

darTzeel

CTH-8550 Integrated Amplifier

User Manual



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darTZeel CTH-8550 integrated amplifier

User Manual

1. Preliminary notes

Your CTH-8550 comes with a USB activation key to provide the required identification data to your CTH-8550's internal CPU.

You must use the USB activation key to “unlock” your CTH-8550 the first time you operate it.

Until you complete its registration, your CTH-8550 will operate only for the 15 minutes following each new powering on.

As part of the registration process, your dealer will send to you the appropriate data file by e-mail.

Please refer to chapter 7, “Activation key procedure” (page 9), for how to obtain your USB activation-key data file.

Please read this user manual in its entirety.

We did our best to avoid making you fall asleep. We hope to be successful in that regard... .

The CTH-8550 requires about 170 hours of playing time before it approaches its full potential.

2. Introduction

Congratulations on your purchase of a darTZeel CTH-8550.

The darTZeel CTH-8550 is the most advanced analogue integrated amplifier yet designed.

This new musical component directly benefits from our past experience in audio; yet, it has plenty of innovative features, as you will discover while reading this (we hope entertaining) user manual.

Designed for user-friendly operation, the CTH-8550 will provide you many years of absorbing pleasure, as you listen to your favorite music.

The new fluorescent display's comprehensive menus greatly simplify setup and operation.

The CTH-8550's intuitive menu structure has allowed us to keep this user manual comparatively brief.

Sometimes it is possible to deliver high technology, while at the same time saving some trees... .

3. Brief description

Your CTH-8550 represents the culmination of all the research and development we have brought to the audio industry over the past decades.

Our passion and love for music and its reproduction have been embodied in the CTH-8550.

The challenging goals we set for ourselves were to design and then build a “no compromise, all-in-one music machine.”

You will experience the result very soon, when you listen to your favorite records.

With no fewer than *nine* inputs—including optional phono inputs—and two preamp outputs, the darTZeel CTH-8550 is the ideal modern integrated amplifier to fit into any high-end audio system.

Thanks to its newly-developed output stages, driving any real-world loudspeaker load will be just another day at the office for the CTH-8550.

With the CTH-8550's more than 200 watts into 8 ohms, and close to 350 watts into 4 ohms, even low-sensitivity speakers will put out plenty of volume during your most demanding—dynamically speaking—listening sessions.

The new power circuits use only *three* junctions in the signal path, offering truly musical, fast, transparent reproduction.

Furthermore, in those “green” days, we are proud to say the CTH-8550 runs very cool, saving on your electrical bill.

This integrated amplifier actually marks a new milestone in darTZeel history, by introducing features you will not find elsewhere.

Hey, this *is* a darTZeel machine, isn't it?

From the technical point of view, there is no doubt that the CTH-8550 is a very special machine.

As for the most important thing you can ask for, and we obviously mean the *music*, you will simply find it... Enthralling.

4. Warranty

Your CTH-8550 is guaranteed for one full year (parts and labor), against any breakdown or component failure, as is the tradition in Switzerland for such equipment.

As we view it, any electrical component with no moving parts either will fail within days, or will last virtually “forever.”

This is the reason all our machines are thoroughly tested and broken in, before being lovingly packed and sent on to you.

We are nonetheless aware that no component is always flawless, and that a problem could arise after the expiration of the warranty period.

In such a case, we will carefully examine all the circumstances, with the aim of reducing the likely repair costs to minimum levels. You can always trust us for customer care, as you already trusted us when purchasing your CTH-8550.

The warranty is valid in the original country of purchase only.

The warranty is transferable to a single second-hand user within the first year, but only in the original country of purchase.

5. Installation

5.1. Unpacking

Please remember how your CTH-8550 was packed, which will be very useful in case you relocate.

Your CTH-8550 has been carefully inspected and packed before shipping. Make sure your shipping carton has arrived in mint condition, without any sign of external damage.

If you notice any shipping damage, please immediately notify your official dealer!

All future shipping must be done in the original packing carton. Your warranty rights will be void if the CTH-8550 is not shipped/returned in its original package.

