



VISCOUNT

# $\Phi$ P $\ddot{h}$ ysis $\ddot{t}$ plus

organ series

External Amplification Setting Guide

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English

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Edition: 1.0

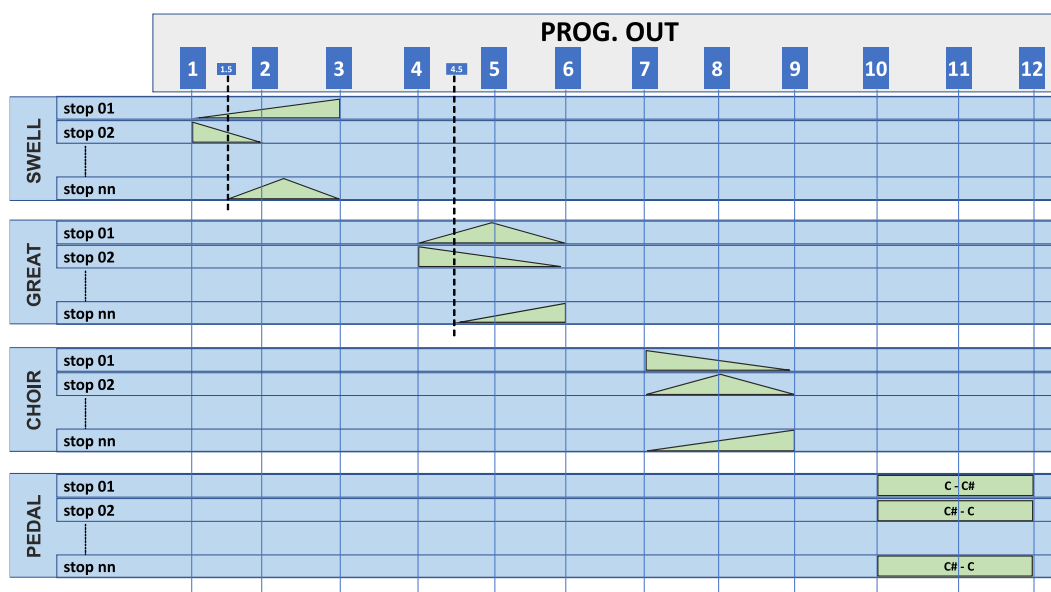
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




## INTRODUCTION

Before explaining the organ settings, you need to understand how the PROG. OUT rear outputs system of the Physis Plus organs works.

- Each stop can be addressed to a single or a range of outputs with a specific windchest (Left Wing, Cuspid, Alternated C-C#, etc). Each PROG. OUT output has dedicated controls of volume, reverb level and equalization.

