
How to reconstruct lost data in the Air series

- **Introduction.....2**
- **How to update software.....2**
- **How to restore Serial number.....3**
- **How to restore Electrical calibration data.....4**

How to reconstruct lost data in the Air series

Introduction.

Due to a small software bug the Air series speakers can potentially lose some of the information stored in the AVR EEPROM. The new software (Version 1.60) will use the FLASH memory instead of the EEPROM. However some data can have been lost which then needs to be restored.

Before updating lost data to a speaker, it is necessary to update the speakers Boot (V1.51), application (V1.64) and testpre software (v1.51) The FPGA software should also be the latest (V5.0)

Potentially lost data includes:

Serial number

Electrical calibration data for the Tweeter

Electrical calibration data for the Woofer.

How to update software.

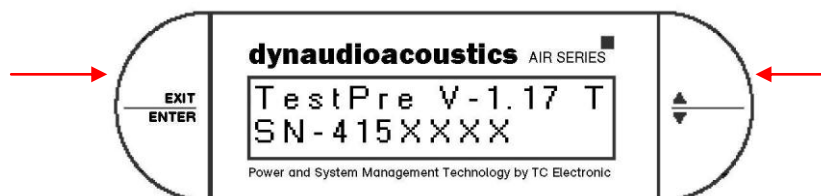
Using the PCMLoad program we are capable of downloading software to the speaker.

To be able to do this the speaker may not be connected in a network, and shall be in “Boot mode”. The data cable coming from a PC (same cable as used when the speakers are controlled by Air-Soft or PC-IP) shall go in to the second RJ45 port from the top (the middle in a master and the lower on a slave)

When powering on the speaker the 2 buttons in the top of the front (behind the plastic) shall be pressed and held for approximately 5 seconds while the speaker powers up.

Example:

By holding “Exit” and “arrow up” while powering on, the speaker will start up in Boot mode.



On the Slave speaker there is also these switches, only difference is that there is no text on the buttons.

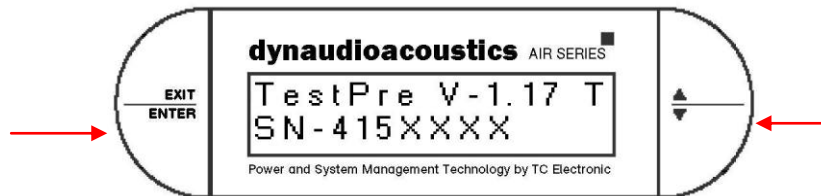
When the speaker is booted in boot mode and the PC is connected to it, and then launch PCMLoad. In the Prefect menu, choose “download”. In the pop up box choose which Com port you have connected the speaker to. Use the browse function and locate the testpre software, choose it, and click update. Now the version numbers should be read out in the small string box called “version” By clicking download the program downloads the software to the speaker. When this is done continue with bootpre and application software.

How to reconstruct lost data in the Air series

How to restore Serial number.

Also by using the PCMLoad program we are capable of sending commands to the speaker. The speaker may also not be connected in a network, and shall be in "Test mode". When the speaker is booted in test mode and the PC is connected to it, then start PCMLoad.

By holding "Exit" and "arrow up" while powering on, the speaker will start up in Test mode.



In the Prefect menu, choose "download" In the pop up box choose which Com port you have connected the speaker to. When this is done choose exit. Now go to the Prefect menu again and choose Command.

In the command pop-up box there is a "command" string and a "answer from speaker" string. If you write a "S" (all letters shall be upper case (capital letters)) If there is connection to the speaker, the speakers serial number will show up in the "Answer" string when you click "execute" If you get "no answer from COMX" then check your connection and make sure that the speaker is in test mode.

Now if you write a "Z" and the speakers dedicated serial number. The serial number will be updated.

Example: Z4101234 (This command will write the serial number "4101234" to the speaker)

NOTE: Be really sure that you write the correct serial number, if the serial number range does not correspond with the appropriate serial number for the speaker, this will not work.

To be sure that the speaker's serial number has been corrected try to send a "S" again to recheck the serial number.

Now it should be possible to connect to the speaker using Air soft or PC-IP

Check the speaker to see if everything is working as supposed to, also try to check the volume all the way up hence the volume has 4 internal hardware steps which is electronically calibrated. If one of these calibration data has been lost there will be a noticeable level drop either in the woofer or tweeter. If no error is found the speaker should be ok and returned to the customer.

