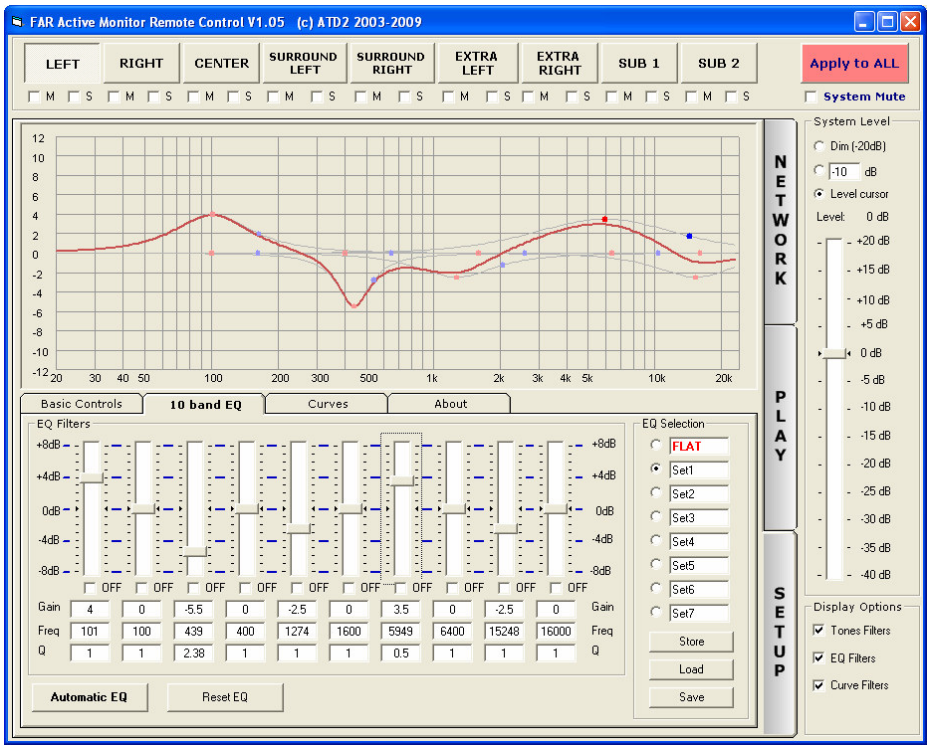
FAR Active Monitor by ATD²

SCS

Speaker Control Software



USER MANUAL

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REVISION HISTORY

Date	Version	Author	Change
2007-2-28	0.2	X. Lambrecht	Draft revision
2009-5-10	1.0	X. Lambrecht	Manual for release 1.05

1 Introduction

SCS is the companion software of the FAR active digital monitors. It allows to get the full flexibility and power of these outstanding monitors.

The software has been designed to be as easy to use as possible. However, it is advisable to read this user manual to be sure to know how to get the most out of the speaker system.

The latest manual revision is always available for download from www.atd2.com. Please compare to the revision number of the manual (see page 4) available for download from our web-site and download if newer. The present document will describe how to connect and setup a speaker system.

2 Installation Procedure

2.1 Installing SCS

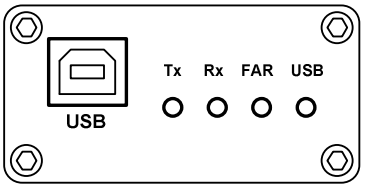
Open the "SCS Install" folder on the CD. Double click on Setup.exe and follow the instructions.

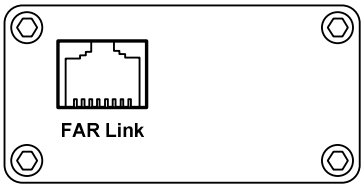
2.2 Installing the USB drivers

Open the "USB Drivers" folder on the CD. Double click on the exe file in it. It will automatically install all the necessary drivers to control the USB dongle.
IMPORTANT: Do not connect the USB dongle to the PC till this operation is finished.

2.3 Connecting the USB dongle

The USB dongle is the interface between the PC and the FAR Link network.

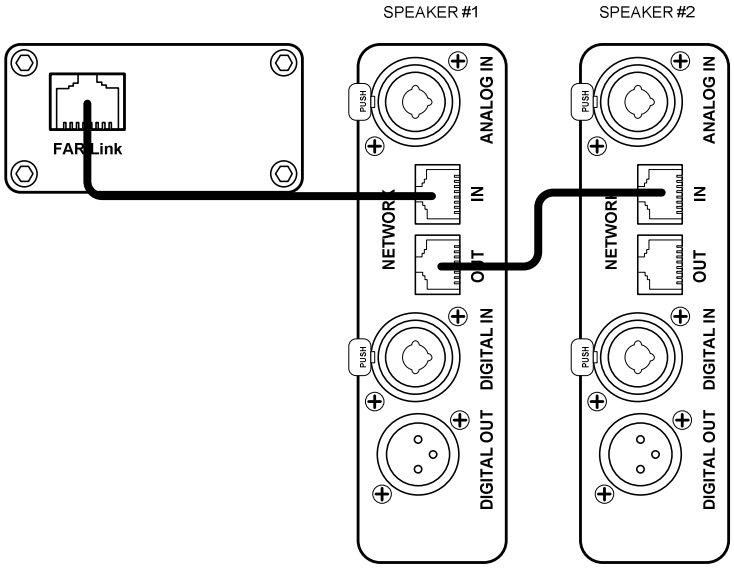




There are 4 LED indicators on the front plate.

