The CDN88 MP3 has a digital output on its rear panel. Holding PROGRAM and pressing PITCH RANGE enables or disables the DIGITAL OUTPUT to allow raw digital information to be extracted from the CD for CDG video purposes. In this mode, "VIDEO" will be shown on the LCD and seamless looping or other effects that may disrupt the video will be disabled. Pressing PROGRAM and CUE will activate/deactivate autocue for Video Mode only (in case you wish to disable autocue so the CDG does not skip over the video frame before the track starts). To record your effects digitally, select Audio Mode instead ("AUDIO" will be shown on the LCD).

RELOOP

Smart Looping – When Smart Looping is active, all Loop Points and stuttering will play perfectly to the beat of the music (as long as the Beatkeeper is accurate – see BEATKEEPER & INTERLOCK for more information). "SMART LOOP" will be shown on the LCD when this function is active.

-

Sleep Mode – The unit will automatically enter Sleep Mode after 15 minutes of inactivity. In this mode the unit will still start instantly from its buffer, but the CD player's laser will turn off to extend its life. (This feature can be turned off.)

* This setting will be remembered at power down.

CUE / LOOP POINT STORAGE & RECALL

To SAVE Cue and Loop Points on the current CD:

1. With a CD (with Cue and Loop Points) loaded, hold PROGRAM and press LOOP IN.
2. The LCD will show "CUE STORE" for one second, indicating your Cue and Loop Points are saved. (If the MIDI OUT port is connected to another player's MIDI IN port, the Cue and Loop Points will be stored on the other player.)

To RECALL Cue Points on the current CD:

1. Hold PROGRAM and press LOOP OUT.
2. The LCD will show "CUE FETCH" to indicate Cue Point loading. (If the CD doesn't have Cue Points stored on the CD player, then the LCD will show "NO FETCH".)
3. All Cue and Loop Points will be restored in addition to BPM and downbeat information for immediate access to Beatkeeper functions.

To TRANSFER stored Cue Points from another unit:

1. With no CD loaded into the CDN88 MP3, connect its MIDI ports to another CD player with the Cue Points already stored.
2. Hold PROGRAM and press LOOP IN on the CDN88 MP3 to retrieve Cue Points from the other player. The other player will then send all of its Cue Points to the CDN88 MP3.
3. The CDN88 MP3's LCD will flash "CUE STORE" and store all Cue Points received.

Notes:

- If over 1024 CDs have Cue Points written, the oldest Cue Points will be overwritten.
- If new Cue Points are detected on a CD, this new Cue Point data will overwrite the old Cue Point data.

MIDI

"MIDI" stands for "Musical Instrument Digital Interface." You can hook up two MIDI-compatible devices and they will "talk" to each other. For instance, you can connect two CDN88 MP3s or an AXIS 8 to CDN88 MP3 and have them synchronize beats. You could use a MIDI keyboard to control the CD players or connect a drum machine and play a pattern in time with the music.

GLOBAL MIDI CLOCK TRANSMISSION: When the CDN88 MP3's MIDI OUT port is connected to another MIDI clock-receiving device, such as a drum machine, the device will receive global MIDI clock information from the Master Deck of the CDN88 MP3. Play and pause commands will be sent, as well.

INCREASE / DECREASE: During playback, if the Slave Deck becomes the Master Deck or is released from INTERLOCK, its new pitch will often be different than the current position of the PITCH SLIDER. The PITCH SLIDER will not function until it is brought to the new position. Move the PITCH SLIDER in the direction shown in the LCD.

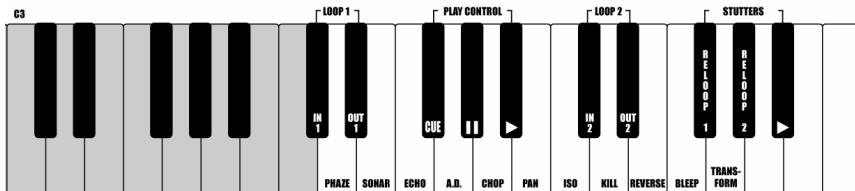
Example: If the LCD says "INCREASE 4.5%," move the PITCH SLIDER in the positive direction 4.5%. If it says "DECREASE -3%," then move the PITCH SLIDER in the negative direction 3%. As you get closer to the correct position, the indication on the LCD will reduce until you are at the current pitch. After this has been achieved, all pitch functions will be re-enabled and can be adjusted normally. If the unit is stopped, the pitch will automatically reset to the current position of the PITCH SLIDER.

Notes:

- INTERLOCK may automatically deactivate when effects are engaged that can not be beat-aligned (such as Live Scratch).
- Other MIDI features will be available on future upgrades of this product.

CONNECTING A MIDI KEYBOARD: Attach the MIDI output of the keyboard to the MIDI IN port of the CDN88 MP3. Set your keyboard to transmit on Channel 6 to control the left side or Channel 7 to control the right side. Connect a footswitch to the keyboard for additional control. The chart below details key reaction.