Your carton should contain:

- The CTH-8550
- The IRC-885 infrared remote control
- The darTZeel USB key
- An AC power cable appropriate for your region
- This user manual

5.2. Location

Before making any connections, you should carefully plan the location where you will install your gear. If you plan to install your CTH-8550 inside furniture or cabinetwork, please remember that you absolutely must allow at least one inch of free space all around the unit, **as well as providing an adequate fresh-air inlet and outlet**, to ensure proper cooling.

As noted in the “Brief description” chapter, the CTH-8550 does run comparatively cool. However, failing to provide proper ventilation will quickly increase its internal temperature.

Therefore, please be forewarned that the CTH-8550 will stop playing if it becomes too hot.

The CTH-8550’s thermal-shutdown point is approximately 70°C (158°F). The power supply starts up again when the operating temperature has dropped to 60°C (140°F).

Please also note that continued excessive operating temperatures will reduce the lifespan of your machine.

It is also advisable, where possible, to leave enough space around your CTH-8550 to allow easy access when making or changing connections.

5.3. Connections

As you will see in next chapter, making or changing connections to the CTH-8550 is quite easy, thanks to its clearly labeled rear panel.

The only thing you will have to **confirm** is the proper **voltage setting**. You will find above the IEC connector a small window showing the voltage that has been selected.

Please read chapter 6.2.1 about this topic.

The speaker binding posts accept most types of cable terminations. If you use speaker cables terminated by spade lugs, be sure **not to over-tighten the binding posts**. Over-tightening will create play, which can lead to loose binding posts.

We prefer spring-loaded banana-plug speaker cable terminations. Our experience is that they provide very reliable contact over the long haul, without needing periodic re-tightening.

As soon as the CTH-8550 is plugged into the AC wall outlet, its operation-status LED will turn **red**.

There is no master hardware (physical) on/off switch. We hope you nevertheless will sleep well, knowing that the CTH-8550’s electrical-power consumption in standby mode is less than 3 watts.

6. The CTH-8550 in detail

6.1. Front panel



1. RCA Input 1
2. RCA Input 2
3. RCA Input 3
4. RCA Input 4
5. Phono MM (optional)
6. Phono MC (optional)
7. Zeel Input 1
8. Zeel Input 2
9. XLR Balanced input

S. Display screen

P. Pleasure Control Knob

Used—of course—for adjusting output volume level.
Also used for balance adjustment.

Note: In ALL menus, the + and – key functions
can be duplicated by rotating the Pleasure Control.
Very Useful!

L. Operation Status LED

Shows various operation states:

- Red → CTH-8550 is off (standby mode).
- Orange → CTH-8550 is on (even if the display screen has been dimmed out).
- Green → CTH-8550 is on, indicating reception of a remote-control command.

A. Menu → To enter the configuration-setting menu

B. Time → To Display/Hide time and date

C. Light → To Enable/Disable display Auto-Off

D. Name → To Display serial number and owner's name

Press once for 5 seconds of display.

Press twice to display the owner's name permanently.

Press a third time to resume into standard display mode.

("Name" has the same function as the "Owner" key on the Remote Control.)

E. Mute → To Reduce/Cut/Resume output volume level

When set to -20dB or -40dB, Mute will return to the previous level, either by pressing Mute again, or by altering the volume level using the Pleasure Control or the Remote Control.

F. Mono → To Switch from Stereo to Mono

G. Balance → To Adjust L/R channel balance

Press Balance, then adjust with the Pleasure Control knob within 3 seconds.

Remote control: use L and R keys. Pressing both L and R keys at same time restores balance to the central position.

R. Infrared Receiver

The commands sent by the remote control are received at this point. Do not cover it, or the remote control will not function properly.

Never push, scratch, or attempt to move the infrared receiver! Remote control access will not work if the receiver has been damaged.

6.2. Rear panel



We think the rear panel labeling speaks for itself. Nevertheless, we will try to keep you awake, by providing some general information...

You will note that we provide two **USB ports** on the lower left corner. The standard **rectangular port** is the one into which you will **insert your USB key** when registering, or when a firmware update becomes available.

When you register your CTH-8550, you will need to insert your USB key into the rear panel's rectangular USB port.

Please carefully read the chapter 7, "Activation key procedure", next page.

!!! YOUR MACHINE WILL OPERATE FOR ONLY 15 MINUTES IF NOT PROPERLY ACTIVATED !!!