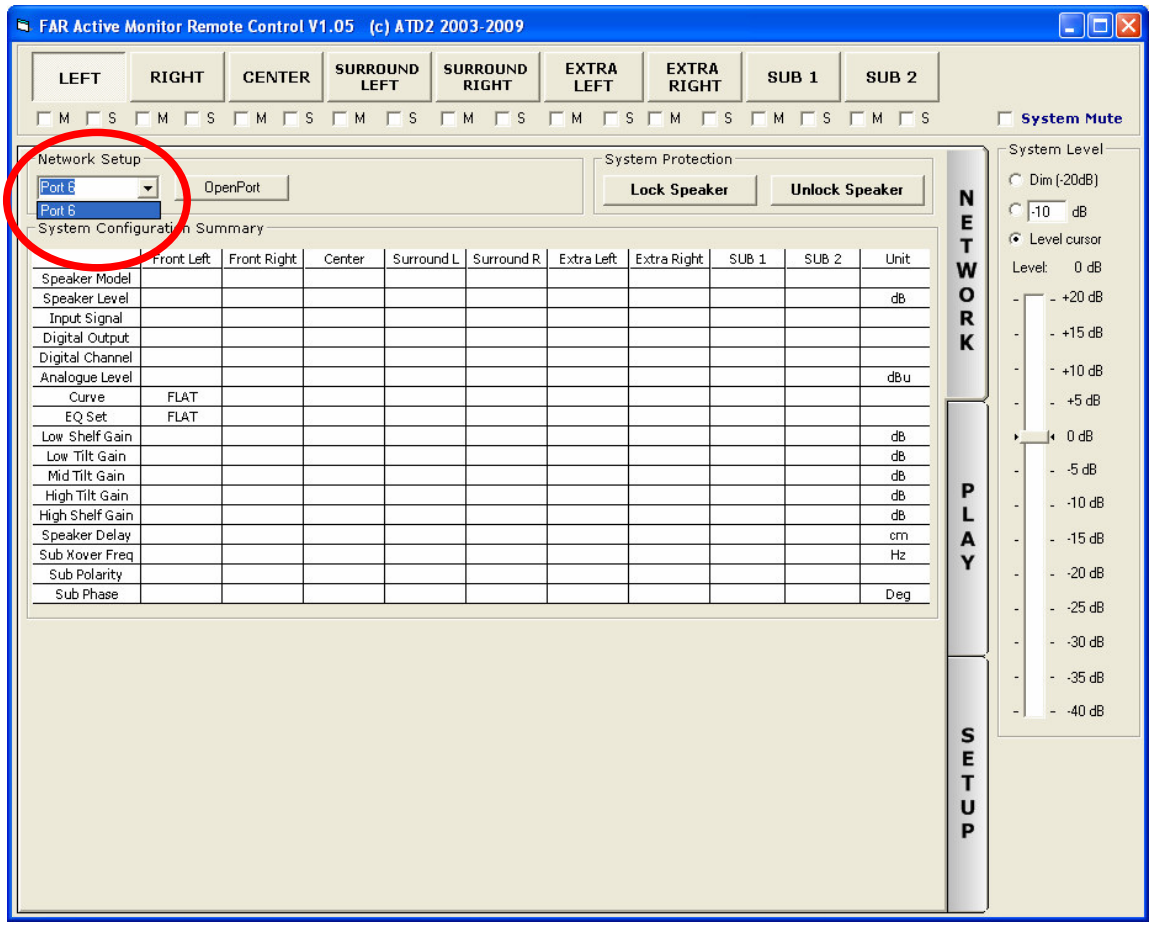
- The **RED** LED (Tx) blinks when the PC transmits something to the speakers.
- The **GREEN** LED (Rx) blinks when the PC receives information from the speakers.
- The **YELLOW** LED (FAR) shines when the FAR Link network is properly connected to the dongle.
- The **YELLOW** LED (USB) shines when the dongle is properly connected to a USB port of the PC.

Connect the dongle to a USB port of the PC
Connect the dongle to the FAR Link network by using CAT5 cables (like Ethernet patch cables – **NO crossed cables!!!**).



3 Network Scan

Start SCS and select the NETWORK tab (it is normally the default start-up tab).
If the right port is not yet selected, pick from the port list the right one then click the **OpenPort** button.



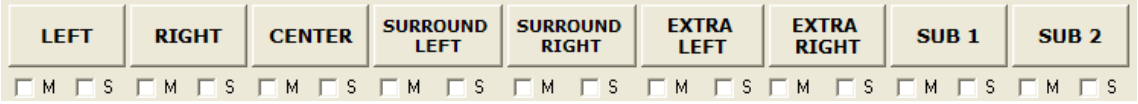
If the Port is operational, the button Scan Network will appear as well as the Tx/Rx Leds.

The FAR Link TM network is now ready to operate. Press the **Scan Network** button and the software will find all the speakers present on the network and will display in the table the speaker parameters.

It is possible to lock the speaker keyboard to prevent erroneous manipulation from a not authorized person. Click the **Lock** or **Unlock** button to activate or deactivate this function.

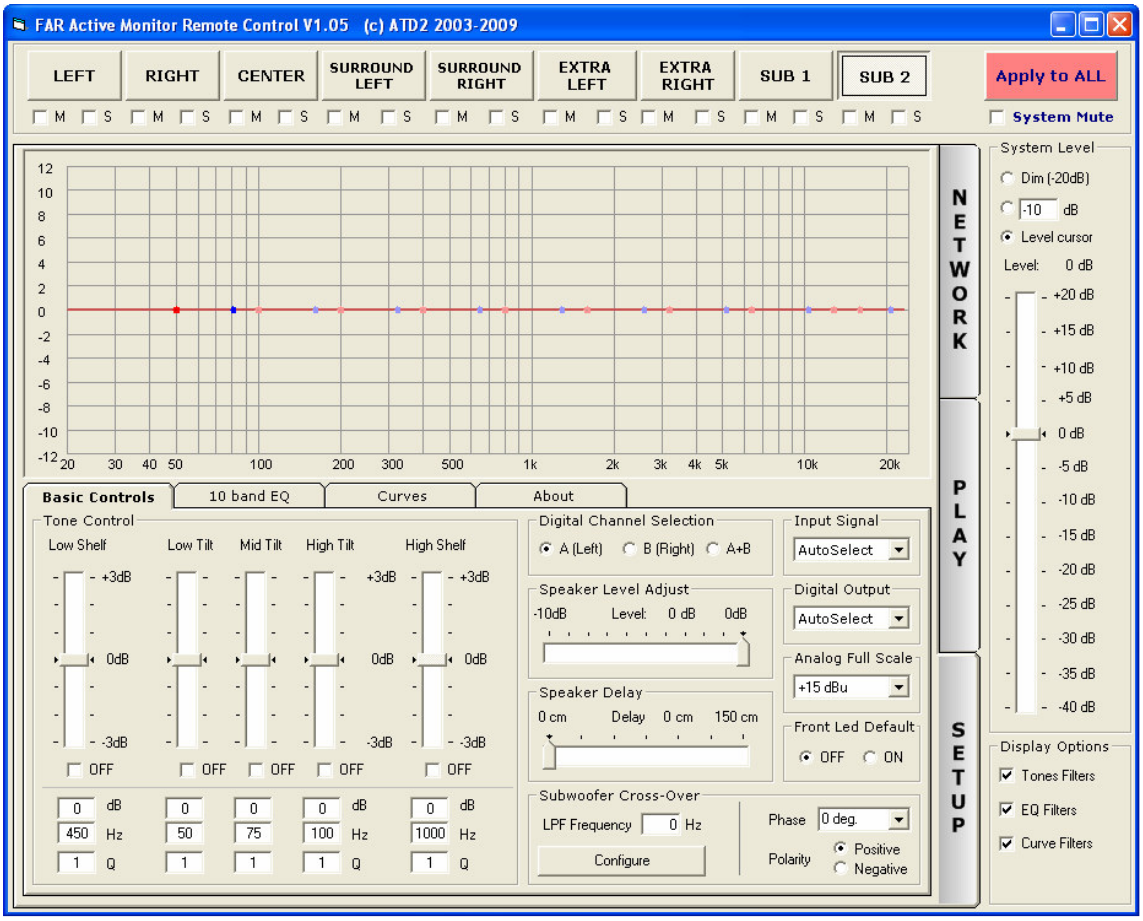
4 Speaker Setup

Each speaker can be addressed individually by using the Speaker buttons located at the top of the SCS window. The buttons will only allow selecting the speakers that have been detected on the network. Below the speaker button, two check buttons (M and S) are used for **M**ute or **S**olo.