SET TRANSMIT TO MIDI CHANNEL 6 (left) / 7 (right)



MIDI IMPLEMENTATION CHART

| MODEL: AXIS 8, AXIS 9, CDN90 | | | | Date: 4/24/2002 Version: 1 |
|------------------------------|----------------|-------------|------------|---------------------------------------|
| | | Transmitted | Recognized | Remarks |
| Basic Channel | Default | 5 | 1,5,6,7 | 1=turntable, 5=CD player |
| | Changed | X | X | 6=keyboard (left) 7= keyboard (right) |
| Mode | Default | Omni On | Omni On | |
| | Messages | X | X | |
| Note Number | Altered | X | X | |
| | True Voice | X | 21-72 | Key transpose, keyboard channel |
| Velocity | Other | X | 73-95 | CD functions, keyboard channel |
| | Note On | X | O | |
| After Touch | Note Off | X | O | |
| | Keys | X | X | |
| Pitch Bend | Channel | X | X | |
| | | X | O | Turntable channel only |
| Control Change | 16 | O | O | CD player channel only |
| | 64 | X | O | Keyboard channel only |
| Program Change | True Number | X | X | |
| | | X | X | |
| System Exclusive | | X | X | |
| | | | | |
| Common System | Song Position | X | X | |
| | Song Select | X | X | |
| System | Tune Request | X | X | |
| | Clock | O | O | |
| Real Time | Commands | O | O | *1 |
| | Local On/Off | X | X | |
| Aux Messages | All Notes Off | X | X | |
| | Active Sensing | X | O | Needed to keep Axis 8 in slave mode |
| | System Reset | X | X | |

Notes: *1 System Real Time commands will not play/pause CD player. These are only used for MIDI clock repositioning.

Note: Further MIDI specifications can be found at <http://www.numark.com>.

UPGRADING YOUR UNIT

This CDN88 MP3 contains the latest software available at the time of manufacturing. Our engineering staff will be working hard to improve and offer additional features in the future. The software has been designed to be easily updated by you through supplied updates from Numark. To obtain the latest software version, visit us on the web at <http://www.numark.com>.

To check your unit's software version press PROGRAM then the "+" button. Three sets of numbers will appear. Your unit's software version will be in the set of numbers shown in the "seconds" display on the LCD. (Example: If "R1 05 34 09" appears, you have Version 34, Revision 1.)

AUDIO CD PROGRAMMING PROCEDURE

1. Go to www.numark.com and download the latest version of the CDN88 MP3's software.
2. Load the file onto a computer and burn the file onto an "audio CD." (We recommend burning the CD at the slowest speed possible to ensure its accuracy.) Remember to finalize the CD.
3. Turn on the CDN88 MP3 (without a CD loaded).
4. Load the burned CD into the unit with the EJECT button. *Do not close the drawer by pressing PLAY / STUTTER.*
5. Wait until the LCD indicates the time remaining.
6. Press PLAY / STUTTER. In the EFFECT PARAMETER display, you will see the word "TEST" as the time counts down. The unit will repeat the cycle and indicate "BUSY" while it is updating the software.
7. When it is finished, the CD should eject automatically and the LCD will read "GOOD."
8. Remove the CD and turn the unit off for three seconds before turning it on again.
9. Recalibrate the unit following the calibration procedure included with the software update.

Note: *CD burning is dependent on the recording equipment and the CD player's ability to read the burned information. If the unit ejects the CD during the procedure, remove the CD and try again. If it fails, try re-burning the CD. If this doesn't work, contact us at support@numark.com for a free upgrade CD.*

SPECIFICATIONS

| | |
|-----------------------------|---|
| DISC TYPE: | Redbook CD, CDR, CDRW, MP3 CD |
| TIME DISPLAY: | Track Elapsed, Track Remain, Total Remain |
| QUANTIZATION: | 1-bit linear/channel, 3-beam laser |
| OVERSAMPLING RATE: | 8 times |
| SAMPLING FREQUENCY: | 88.2 kHz |
| FREQ RESPONSE: | 20 Hz – 20 kHz |
| THD+N: | < 0.005% |
| SNR (IHF-A): | > 82 dB |
| DYNAMIC RANGE: | > 80 dB |
| OUTPUT LEVEL: | 1.2 V RMS |
| START TIME: | ≤ 0.006 sec. |
| PITCH CONTROL RANGE: | ± 6, 12, 25, 100% |
| PITCH BEND: | ± 50% rotary; ±16% buttons |
| DIMENSIONS: | Controller: 482 mm x 132 mm x 42 mm Main Unit: 482 mm x 88.5 mm x 316 mm |
| WEIGHT: | Controller: 1.9 kg Main Unit: 6.5 kg |
| MAXIMUM TILT ANGLE: | 15° |
| POWER SUPPLY: | 100-240 V AC, 50/60 Hz |
| POWER CONSUMPTION: | 36 W |

* Specifications are subject to change.

www.numark.com