

WARNING: Once this upgrading procedure is initiated, you can hold it and restart it whenever you wish, but the winder will remain inoperative until you have completed the full upgrading procedure.

1. PURPOSE:

This document outlines the procedure for installing the latest software firmware version, v10.75 / v10.85. The primary purpose of this update is to resolve a non- critical programming error that has been identified and has been present in software versions dating back to v10.72 / v10.82.

It has been determined that any software version later than v10.72 / v10.82 contains this programming error. Therefore, if your equipment is currently operating with any of these intermediate versions, we strongly recommend updating to the latest version (v10.75 / v10.85) to mitigate operational risk.

Ensuring the installation of the new version is crucial to guarantee maximum accuracy and stability across all operating modes and Filling Factor configurations.



Figure 1: Start page of this version

- **New version 10.75/10.75_ATC:** this version should only be installed on **TW 1.2 R2 units or earlier versions**, which has previously installed version 10.70/10.70_ATC or later version.
- **New version 10.85/10.85_ATC:** this version should only be installed on **TW 1.3 units**, which has previously installed version 10.80/10.80_ATC or later version.

If you have any doubts about the hardware or software version of your unit, please email us to confirm.

NOTE:

If your unit's software version is lower than 10.70, do not proceed with this update, as it will not work properly. If this is the case, email us and we will advise you on how to proceed. These old versions are not affected by the issue.

2. SCOPE:

This update can only be installed on Tonewinder units with the TMC2226 drivers:

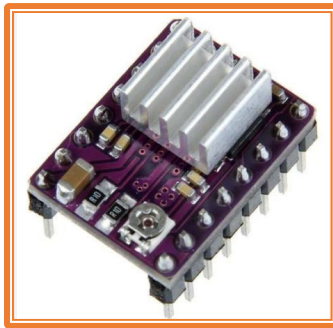


Figure 2: Old drivers (DRV8825). Purple color and grey heat sink. **Not compatible.**

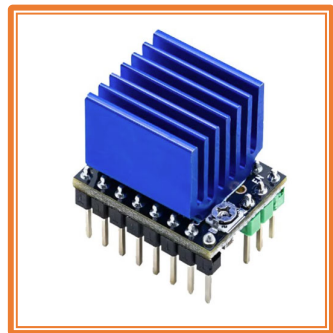


Figure 3: New drivers (TMC2226). Blue color and big blue heat sink. **Compatible.**

To find out what kind of drivers your unit has installed, you can do this with two checks:

1. **Verification by installed software version:** If your unit has software version 10.70 or higher installed, then you have the TMC2226 drivers installed. On the other hand, if your unit has version 10.66 or lower, then you have installed the DRV8825.
2. **Visual inspection of the interior:** If you open the top cover of your unit, you can see which type of drivers are installed.

In case your unit has the DRV8825 installed, in order to perform this upgrade you must first install the 'Silent Kit', which is available on our website:

- [SILENT KIT](#)

Once this kit has been installed, and the software version has been updated to 10.70, you may proceed with this upgrade.

3. ABOUT THE ISSUE:

The issue stems from a **minimal step loss** that occurs every time the arm completes a cycle and returns to the coil's starting point. The error made by the arm depends on how many times the arm returns to its origin in a run, but not in all working modes (**only in Constant, Table, and Scatter**). For this reason, we have defined four possible scenarios:

- **Low Impact:** Under standard operating conditions, specifically with a *Filling Factor* (FF) greater than **60%** (in *Constant*, *Scatter*, and *Table* modes), this deviation is insignificant and extremely difficult to perceive in the final winding.
- **Medium Impact:** Working with fill factors between 40% and 60%, its effect is already noticeable, but it can be corrected with a slight adjustment of the offset. This deviation is greater when the coil has more turns (for example, the effect is much less for humbucker coils than for single coils).
- **Critical Impact:** However, when operating with a reduced FF (e.g., 10% or 20 %), the accumulation of these small losses causes a **progressive displacement of the starting point**, resulting in the final winding acquiring a noticeable **inverted trapezoidal shape**.
- **Excluded Mode:** It should be noted that the **Emulate/Clone** mode is not affected by this error.

