

1. PURPOSE:

This document describes the process followed to make a Mirror_Copy of your Tonewinder processor, store it on a Windows OS-based PC, and upload it back to a Tonewinder.

This Mirror_Copy of your Tonewinder processor contains a copy of the memory including the current software version, plus all the custom programs, basic settings, and calibration data as OFFSET VALUE or GAUSSIMETER CALIBRATION DATA.

Note: HMI touchscreen software is not copied.



Figure 1: Start screen with software versions

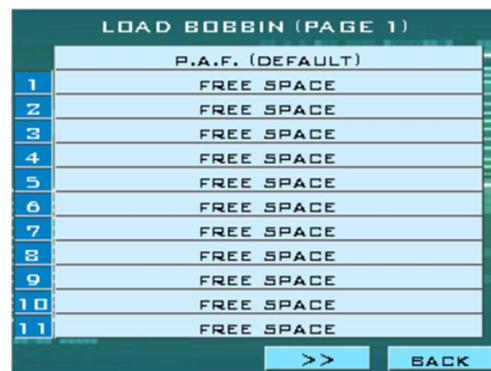


Figure 2: Custom files screen

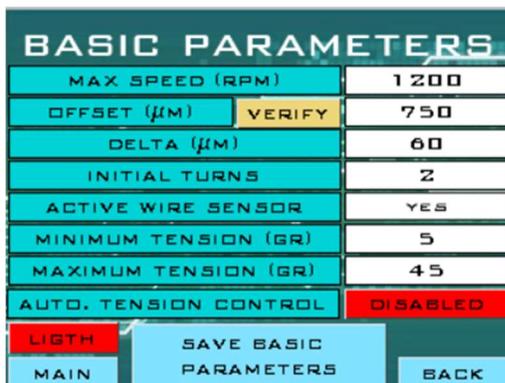


Figure 3: Basic parameters

2. SCOPE:

You can make a copy of all your files and software to be able to upload it again in case of file corruption, accidental deletion of important files, or transfer of your preferred files to another Tonewinder.

3. Installing the files in your HD:

1. Download the “ESP Flash Tools” from our website, www.tonewinder.es .
2. Extract all the files to a temporary folder on your hard disk.

	 esptool.exe	09/03/2023 12:47	6.483 KB
	 DownloadTonewinderFLASH.bat	19/02/2024 13:55	2 KB
	 UploadTonewinderFLASH.bat	19/02/2024 13:59	3 KB

Figure 4: ESP32 Memory flashing files

4. Creating a Mirror Copy of your Tonewinder Memory (DownloadTonewinderFLASH. Bat file):

1. Switch OFF the Tonerwinder and disconnect it from the mains.
2. Connect a USB cable between the Tonewinder rear USB slot and one of your Windows PC USB connectors. Take note of the COM number of this connection.
 - *If you do not know it, please go to Windows Configuration Bluetooth and Devices, Devices, then connect your USB cable between Tonewinder and your PC USB sockets, you should see a message showing "USB-Serial CH340 (COMx)". Take note of the COM number to write it in the next step.*
3. Make sure the files **esptool.exe** and **DownloadTonewinderFLASH.bat** , are present in the directory.
4. Execute the file DowloadTonewinderFLASH.bat (by double-clicking on the file) and follow the steps suggested on the screen.
You will be asked to press “ENTER” several times and to enter the COM number of your USB connection. For example: COM5
5. If no errors are shown on the screen, the process will end and a new file will be created in the current directory : **tonewinderMemory_FLASH.bin**

	esptool.exe	09/03/2023 12:47	6.483 KB
	tonewinderMemory_FLASH.bin	15/01/2024 9:42	4.096 KB
	DownloadTonewinderFLASH.bat	19/02/2024 13:55	2 KB
	UploadTonewinderFLASH.bat	19/02/2024 13:59	3 KB

Figure 5: ESP32 Memory flashing files

6. This file is a binary copy of your Tonewinder memory, that you can store to be used later for backup or to clone your Tonewinder memory to other Tonewinder units
7. Remember to disconnect the USB cable before switching On the Tonewinder again.

5. Saving a Mirror Copy to your Tonewinder Memory (UploadTonewinderFLASH):

1. **WARNING.** By following this procedure all existing files in Tonewinder will be overwritten
2. Switch OFF the Tonerwinder and disconnect it from mains.
3. Connect a USB cable between the Tonewinder rear USB slot and one of your Windows PC USB connectors. Take note of the COM number of this connection.
 - *If you do not know it, please go to Windows Configuration Bluetooth and Devices, Devices, then connect your USB cable between Tonewinder and your PC USB sockets, you should see a message showing "USB-Serial CH340 (COMx)". Take note of the COM number to write it in the next step.*
4. Make sure the files **esptool.exe**, **tonewinderMemory_FLASH.bin**, and **UpwnloadTonewinderFLASH.bat**, are present in the directory.
5. Execute the file UploadTonewinderFLASH.bat (by double-clicking on the file) and follow the steps suggested on the screen.
You will be asked to press "ENTER" several times and to enter the COM number of your USB connection. For example : COM5
6. If no errors are shown on the screen, the process will end and your Tonewinder will be updated with the content of the file: **tonewinderMemory_FLASH.bin**
7. Remember to disconnect the USB cable before switching On the Tonewinder again.