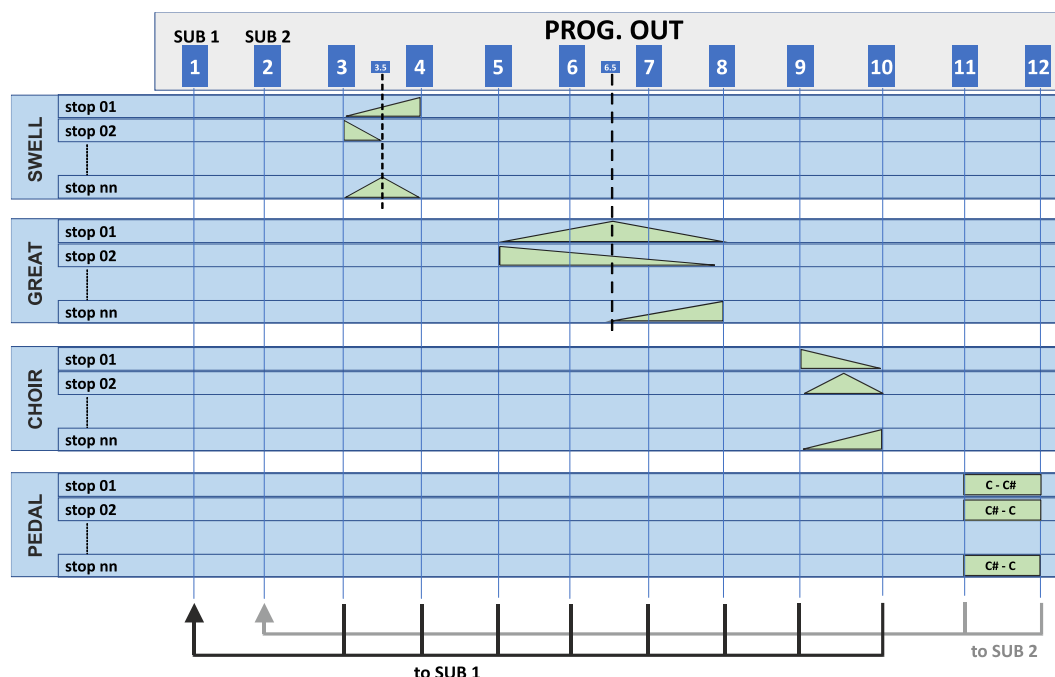


### NOTES

- In the example diagram above and in the following ones the symbols , , ,  represent some of the windchests selectable for each stop.  and  are right and left wing,  is a single cuspid,  is an alternated C-C#. To learn about all the windchests selectable in the Physis Plus organs, please refer to the Reference Manual of the instrument. In add of this, this diagram shows 12 outputs, but the available outputs depend on the organ model you are using.
- To find out how to make these settings in the organ, see *PHASE 4* paragraph of this guide.

- You can connect one or more external subwoofer speakers to one or more PROG. OUT outputs set as subwoofer outputs. Each subwoofer output "collects" a range of the remaining PROG. OUTs. Keep in mind that the subwoofer outputs are always the first (from the n. 1) PROG. OUT outputs, they must be placed sequentially and cannot fit between the other "standard" outputs (for example, PROG OUT [1] - [2] - [3] and not [3] - [5] - [7]).

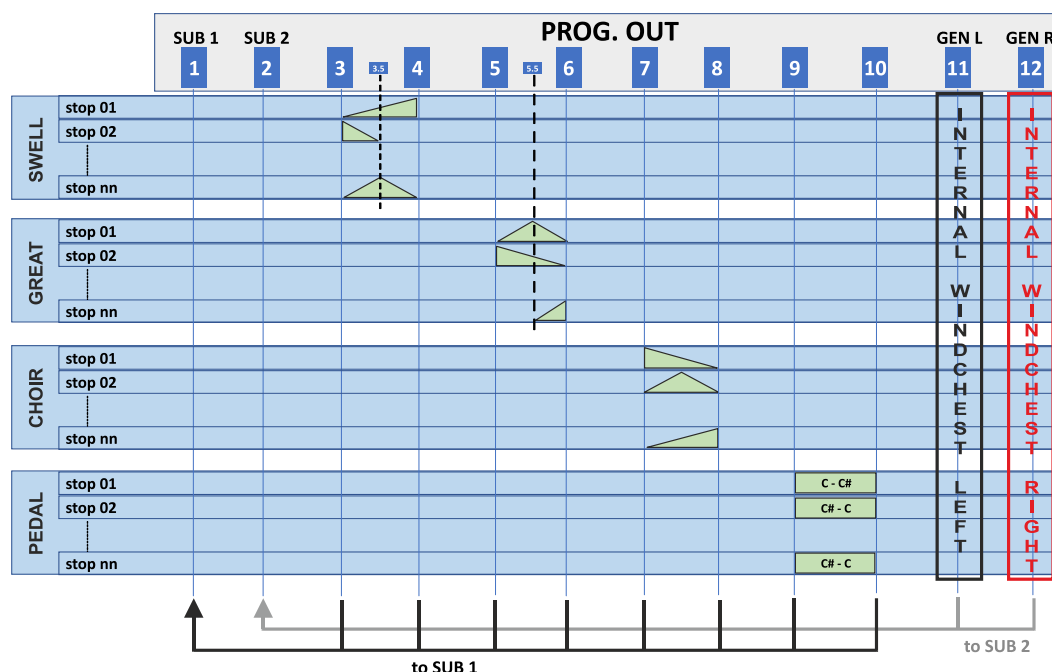
The subwoofer outputs collect the DRY sound (i.e. not reverberated) of a given external output. Each subwoofer output has two reverb level controls (left and right) that can be adjusted after the "collection", letting you decide whether and how much each subwoofer is reverberating, and so, with a different level than the other outputs.



## NOTE

To find out how to make these settings in the organ, see *PHASE 1* paragraph of this guide.