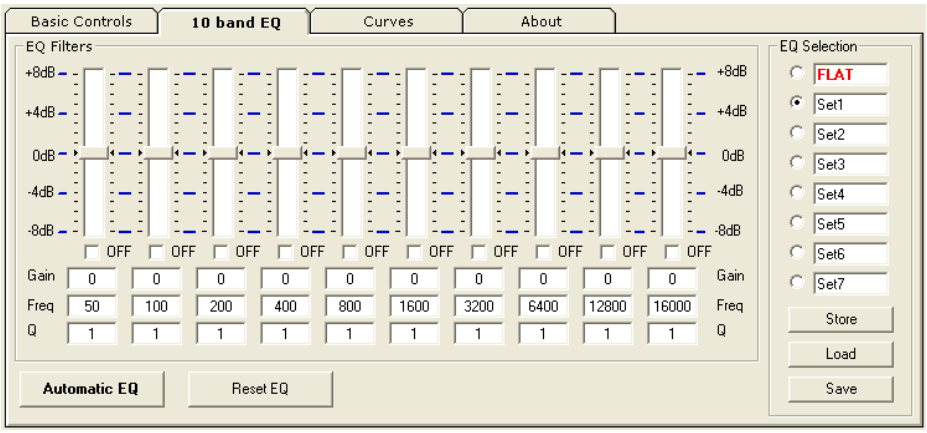


The system level is available on the left side of the SCS window and controls all the speakers attached to the network.

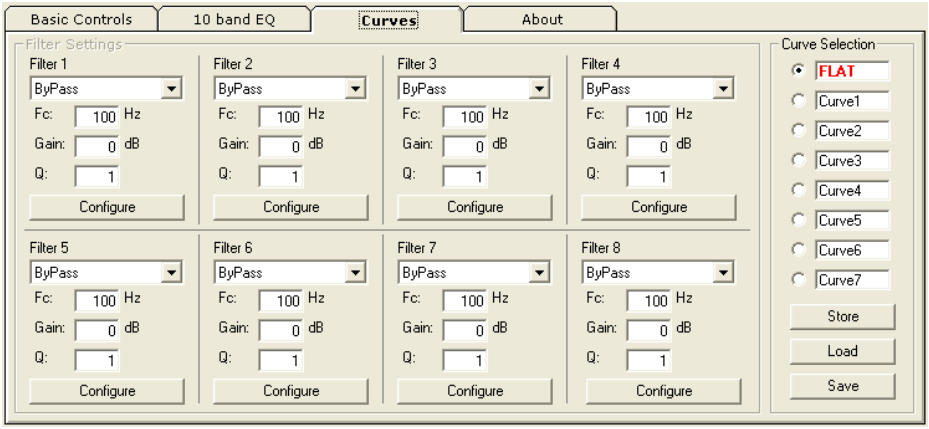
Select the Setup tab. You will get access to the basic controls (the one accessible at the rear of the speakers, via the control panel), the 10 band EQ and the curve generator. Refer to speaker user manual for more detailed information on the controls themselves.



Note: The "Apply to ALL" button, located in the upper right corner allows the user to have the setup of one speaker reflected on all the speakers. For instance, if a low shelf has to get the same value on all speakers, press "Apply to ALL" that will become green and make the change on the low shelf slider. When general configuration is not needed anymore, press again "Apply to ALL" and the button will become red.



10 band EQ tab with all controls and access to the automatic EQ

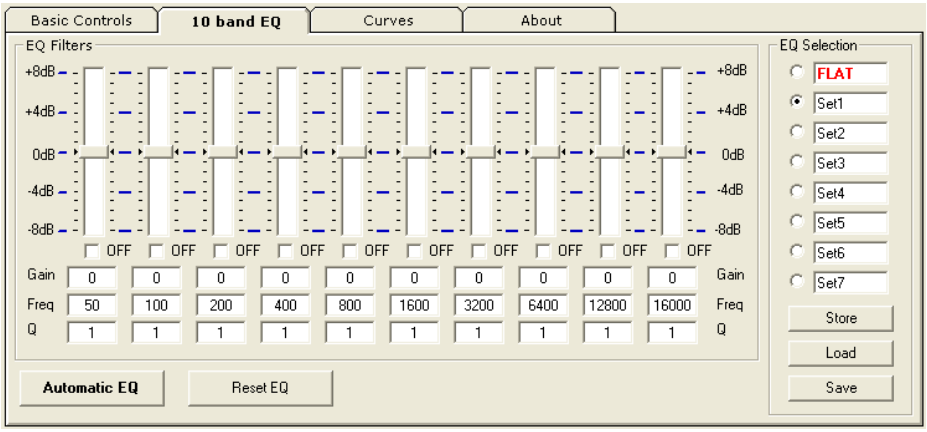


Curve generator

"About" tab to remind the web site address, source of useful information

4.1 10 band EQ

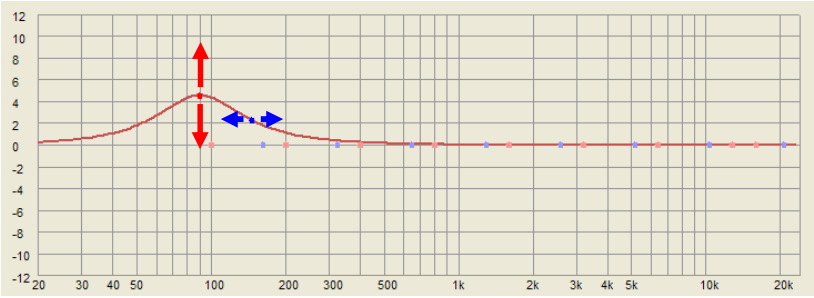
This TAB allows the user to access and configure the 10 band equalizer implemented in the FAR Active monitors.



All the parameters of the EQ are modifiable (Gain, Frequency and Q factor).
There are 7 customizable EQ sets that can be recalled at anytime. The EQ sets are actually stored in the speaker (when pressing the **Store** button). The user can save these EQ sets on the PC by pressing the **Save** button. The saved EQ set can be recalled (from the PC HDD) by pressing the **Load** button.