6.2.1 Fuse and voltage settings

The small window above the AC mains connector indicates the factory voltage setting.

If you move to another country, you may have to change the voltage setting. Please contact your dealer for information as to how to proceed.

In this case, a new activation code will be required.

!!! Warning !!!

Improper fuse installation and/or voltage selection will certainly damage your CTH-8550.

**For 100-120 volts AC, proper rating is 8 amperes.
For 200-240 volts AC, proper rating is 4 amperes.**

Fuses must be of T (temporized) type.

Do NOT use fuses with wound coil filaments.

In case of doubt, always install Fast Blow types.

6.3. Remote control

The remote control is easy to use.

- The nine lower keys (numbered 1 to 9) are for selecting the source, as described in chapter 6.1 "FRONT PANEL".
- The + and - keys are for adjusting the output volume level.
- The L and R keys are used for direct balance adjustment.
It is easier to adjust balance from here than from the front panel, since it allows for direct access. Resetting the balance to the central position is accomplished by pressing the L and R keys simultaneously.
- The Lite key functions the same as the "Light" key on the front panel.
- The Owner key functions the same as the "Name" key on the front panel.
- The other keys speak for themselves.



7. Activation key procedure

Please remember that until you complete its registration, your CTH-8550 will operate only for the 15 minutes following each new powering on.

Registration procedure:

We provide a USB activation key with your CTH-8550. This key is blank when you receive it.

Ask your dealer to send you your activation-key data file. You will receive this by email in the form of a zipped (data-compressed) folder containing a file with a “dtz” name extension.

How to proceed:

1. Unzip (decompress) the key-activation software from the zip folder. Directly copy the “dtz” file onto the USB key, using your home computer. **DO NOT ALTER THE FILE NAME!**
2. Insert the “loaded” USB key into the rectangular USB port located in the rear panel of your CTH-8550.
3. From the front panel, sequentially press the following: Menu ► Parameters ► Diag ► DTZ.
4. The file will be uploaded.
5. Remove the USB key.

At registration-inquiry time, please note that your owner name cannot exceed 14 characters maximum in length. So, please use “J.D. Smith” instead of “Jonathan Donald Smith”... .

8. User parameters

The section starting at chapter 10 is the largest part of this user manual.

As there are more than *fifty* different display screens, you can see that we built a lot of features into the CTH-8550.

Thanks to the intuitive menus, you will be able to access all parameters directly from the front panel.

8.1. Main features

For each input, you can adjust the following:

- Source Name
- Input level
- Balance
- Mono/Stereo
- Bypass mode

The CTH-8550 offers a pleasantly smooth mute operation, softly shutting off/resuming the music being played. You can choose between a standard full mute or have only a -20dB or -40dB level reduction.

The power-amplifier section can be switched off, in the event you would prefer to use the CTH-8550 as a stand-alone preamplifier. Doing so, the large power transformer will be shut down, further reducing power consumption, and improving the signal-to-noise ratio.

Last but not least, a real-time clock, primarily implemented for memorizing internal CPU events, also permits automatic power-on and/or off of your CTH-8550. Quite a “luxury” alarm clock, but who can resist... .

Sincerely hoping that those little touches will please you, let us go on to the next chapter... .

9. How to set everything

Everything? Almost... .

The following four pages show how to set up your CTH-8550, by mean of schematic flow charts.

We reproduce the actual display screens and explain how to proceed, exactly as if you were in front of your machine.

Because there are more than 50 different display screens, we tried to compress this presentation a bit, yet without neglecting any important options.

We are sure you will be able to find the small number of remaining “hidden” displays, once you have become accustomed to working with the menus.

Important note

While already mentioned elsewhere, it is worth restating that the Pleasure Control knob can be used with the menu functions instead of the + and – keys.

That is so you can set your machine up using both hands, thereby improving your speed as you try to break your previous score at setting a parameter.

Now, as they say, a nice drawing is often much more useful than a longer-than-wanted explanation... .