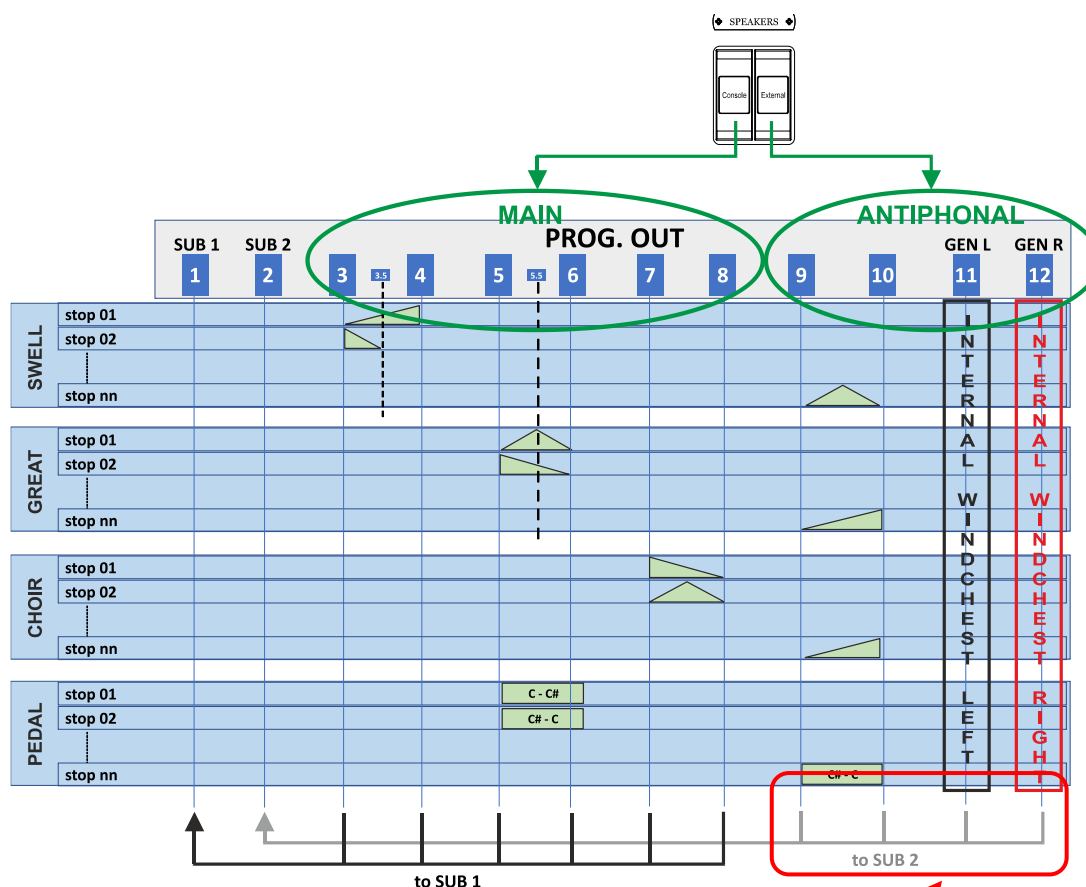
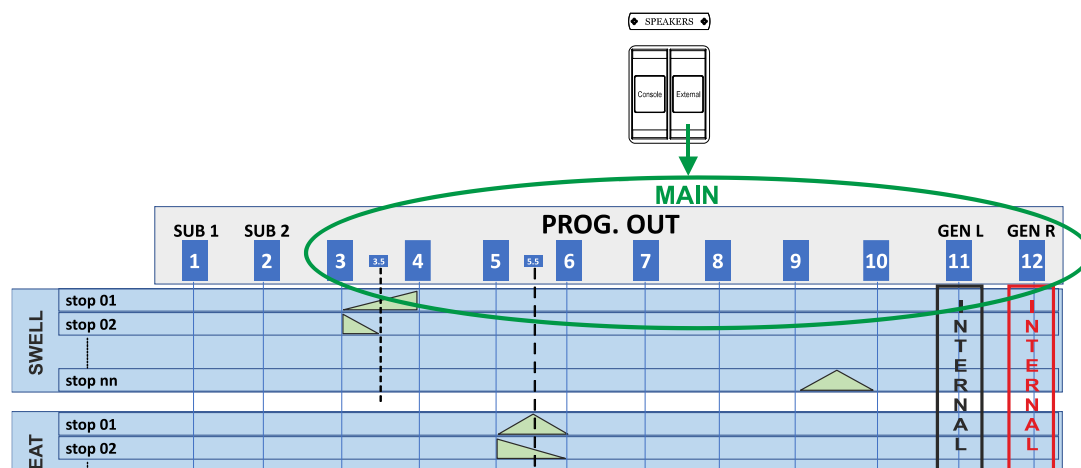
- One or more PROG. OUT outputs can be set as General outputs. A General output L/R sends out all the sound generated by the organ. General outputs L and R send out all the signal on the left or right channel (respectively) according to the panning set for the **internal** amplification. The General outputs have dedicated reverb level and equalization controls letting you to regulate the reverb level and equalization with different values than the other outputs.