4. DOWNLOAD SOFTWARE VERSION:

You can download the zipped folder called “TONEWINDER 10.75/10.85 SOFTWARE” from our website, www.tonewinder.es, in the “DOWNLOADS” section, where you will find all the files and software that you need to upgrade your unit:

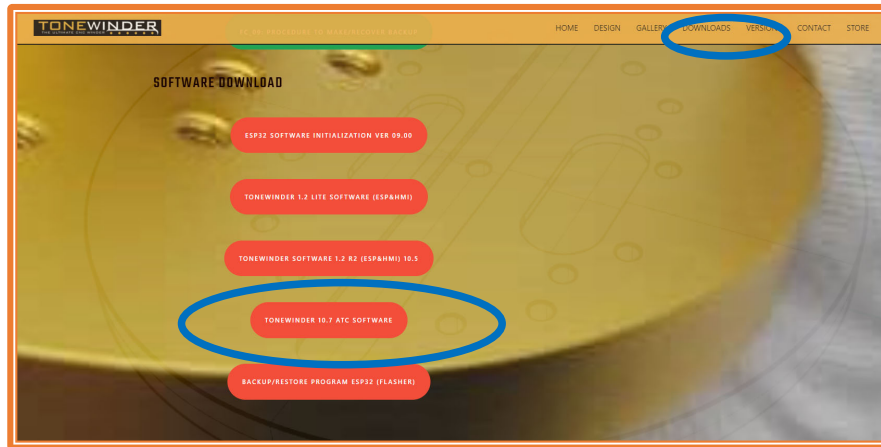


Figure 4: Download “TONEWINDER 10.75-10.85 SOFTWARE” folder.

Unzip this file in C:\ (for example). After unzipping this file you’ll find all these folders inside:

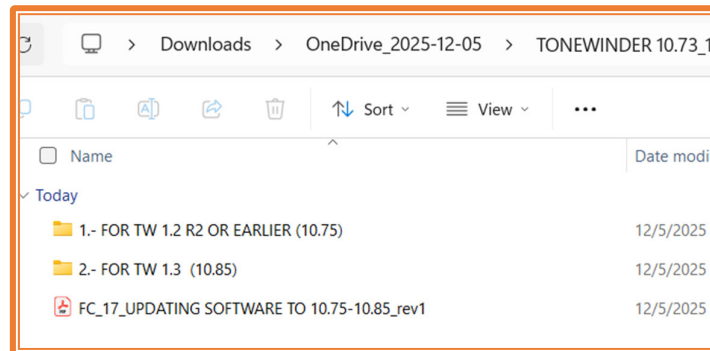


Figure 5: Folders inside of “TONEWINDER 10.75-10.85 SOFTWARE”.

Select the folder that match with the version of your winder, for example “2.- FOR TW 1.3 (10.85)”:

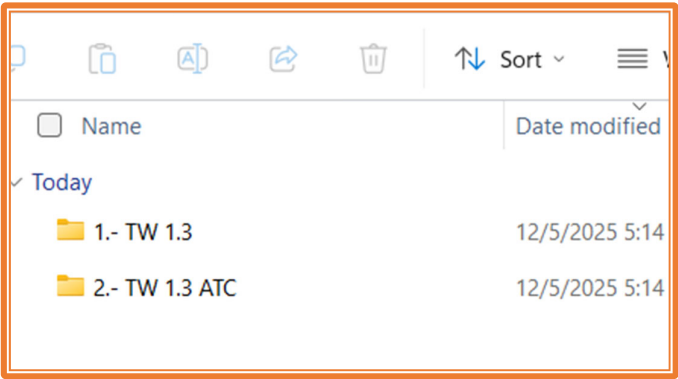


Figure 6: Folders inside of “2.- FOR TW 1.3 (10.85)”.

Select the appropriate one depending on whether the ATC is installed in your winder, for example “2.- TW 1.3 ATC”:

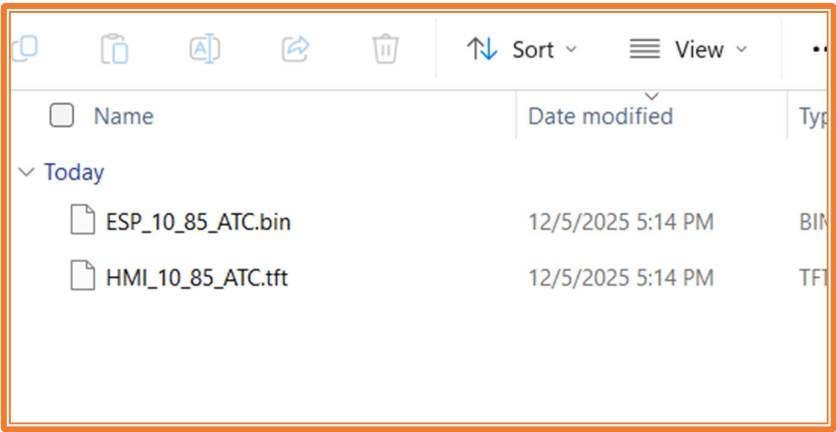


Figure 7: Files inside of “2.- TW 1.3 ATC”.