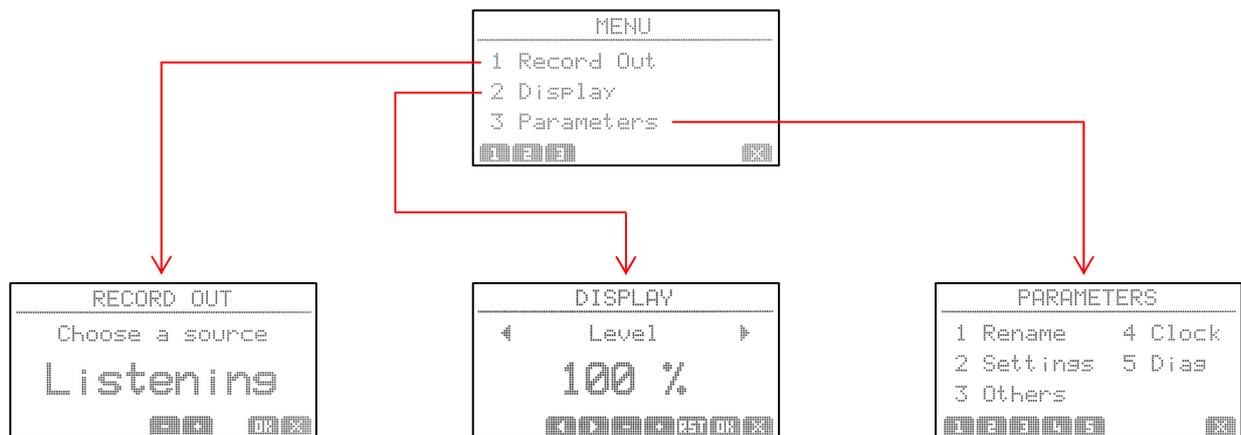
9.1. Power on sequence

Here is what you will see on the display screen when powering the darTZeel CTH-8550 on:



10. Full configuration and settings

Press the Menu key “A”, (chapter 6.1, page 7) on the front panel, and then play with the charts...



You can choose the source which will be routed to the RCA REC outputs.

“Listening” means that you will record what you are listening to.

The standard screen will display the selected listening source with its corresponding input label reversed color: REC = Source

Press + or - in order to set the source which will be recorded, regardless of the source you are listening to.



The above screen shows the selection of a source for Record Out. In this case, whichever line source or phono source you listen to, the REC outputs will always output the signal from the source ZEEL 1.

Accordingly, the standard screen will display “ZEEL 1” label in reversed color, regardless the source chosen for listening, indicating “ZEEL 1” is now the default record output source: REC = frozen on the chosen source.

Pressing + or - will change the illumination of the screen in these four increments: 25% → 50% → 75% → 100%.

Press OK when set.

Press RST return to 100%.

Press ◀ or ▶ to go to “Auto-off time” shown hereunder.



Pressing either the “Light” key from the front panel or the “Lite” key on the remote control will toggle the display between “Display auto-off” ON or OFF.

When this function is ON, the display will dim after the above-defined time.

Press + or - to choose from 2 to 15 seconds.

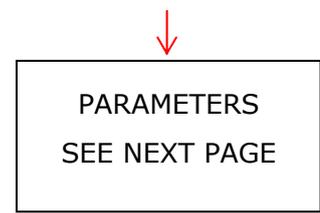
Press OK when set.

Press RST to return to factory mode.

Press ◀ or ▶ to return to illumination level settings.

This section offers many parameter-setting options, allowing you to personalize your CTH-8550.

You will be able to set virtually any parameter for each input, as well as performing software updates, when and if available in the future.





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After selecting "Rename" from the above PARAMETERS menu, the default input source displayed is the one you have selected for listening.

Press ▲ or ▼ in order to change the source to be renamed.

Press ◀ or ▶ to select the character (alphanumeric key) to be changed. Press + or - in order to browse from A-Z and 0-9. Space (blank) is just before "A".

Press OK to confirm the new name.

Press RST and OK in order to return to the factory default name.



After selecting "Settings" from the above PARAMETERS menu, the default input source displayed is the one you have selected for listening.

Press ▲ or ▼ to select another source.

Press + or - in order to adjust the input level.

The range is from -10dB to +10dB.

Press OK to memorize the level.

Press RST to return to 0dB.

Press ▶ to set Input balance, hereunder.



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Altering the default balance for a source can be helpful when a particular source, such as a phono cartridge, exhibits a channel unbalance.