An **OFF** ticker allows the user to test the effect of a particular EQ. It disables temporarily the EQ.

The gain, frequency and Q factor are also changeable via the graphics by clicking on the red spot (gain and frequency) or the blue spot (Q factor) and by moving the mouse while keeping the finger on the left button.

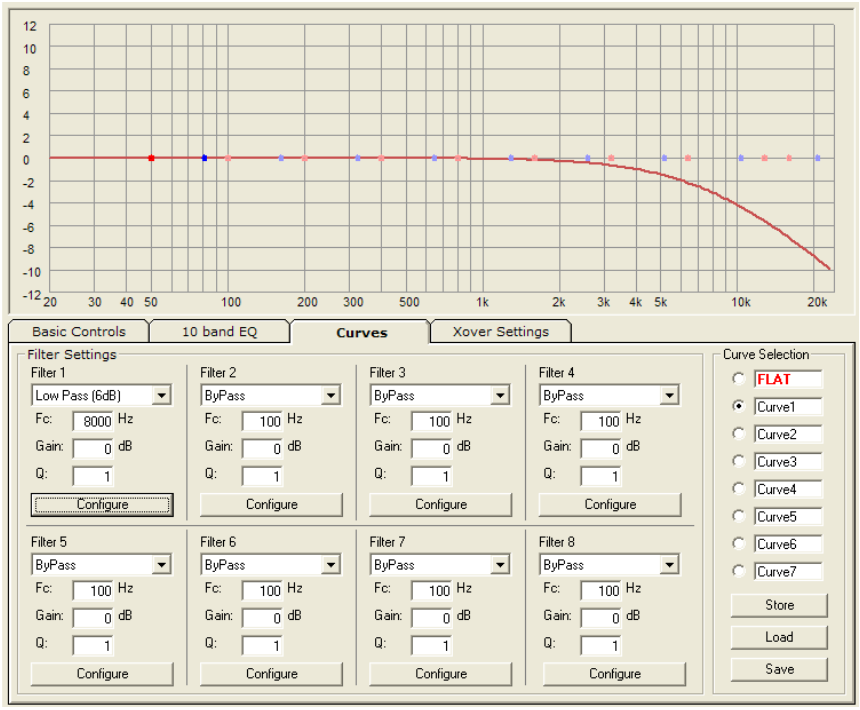


4.2 Curve Generator

On top the EQ sets, it is possible to define some preset curves to emulate the sound at the end-user premises or to apply specific corrections to the speaker.
There are 7 factory defined curves in the speaker. Each set can use up to 8 different filters. They allow the user to simulate the masking effect of a perforated screen placed in front of a speaker (Academy) or to simulate the frequency response of a TV set (TV) for instance.

All the curves (but the FLAT reference) are customizable, including their names.
As for the EQ sets, they are stored in the speaker (when the button **Store** is pressed).
The user can make a local copy on the PC had disk by pressing the **Save** button and can recall them by pressing the **Load** button

The curve frequency response is displayed in the graph window.

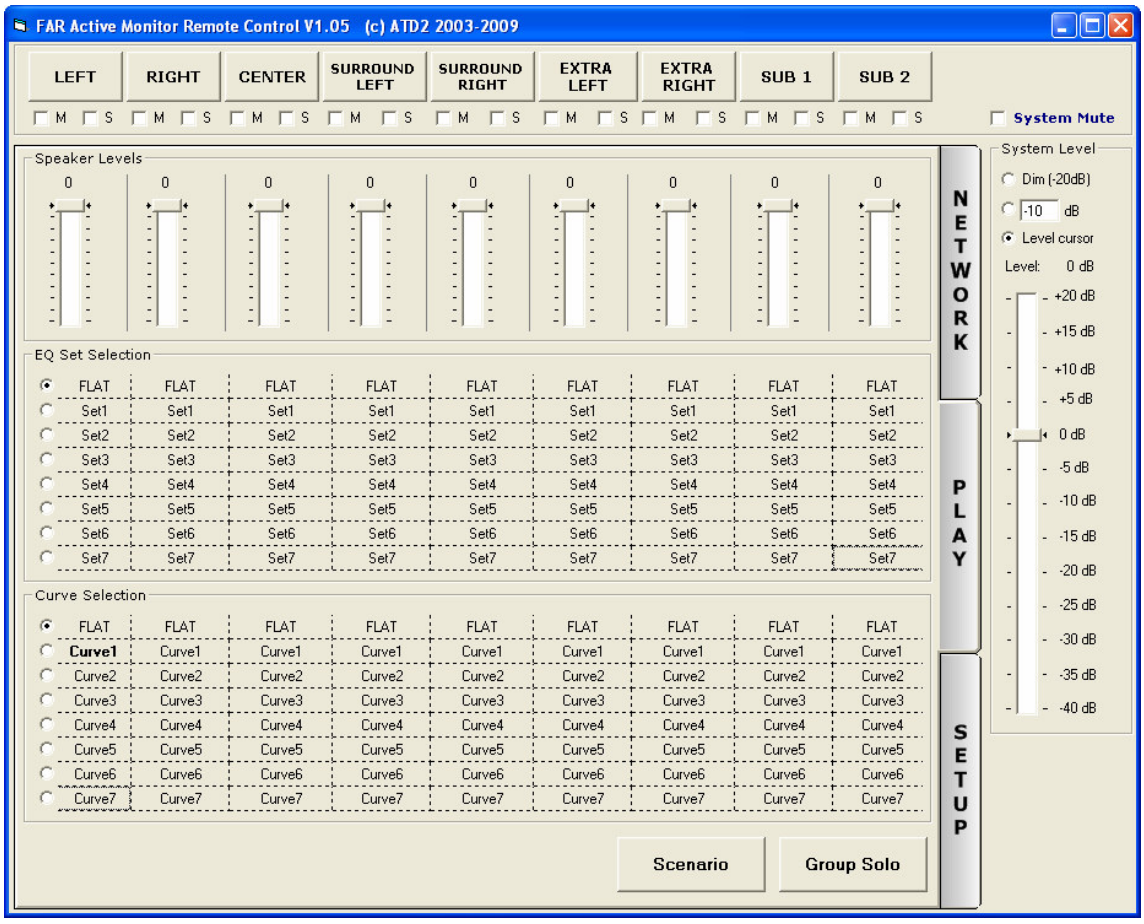


The Curve Generator allows more flexibility than the 10 band EQ as it features many types of filters:

- Parametric EQ
- First order low pass filter
- First order high pass filter
- Second order low pass filter
- Second order high pass filter
- Low Shelf
- High Shelf