You will need those files to update your winder correctly.

5. INSTALL THE UPDATE:

Here are the steps to follow to install this new software version:

- **STEP 1 (OPTIONAL):** Make a backup (mirror copy) of your current ESP memory. To carry out this task, download the FLASHER PROGRAM from our website:

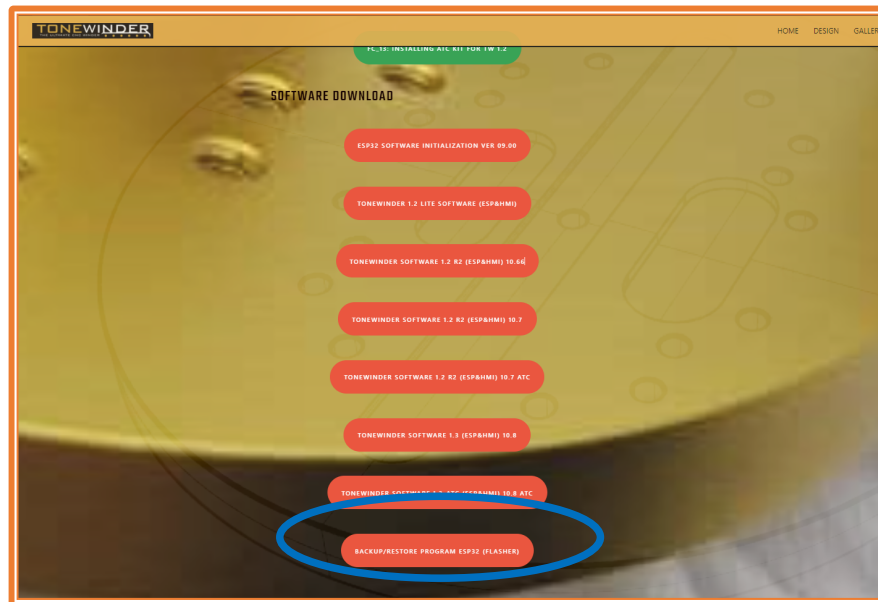


Figure 8: BACKUP/RESTORE PROGRAM ESP32 (FLASHER)

With this program, you will be able to create a mirror copy of your current ESP, just in case you have an issue during the updating process.

Connect the winder to your PC using a USB C cable (The power supply plug must be disconnected from the winder), and the touch screen will light up.

Then, select the COM port where the winder is connected (if you have any doubt regarding which port it is using, you can open the “Device Manager” program and list the COM ports, to find in which port your winder is connected (USB-SERIAL CH340(comX)):

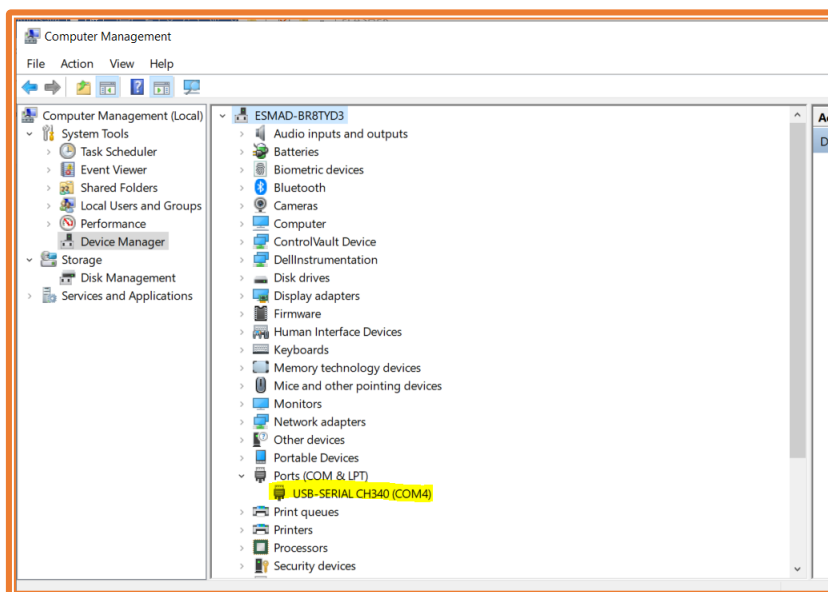


Figure 9: Device Manager program.