Press + or - in order to adjust the input balance.

The range is from 9.5dB Left to 9.5dB Right.

Press OK to memorize the balance setting.

Press ▲ or ▼ to select another source.

Press RST to return to 0dB.

Press ▶ to set Input mode, hereunder.



The "USER INFORMATION" screen indicates the serial number of your CTH-8550, as well as your registered name.

Please be sure the registered name corresponds to yours.

If the registered name is not correct, immediately contact your dealer.

An improper registered name will void access to warranty rights.



Altering the input mode for a source can be helpful for a monophonic source such as an old AM tuner, or a mono or 78-rpm phono cartridge.

Press + or - in order to toggle between Stereo and Mono.

Press OK to memorize the input mode.

Press ▲ or ▼ to select another source.

Press RST to return to Stereo.

Press ▶ to set Input bypass, right after.



Used for Home Theatre systems. The gain of the bypassed source is 0dB.

WARNING

Pleasure Control will be bypassed!!!

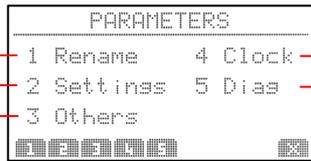
Press + or - in order to toggle between bypass On and Off.

Press OK to memorize.

Press ▲ or ▼ to select another source.

Press RST to return bypass to Off.

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Clock & Diag
SEE NEXT PAGE



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This is the maximum level at which your CTH-8550 will power on.
In the above example, if - and only if - you listened at *more* than -26dB, the output level will resume to this value at the next start.
Press + or - to set the desired level.
Press OK to store this value.
Press RST to restore the factory default.
Press ► to set the source.

Allows for 3 different types of attenuation. This can be useful when you just want to decrease the level instead of cutting it off completely.
Press + or - to set the Mute level:
∞ → -20dB → -40dB
Press OK to memorize this setting.
Press ► to set the Volume limit.



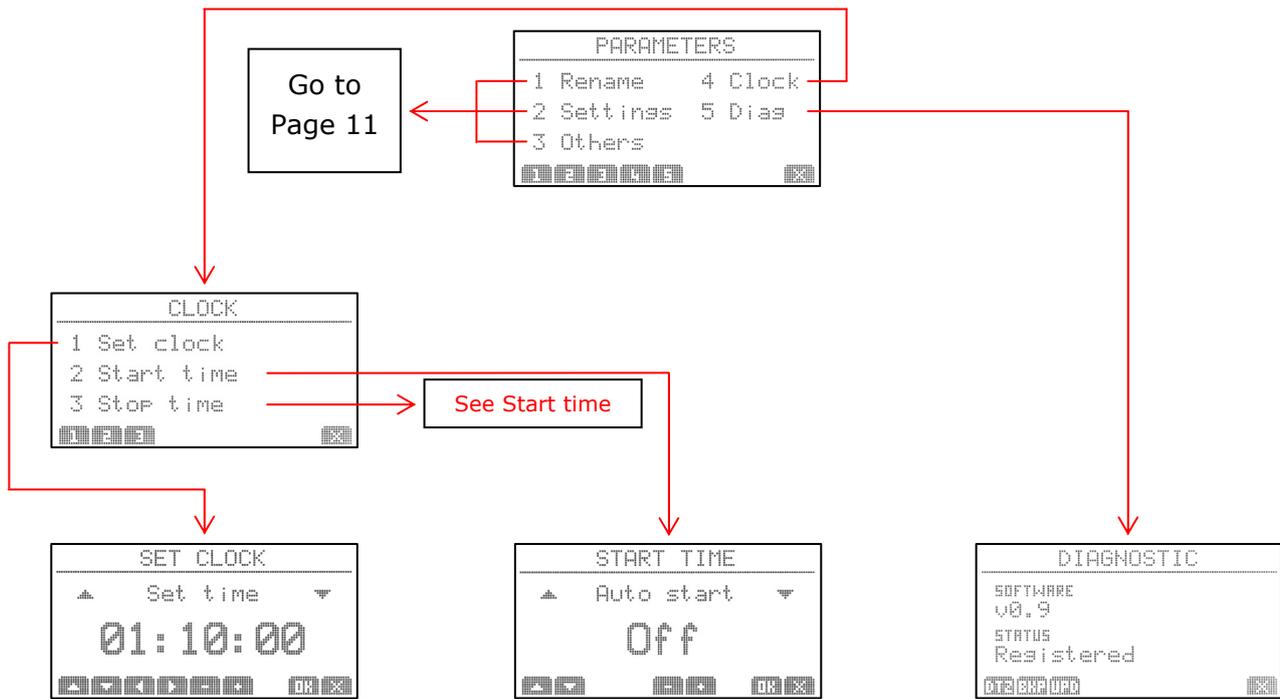
The CTH-8550 will always start with a preferred source, that is, whichever source was selected during last powering off.
“No change” means the CTH-8550 will start with same selected source as played during previous music session.
Press + or - to choose a source to be played at power on.
Press OK to save this setting.
Press RST to restore the factory default.
Press ► to set the internal power amp.