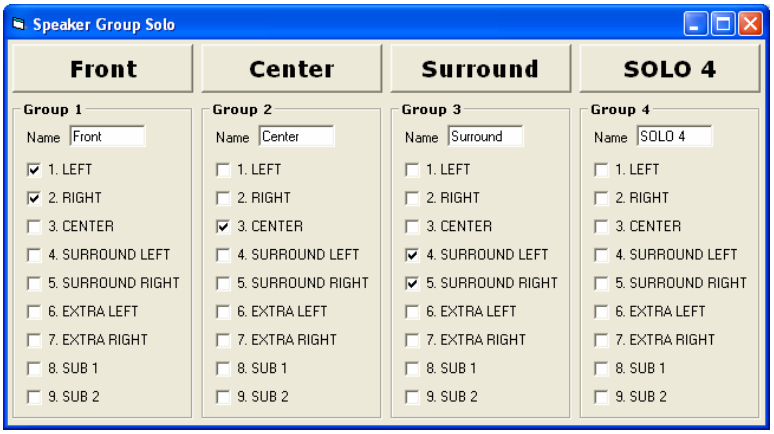
5 PLAY controls

The PLAY tab allows the user to effectively use the EQ sets and Curves once they have been defined in the SETUP.
The relative speaker level can easily be adjusted.
The EQ set selection and the Curve selection allows for an A/B listening comparison.



5.1 Group Solo

The Group solo window allows for easy mute/solo of a group of speakers. Up to 4 groups can be defined (including their names). Clicking the button activate or deactivate the solo.

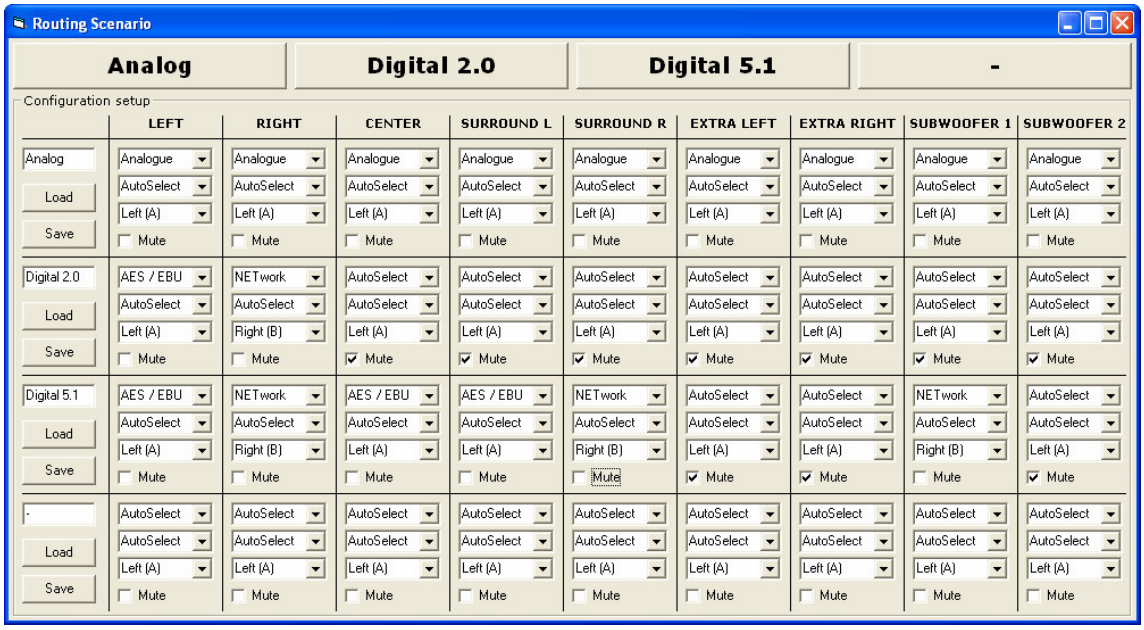


Once the groups are defined, the window can be resized to only show the main buttons, saving space on the screen.

If the Group Solo window disappears below many windows, it can be recalled from the main window by pressing the **Group Solo** button again.

5.2 Scenario

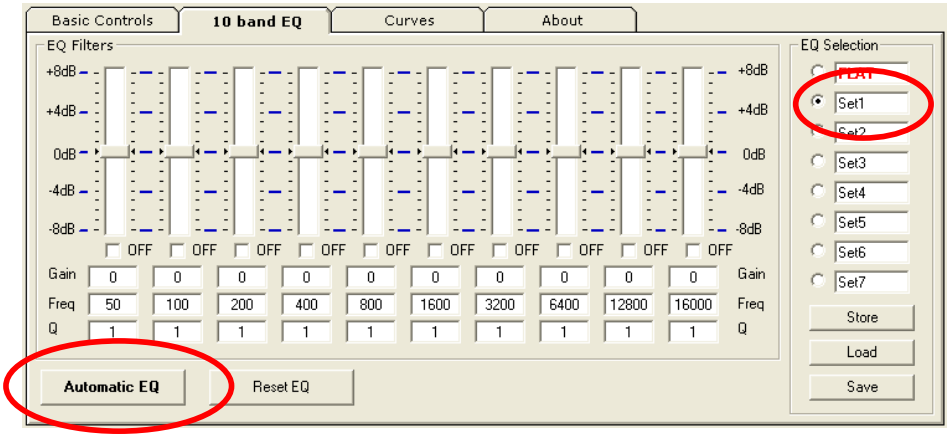
By clicking on the Scenario button, the user gets access to a system configuration assistant. Up to 4 configurations can be defined (including their names). The user can select the signal source, the signal routing, the digital channel selection and if the speaker is muted or not.