Once you know which port it is using, run the file “**DownTonewinderFLASH.bat**” located in this folder, and follow the instructions.

If all goes well, you will see a progression during it makes a copy into your PC.

When the procedure is finished, you will see a new file in the folder, which is called “**tonewinderMemory_FLASH.bin**”, and this is your mirror copy, so you should keep it in a safe place.

NOTE: If you don’t have any saved presets, you can skip this step.

- **STEP 2:** Before proceeding, you must keep the current “**BASIC PARAMETERS**” that are set in your winder. Later you will need it to rewrite in the ESP microcontroller, in case it has been reset during the software upgrade.

To do this, disconnect the USB-C cable from your unit, connect the power supply plug, and switch on the winder.

Then, navigate to the “**BASIC PARAMETERS**” Screen and take a picture of this screen.

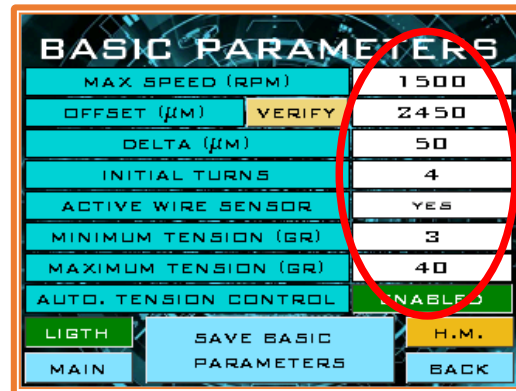


Figure 10: Basic parameters screen.

If your Basic parameters page has the “H.M.” (Hidden Menu) button, press it and access the menu using the code “2024”. You will then enter the calibration menu of the arm to check what type of calibration your unit has:

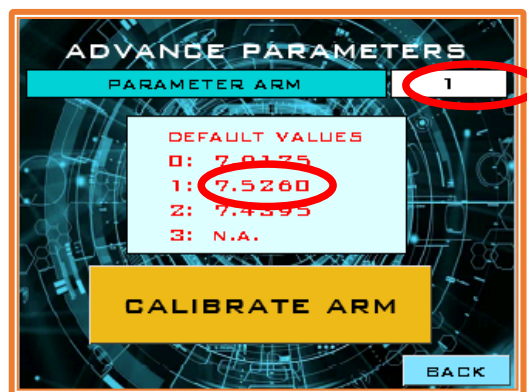


Figure 11: Advance parameters screen.

Please, write down these numbers and keep them. You will need them later to calibrate your unit to the correct values once the new software version is updated.

NOTE: In case you have not recorded this data, there is a procedure to recalibrate it from scratch.

- **STEP 3:** Upgrade the ESP32 Microcontroller software with “ESP_10_85_ATC.bin” (**for TW 1.3 ATC versions, but you have to choose your software version**).

Switch on the winder (connected to the power supply), and go to the “SOFTWARE UPDATE” section. Enter your Wi-Fi network name and password, and press ‘Connect’. Once the microcontroller has connected to your Wi-Fi Network, it will show you the IP address so you can connect to it (for example 192.168.1.245). Press the big button to open the connection between your winder and your PC.



Figure 12: Press the button to open the Tonewinder connection.

Then, write this IP address in your Internet navigator address field and press Enter:



Figure 13: Write the IP address of your winder in your navigator.

When the winder connects with your PC, you will see this screen in your navigator page:

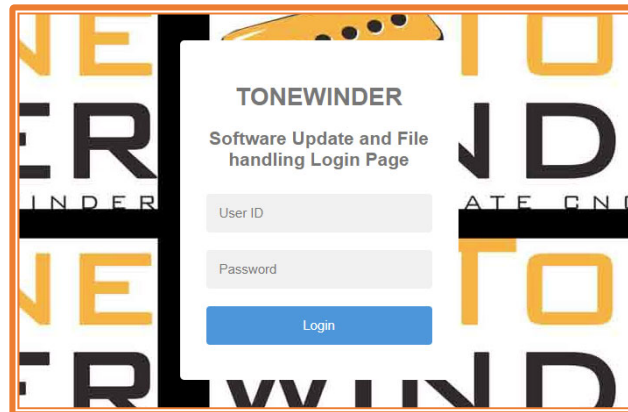


Figure 14: Basic parameters screen.