Enables/disables a maximum output level. Very useful for not overloading low power rated speakers, or simply allowing your kids to play with your system without shaking neighbors' walls!
When left to Off, pressing ◀ or ▶ will go back to above “Mute level” screen.
Press + or - to set to On.
Press ► to set the new value in the next, hereunder screen.



When using the CTH-8550 as a stand-alone preamplifier, the power-amplifier section will be shut off, improving both electricity consumption and signal-to-noise ratio.
Press + or - to enable or disable the internal power amplifier.
Press OK to confirm.
The CTH-8550 will shut down and restart.

In the sample screen above, the maximum output level has been set to -2.5dB.
Press + or - to set the desired value.
Press OK to store it.
Press RST to return to +12dB default.
When max volume has been set, there is no need to reset the value when you do not want to use a limit, you simply enable or disable it.



If you have to set both the time and the date, it will be easier first to set the date, and then the time.

Press + or - to set the correct hour.
 Press ► to jump to the minute figures.
 Press + or - to set the correct minute.
 Press OK to save.

The time clock will synchronize at the moment you press OK. Until you press OK, the internal time clock will not be changed.

Press ▲ or ▼ in order to display the next screen, for date setting.



The date format is DD.MM.YYYY. This rubric cannot be changed. Sorry if you are used to another format, but this is the most universal one.

Press + or - to set the correct day.
 Press ► to jump to the month figures.
 Press + or - to set the correct month.
 Press ► to jump to the year figures.
 Press + or - to set the correct year.

If the time has not been set yet:
 Press ▲ or ▼ to return to "Set time", and adjust the time.

The date settings will be kept correct, saving you from entering the "Set Clock" menu twice.

Press OK to save.

When "Auto start" is set to On, your CTH-8550 will power itself on at the time programmed on the next screen shown below.

When "Auto start" is left to Off, your CTH-8550 will not start automatically.

Press + or - to set "Auto start" to On or Off.
 Press ▲ or ▼ to go to the next menu, to set the start time.



Press + or - to set the correct hour.
 Press ► to jump to the minute figures.
 Press + or - to set the correct minute.
 Press OK to save.

The STOP TIME procedure is exactly the same as START TIME.

Press "Stop time" from the main CLOCK menu in order to proceed.

This screen indicates the software version and the registration status.

DTZ: When your machine is new, you will need to register it. Insert your USB key into the rear panel port, and press DTZ.

BKP: This feature allows copying internal CTH-8550 parameters onto the USB key, for factory diagnosis. Insert your USB key into the rear panel port, and press BKP.

UPD: Used for updating the internal CTH-8550 firmware.

Insert your USB key into the rear panel port, and press UPD.

Your USB key must contain the appropriate file in order to operate properly.

Further details about key activation procedure are described in chapter 7.

11. Some advice and tips

11.1. Cleaning and upkeep

The darTZeel CTH-8550 has not only been designed to provide you intense moments of musical pleasure; it also has been designed to withstand the rigors of time – assuming that you take proper care.

The entire Swedish-steel case functions as a heat exchanger, while the two internal lateral heat sinks regulate and maintain the correct temperature. The vent slots provide heat dissipation, but they do not communicate with the inside of the machine.

Therefore, the CTH-8550 is virtually dust-proof.

It is **not** recommended to clean internal parts.