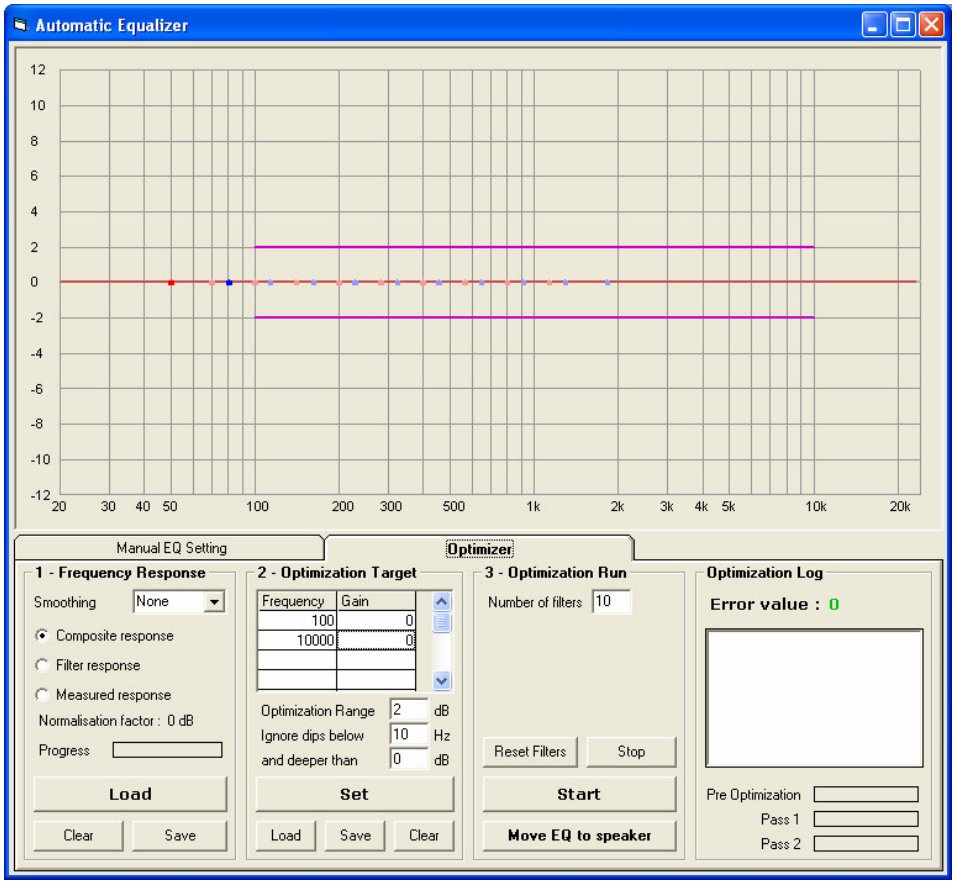
It becomes easy to switch from an analogue configuration to a stereo digital configuration or event to a full 5.1 digital configuration in a simple click. As for the Group Solo window, the Scenario window can be resized to let appear the main button only.

6 Automatic Room acoustic Compensation

To access the automatic equalizer, the user needs to select one of the 7 configurable EQ sets. The FLAT setting is not modifiable and will not let access to the automatic EQ.

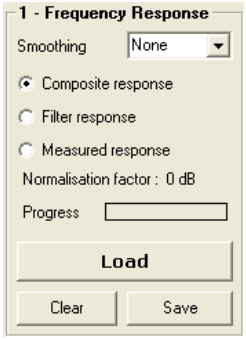


Then, click on the **Automatic EQ** button to access the automatic equalizer engine.



The procedure is straight forward.
1 – Load the measured frequency response of the speaker in the studio.
2 - Define the optimization criteria.
3 – Run the optimizer and transfer the result in the 10 band EQ of the speaker.

6.1 Load the frequency response

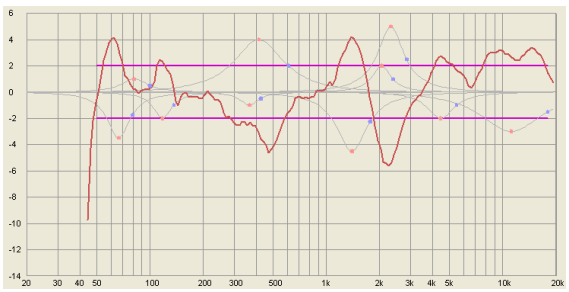


Click the **Load** button to load a measured frequency response. Once the frequency is loaded, the user can apply a smoothing to remove the high frequency ripple.

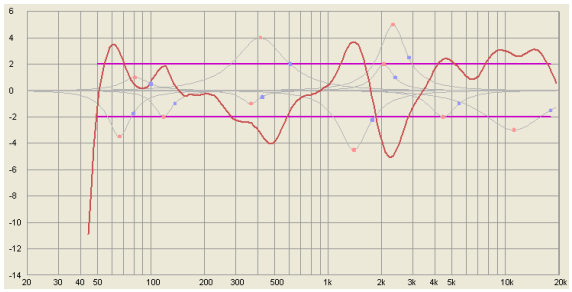
The user can display the measured response, the filter response of the corrected response.

The frequency response can be cleared (button **Clear**) or saved when corrected (button **Save**) in an ASCII file.

The Frequency Response file shall be in a text format. Each record shall have its line and shall be organized (Frequency, Gain). The separator can be a space, a comma or a tab character.

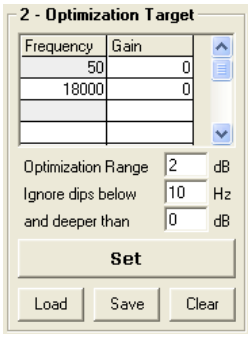


Loaded response without smoothing



Loaded response with 1 octave smoothing

6.2 Optimization target



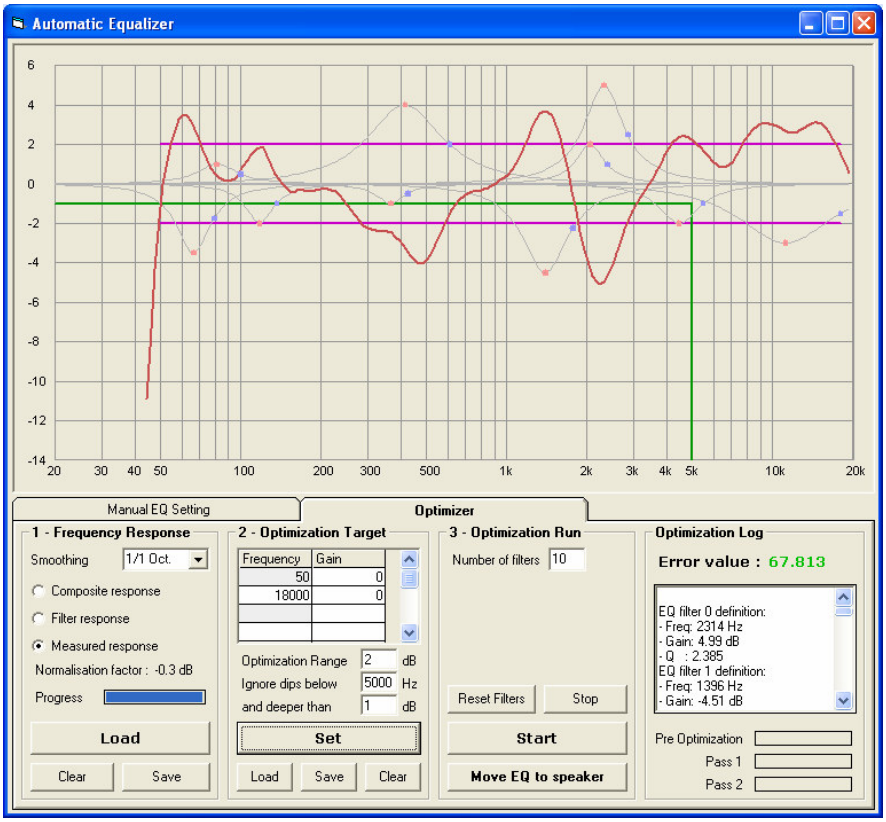
An optimization mask can be be defined by using the table in the Optimization Target frame.