Use “admin” as the User ID, and “tonewinder” as the password, and press “Login”.

Select the first option “1.- Tonewinder Software Upgrade”, and choose the file to update “ESP_10_85_ATC.bin”, located in the path C:\TONEWINDER 10.75-10.85 SOFTWARE\2.- FOR TW 1.3 (10.85)\2.-TW 1.3 ATC”. **Remember this is an example, and you have to choose the correct version for your winder.**

Once the software is loaded, the winder will be reset.

If you have any doubts about the upload software procedure, please see section “6.5.6.5.- Software update”, in the manual.

- **STEP 4:** To update the touch screen software, with the file "HMI 10.85_ATC.tft" located in the folder, connect the winder to your PC as described in STEP 3, and select the second option “2.- Touch-screen Software Upgrade”.

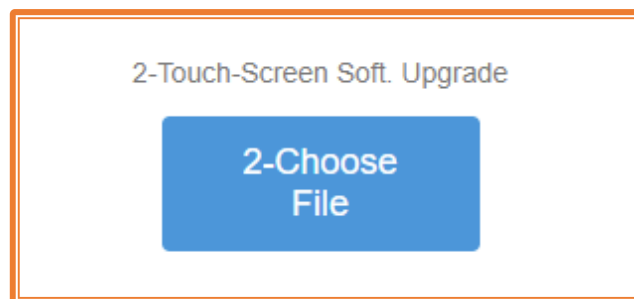


Figure 15: Press the blue button.

Then select the file with “tft” extension:

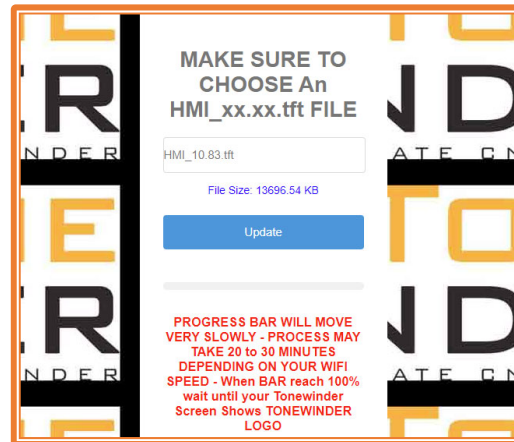


Figure 16: Select the proper file and press UPDATE.

As soon as you press UPDATE, you will see this screen in the winder, and you must wait until it reaches 100% (it should take around 15/18 minutes):



Figure 17: Touchscreen view during the updating process.

During this process, communication with the PC and the Wi-Fi network must not be interrupted, otherwise the update process will stop and the touch screen will not be updated.

NOTE: In case of interruption, you will have to update the touch screen software using the usual procedure (with a micro SD card), described in section '6.5.6.5 Touch Screen Software Update'.

If the upgrade has been completed successfully, your unit will restart automatically. After this restart, the unit will perform the usual initialization process. In case of unsuccessful completion, please turn your winder off and on again (Most of the time it needs two restarts to synchronize both software). After that, you should see the new software versions:

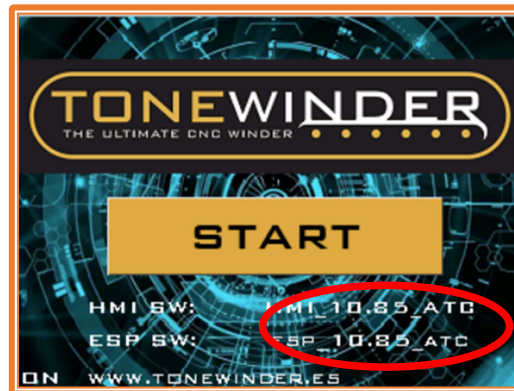


Figure 18: START page with new software versions.

- **STEP 5:** Go to MAIN MENU>SETTINGS>BASIC PARAMETERS, and set the parameters to your previous value, in case they are modified.
- **STEP 7:** Access to the Hidden Menu, and restore the calibration arm parameter of your unit. Also you can recalibrate the arm by pressing the “Calibrate Arm” button and following the instructions.

NOTE: All of these software versions have been thoroughly tested. However, if you find any bugs, problems or inconsistencies, please let us know.

6. CONTACT FOR SUPPORTING:

If you face any kind of problem during this procedure, please contact us by email:

info@tonewinder.es