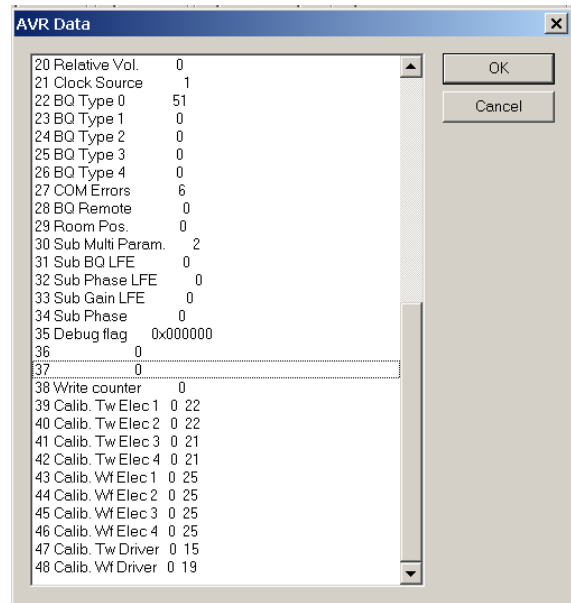
How to reconstruct lost data in the Air series

How to restore Electrical calibration data

If there however should be a sudden drop in level, the speaker has most likely lost 1 of the 4 internal electrically calibrated gain steps.

By using the debug version of PC-IP (Version 1.23) it is possible to see the data stored in the AVR EEPROM

Due to a reading conflict of some kind it is necessary to click on the speaker and then click exit and then clicking on the speaker again. Now choose Data. A small pop-up box appears and a lot of different data is shown. In some of the last lines there is 8 different values called “calib TW elec 1-4 and Calib WF elec 1-4” normal value lies between 15 and 25. If one of the values has been lost the value will most likely be a 4 digit number like “1254”



To be able to recalibrate this value you will have to calculate what the value should be

Example:

PC-IP Label	Value 2	Value 1
Calib. TW elec 1	0	21
Calib. TW elec 2	0	21
Calib. TW elec 3	0	22
Calib. TW elec 4	12	34

In this case the most likely number for “Calib TW 4” should be 21 or 22. we are operation in 0.1dB difference, so it does not make a big difference if the stored value is supposed to be 21 and you store 22

To store the value, the speaker shall be in test mode again and PCMLoad shall be used. Remember to go in to the download menu and setup the correct COM port. Exit that, and go in to the Command pop-up box.

The commands to be sent are as follows:

PC-IP label	Value 2	Value1	Command 2	Command 1
Calib TW elec 1	0	22	NE1XX	EE1XX
Calib TW elec 2	0	22	NE2XX	EE2XX
Calib TW elec 3	12	34	NE3XX	EE3XX
Calib TW elec 4	0	22	NE4XX	EE4XX
Calib WF elec 1	0	18	YE1XX	WE1XX
Calib WF elec 2	0	18	YE2XX	WE2XX
Calib WF elec 3	0	18	YE3XX	WE3XX
Calib WF elec 4	0	18	YE4XX	WE4XX

Where XX is the calibration value.

How to reconstruct lost data in the Air series

Example:

EE322 – will correct the “Calib TW elec 3” value1 to be 22

In this example it is also necessary to correct “value2” for “Calib. TW elec 3” this value should be “0” as the other values are “0” This is done like this:

Example:

NE300 – will correct the “Calib TW elec 3 value2 to be 0

NOTE!

On ALL 2 way speakers (Air6, Air 15 and Air 20) Value2 shall always be “0”

This how ever is a bit different in the 4 channel speakers. This is because there is 4 different values to be calibrated in the 4 channel speakers. Here the calibration data showed in PC-IP debug will be like this:

PC-IP label	Value2	Value1	Command 2	Command 1
Calib. TW elec 1	22	18	NE122	EE118
Calib. TW elec 2	22	18	NE222	EE218
Calib. TW elec 3	12	34	NE322	EE318
Calib. TW elec 4	22	18	NE422	EE418

Here we can see that there are 2 values tied together. First 22 and then 18 (in the first line) If we look at the sequence we can see that the first calibration value shall be 18 and the second value shall be 22. To be able to correct this we will have to send 2 commands to the speaker.

The first segment (marked with blue above) is called “NE”

The last segment (marked with red) is called “EE”

This means that to correct the lost data to this unit the necessary commands are as follows:

NE322 (This will correct the blue value)

EE318 (this will correct the red value)

This is also the same for the woofer values.

PC-IP Label	Value 2	Value 1	Command 2	Command 1
Calib. WF elec 1	20	17	YE120	WE117
Calib. WF elec 2	12	34	YE220	WE217
Calib. WF elec 3	20	17	YE320	WE317
Calib. WF elec 4	20	17	YE420	WE417

The first segment in the woofer section is called “YE”

The last segment in the woofer section is called “WE”

To correct these values the following commands should be sent:

Example:

WE217 (This will correct the green value)

YE220 (This will correct the violet value)