6. Contents of BAT files:

BAT files are one of those “bad reputation files” as they may contain malicious instructions that may create troubles in your system or even worse, stolen valuable information about you, your accounts, or the information contained in your system.

The 2 BAT files used in the process of Flashing ESP32 Memory :

UpwnloadTonewinderFLASH.bat

DownloadTonewinderFLASH.bat

Are editable text files, that you may open with a simple right mouse click, chosen “edit with”.

We have created these two files to simplify the process of memory copy, but they just use the internal commands of the file created by EXPRESSIVE SYSTEMS sptool.exe

You can inspect the files, or even edit them (we do not take any responsibility for that) to your convenience.

7. Text file “DowloadTonewinderFLASH.bat”:

```
@echo off
echo A copy of your tonewinder memory will be stored in the current directory
echo under the name tonewinderMemory_FLASH.bin This file will have all the
echo System files plus your customer files. It is a "mirror copy" of your device.
echo -----
echo Make sure program esptool.exe is present in this directory
echo and that you have full rights to copy and save files.
echo If errors are shown on the screen, try to create a temporary directory from \Documents or
echo one of your HD. Move this DowloadTonewinderFLASH.bat file and esptool.exe there and run the bat file
echo -----
echo -----
echo WARNING-WARNING-WARNING Tonewinder must be switched OFF before connecting it to the PC
echo AND MUST BE OFF DURING ALL THE PROCESS. ONCE FINISHED DISCONNECT THE RS232/USB CABLE
echo -----
echo Please be prepared to introduce the COMx (COM3, COM5...) where you are connecting the USB cable
echo from Tonewinder. If you do not know it, please go to Windows Configuration
echo Bluetooth and Devices, Devices, then connect your USB cable between Tonewinder and
echo your PC USB sockets, you should see a message showing "USB-Serial CH340 (COMx)".
echo Take note of the COM number to write it in the next step.
pause
set /p dl=Enter drive letter (example COM5) and push "intro":
echo once the download starts and 100%% is reached wait until the program asks you to press a key to exit
pause
```

```
.\esptool.exe --port %dl% --baud 921600 read_flash 0 0x400000 %~d0%~p0\tonewinderMemory_FLASH.bin
echo If no errors are shown, a mirror copy of your Tonewinder memory has been successfully saved in %~d0%~p0
pause
exit
```

8. Text file UploadTonewinderFLASH.bat:

```
@echo off
echo This program will upload the file tonewinderMemory_FLASH.bin to your tonewinder.
echo Make sure program esptool.exe and file tonewinderMemory_FLASH.bin are present in this
directory
echo This file has all the system files plus your customer files as they were when the file was
echo downloaded from Tonewinder. It is a "mirror copy" of your device at the time it was downloaded.
echo WARNING-WARNING-WARNING All current files in Tonewinder will be ERASED.
echo If errors are shown on screen, try to create a temporary directory from \Documents or
echo one of your HD. Move this UploadTonewinderFLASH.bat file, tonewinderMemory_FLASH.bin,
echo and esptool.exe there and run the bat file.
echo -----
echo -----
echo WARNING-WARNING-WARNING Tonewinder must be switched OFF before to connect it to the PC
echo AND MUST BE OFF DURING ALL THE PROCESS. ONCE FINISHED DISCONET THE RS232/USB CABLE
echo -----
echo Please be prepared to introduce the COMx (COM3, COM5...) where you are connecting the USB
cable
echo from Tonewinder. If you do not know it, please go to Windows Configuration
echo Bluetooth and Devices, Devices, then connect your USB cable between Tonewinder and
echo your PC USB sockets, you should see a message showing "USB-Serial CH340 (COMx)".
echo Take note of the COM number to write it in the next step.
pause
set /p dl=Enter drive letter (example COM5) and push "intro":
echo once the upload starts and 100%% is reached wait until program ask you to press a key to exit.
echo press "intro"
pause

.\esptool.exe --chip esp32 --port %dl% --baud 921600 --before default_reset --after hard_reset
write_flash -z --flash_mode dio --flash_freq 80m --flash_size 4MB 0x0
%~d0%~p0\tonewinderMemory_FLASH.bin

echo If no errors shown, Tonewinder has been updated with backup file tonewinderMemory_FLASH.bin.
pause
exit
```

9. CONTACT FOR SUPPORTING:

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

info@tonewinder.com