The Optimization Range specifies the range around with the optimized response can be. The target mask is figured by 2 purple lines.

It is possible to ignore some dips below a given frequency. Depending on the acoustics of the room, it is possible that the frequency response shows big dips. It might not be advisable to try to fix these dips. As a matter of fact, boosts of more than 3 dB are usually not recommended.

Ignoring dips below X db means that the optimizer will correct a dip with a boost in the range of the indicated value.

When the "ignore" frequency is set to a value inferior to the lowest target frequency, the feature is deactivated. When valid, the "ignore" mask is figured by 2 green lines.



6.3 Running the optimizer

The only parameter to set is the number of filter to be used by the optimizer. The maximum number is 10.
It might be interesting to use less than 10 filters to keep the possibility to add some manual settings later on.

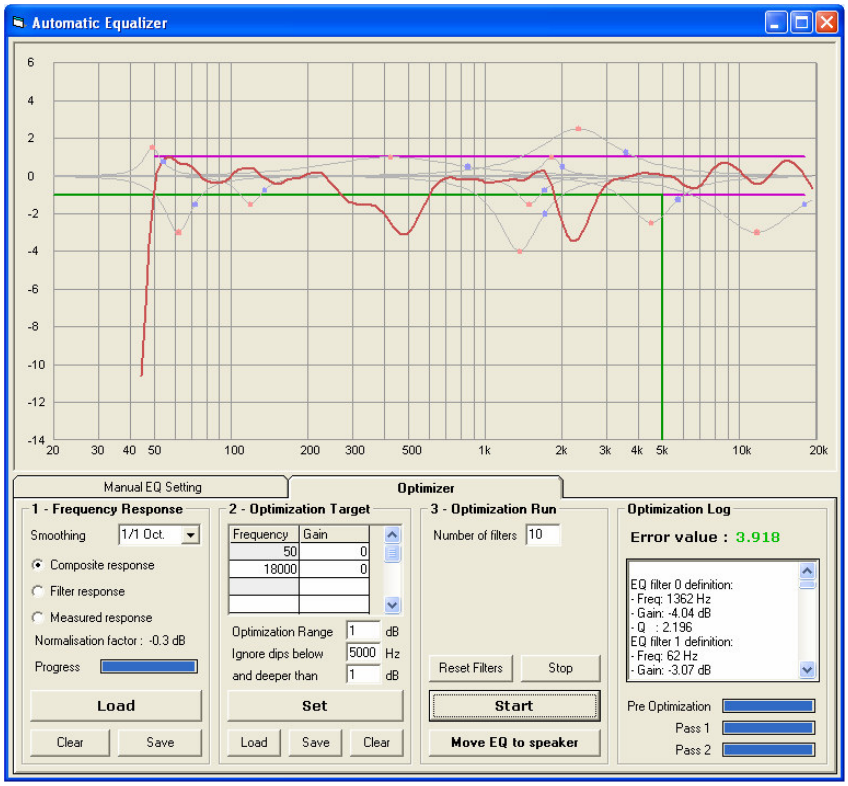
When the number of filter is set, click on the Start button to run the optimizer. The optimization will run in 3 steps.

1 – The software will find an initial solution. The process is very fast but does not always provide the best optimal solution. However, in most cases, the solution found will meet the optimization target requirements and the optimizer will stop.
2 – The first pass of optimization will modify the EQ parameters (frequency, gain, Q) to try to fine a better solution. The optimization error is displayed in green in the the Optimization Log frame. If the Optimization Targets are met at the end of the first optimization pass, the optimizer stops.
3 – The second pass of optimization uses a different method to search for the optimal results and often improve the results of the first pass.

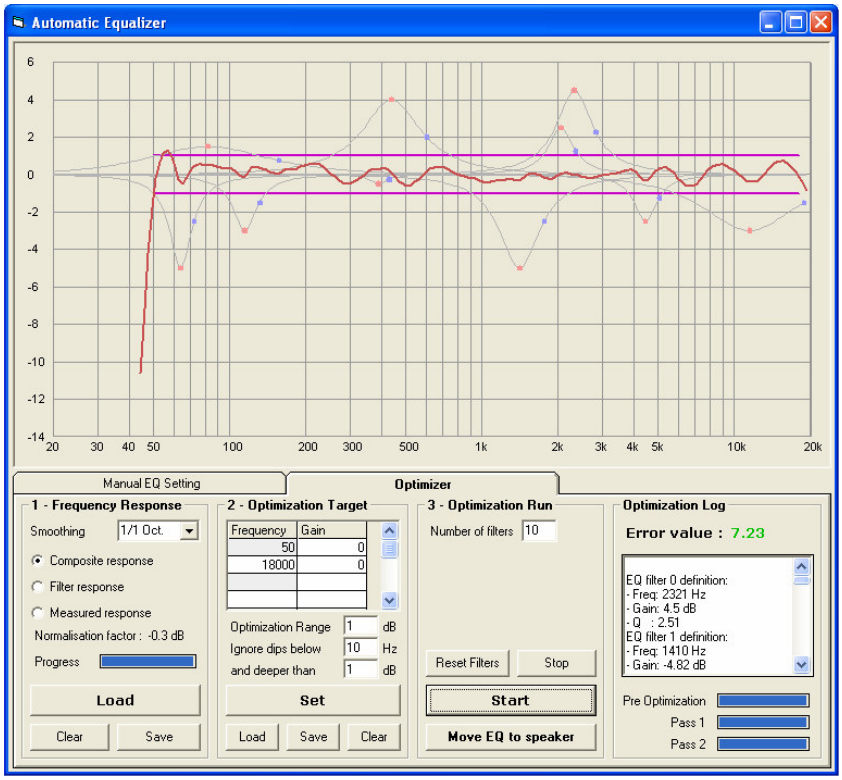
The optimizer can be stopped at any time by pressing the **Stop** button.
When the solution is acceptable, click on the "Move EQ to speaker" button to transfer the calculated EQ parameters to the 10 band EQ set of the speaker.

In the following example, the Optimization target has been set from 50 Hz to 18kHzwith an allowed variation range of plus/minus 1 dB. Dips below 5000 Hz shall be ignored and boost shall not be much more that +1 dB.

The optimizer provides a solution that does not boost too much the dips and that makes the response fit within 1 dB (hen excluding the dips).



The second example disables the dip check and will fit the complete response within the optimization mask.