Actually, we do not recommend ever removing the top cover!

As for the external parts of your machine, a soft cloth or even a dust brush will be completely adequate.

In case of fingerprints, a gentle rub with a cloth soaked in isopropyl alcohol should be sufficient.

Just bear in mind, however, that the simplest things are, more often than not, the most efficient.

We personally find that a spot of mild soap on a wet soft cloth is the best method most of the time. Try for yourself!

As you have certainly guessed, we confirm that it is strongly recommended to **never use acid** to clean your gear. Acid is very corrosive and could react with the front plate's anodized coating.

Furthermore, acid is very corrosive for the skin, too...

If you follow these few elementary rules, you will be assured of having a very nice-looking machine for years to come.

11.2. What not to do

Our advice and recommendations have been intentionally placed close to the end of this user's manual. That does not mean that they are of only minor importance – quite the contrary.

We just thought that the following points are not directly involved in the everyday use of your amplifier.

However, operating the darTZeel CTH-8550 calls for certain precautions.

The few but important warnings are the following:

- **Never, ever attempt to short-circuit the Speaker Binding Posts.**
- Repeated short circuits will lead to permanent damage to the corresponding output stage.
- **When bi- or tri-cabling, be especially careful when connecting the cables. If you inadvertently cross the polarity of one run regarding the other(s), you will make a perfect short circuit. This can easily destroy the corresponding output stage!**
The warranty will be partially or totally void in the event of non-compliance with the above!
- Never forget to power off your darTZeel CTH-8550 before connecting or disconnecting any source or loudspeakers.
- Never use a “contact enhancer” such as silver paste on the input terminals or speaker binding posts, as this may cause a short circuit and catastrophic failure.

12. Assistance

If you need *any* commercial or technical information about the darTZeel CTH-8550, or if you have any difficulties or enquiries, please contact us by email at

moreinfo@dartzeel.com

You can of course write us at the following address:

darTZeel Audio SA
2, chemin Louis-Hubert
CH-1213 Petit-Lancy
Geneva/Switzerland

We also invite you to visit our website at

www.darTZeel.com

We wish you countless hours of musical delight with your CTH-8550. We hope that you will have no further need to read this manual, except for the pleasure...

Your darTZeel team

13. Technical data

darTZeel CTH-8550

Nominal output power	:	200 watts RMS (230 watts peak) @ 8 ohms. 330 watts RMS (360 watts peak) @ 4 ohms. 330 watts RMS (400 watts peak) @ 2 ohms (software limited).
Line Gain	:	12 dB nominal, up to 22dB.
Power Stage Gain	:	26 dB @ 8 ohms.
Input impedances	:	Phono MM* = 47 kohms. Neumann RIAA 4th pole included. Phono MC* = 1 kohms. Neumann RIAA 4th pole included. RCA: > 30 kohms. Zeel BNC: 50 ±1 ohm. XLR: > 15 kohms between Pin 1 and 2. > 15 kohms between Pin 1 and 3.
Line output impedances	:	RCA = 75 ohms, darT BNC = 50 ohms
Speaker output impedance	:	< 0.33 ohms, from 20 Hz to 20 kHz (measured under 8 ohms).
Frequency response	:	3 Hz to 300 kHz, +0, -6 dB. 20 Hz to 20 kHz, +0, -0.5 dB. 20 Hz to 50 kHz, ±0.5 dB.
Rise time	:	< 0.8 µs.
Slew rate	:	> 88 V/µs, peak-peak.
DC output voltage	:	< ±15 mV max.
Total Harmonic Distortion (THD)	:	< 1 % from 7 Hz to 77 kHz
Temporal Distortion	:	None, at any level and load, as specified above.
Crosstalk	:	< -90 dB from 20Hz to 20kHz.
Signal to noise ratio	:	> 115 dB (A) @ nominal power.
Power consumption	:	3 watts Standby, 40 watts @ idle, 1000 watts @ maximum output power.
Size in mm	:	440 x 335 x 170 (WxDxH). Total deep with handles: 415 mm.
Net weight	:	28 kg.

* Phono inputs are optional and are not installed in standard delivery.

darTZeel amplifiers are made to last forever by
darTZeel Audio SA, in Geneva Switzerland.

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