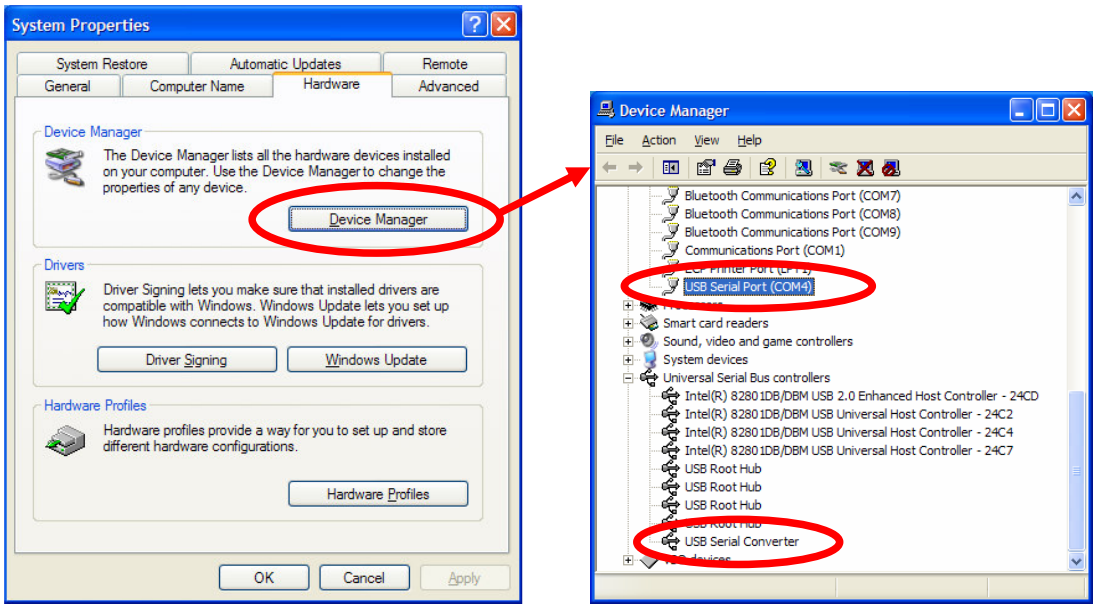


Annex A: Finding out which COM port to use

The selector for the communication port will provide you with a list of possibilities. However, not all ports of the list will route the controls to the speakers. If it is present by default, a serial communication port (RS232) will appear in the list but will not be useable.

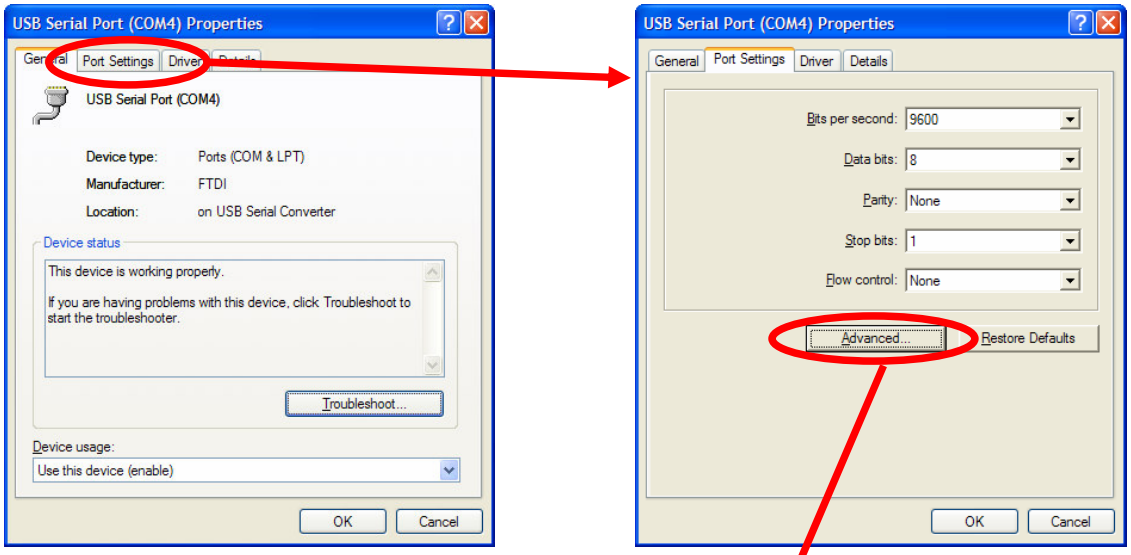
There are 2 ways to discover what the port to use is. The first one consists in starting SCS when the USB dongle is not connected. Look at the port list. Stop SCS and connect the USB dongle. Start SCS and look again in the list. The new port is the one to select. Usually, the RS232 serial communication port (when available on the PC) appears often as port 1. The USB dongle is likely to be with a higher number.

You can also use the Windows Device Manager to find the port configuration. Go to the Control Pannel and click on the System icon. Then select the Hardware tab and click on the button "Device Manager". In the new window, double click on "Ports (COM & LPT)".

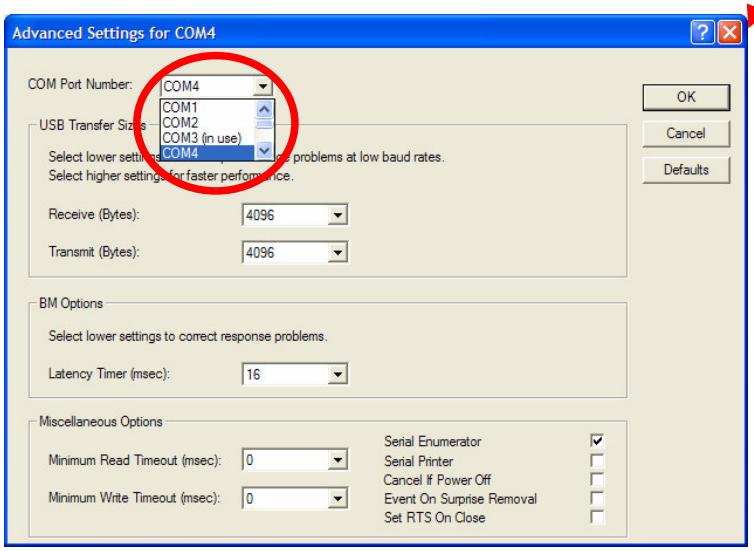


Check the number of the USB Serial Port and use it in SCS. In this example, the COM Port used is 4.

Note: If the COM port number is higher than 16, it is necessary to assign a new number. To do this, double-click on "USB Serial Port (COMx)" to open the properties windows.



Then go to "Port Settings", click on "Advanced" and modify the COM Port Number by selecting another available COM Port.



Once this is done, your dongle is ready to operate.