## NOTE

To find out how to make these settings in the organ, see *PHASE 2* paragraph of this guide.

- With the organ models equipped with the SPEAKERS tab or thumb piston controls to switch on/off the external speakers, you can either assign all external outputs to a single control, or create two groups of outputs, called Main and Antiphonal, and switch on/off each group with the assigned control.



! Please note that in this example diagram with two SPEAKER controls, SUB2 collects the PROG. OUT from [9] to [12] instead of [11] and [12] as in the previous diagrams. This is because PROG. OUT [9]...[12] now are in the same group of outputs (Antiphonal). If the two subwoofers are positioned in different places it's recommended not to collect the outputs of the same group in two different subwoofer outputs.

## NOTE

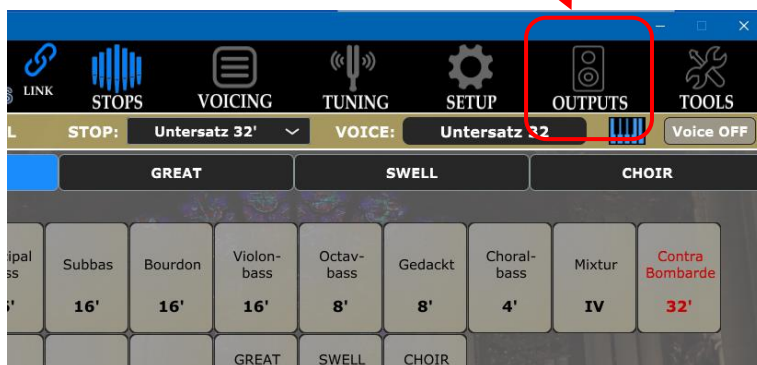
To find out how to make these settings in the organ, see *PHASE 3* paragraph of this guide.

Now, after seeing how the PROG. OUT rear outputs system works, there are three aspects of the external amplification installation to consider in order to correctly make the settings in the organ, with this priority order:


1. whether one or more external subwoofers are being used;
2. whether you want to have one or more external speakers in which to have the general organ signal;
3. on organ models equipped with the SPEAKERS tab or thumb piston controls, choose whether to assign all outputs to the external control, or divide them between two groups (Main and Antiphonal).

To make all the settings relating to the PROG. OUT outputs of your Physis Plus organ, you have to use the “Physis Plus The Editor” application, downloadable from the [www.viscountinstruments.com](http://www.viscountinstruments.com) website.

Once the “Physis Plus The Editor” has launched, click on the **OUTPUTS** button on the top right of the screen to display the screen page related to the PROG. OUT outputs:



## NOTE

Please keep in mind that it's important to **FIRST** decide the external outputs group (Standard, Subwoofer, General, Main, Antiphonal) **THEN** set up appropriate windchests for each pipe and orchestra stop to avoid conflicts between the different types of outputs, conflicts also indicated in the editor by the symbol  or “OVERLAPPING IN WINDCHEST CONFIGURATION” warning messages described in the next configuration phases.

For example:

- 1) if you have PROG. OUT [1] and [2] set as Main, [3] and [4] as Antiphonal, and you place a pipe stop external windchest as, e.g. left wing from [1] to [4], you may end up with a partially sounding stop on those outputs using the SPEAKERS controls.
- 2) if you set PROG. OUT [1] as Subwoofer and place a Right Wing windchest from PROG. OUT [1] to [4], the lower notes of the stop will play in PROG. OUT [1] and not with the windchest rules (highest notes in the PROG. OUT [1]).

Each stop's external windchest should span **always on external speakers of the same group**.

As an example, in a 12 PROG. OUTs organ, you may have Main on the first six outputs, and Antiphonal on the last six outputs, and place stops' windchests within [1]..[6] or [7]..[12], **never crossing the boundary**.

# SETTING THE ORGAN'S PROG. OUT REAR OUTPUTS

## Phase 1: setting outputs for external subwoofers

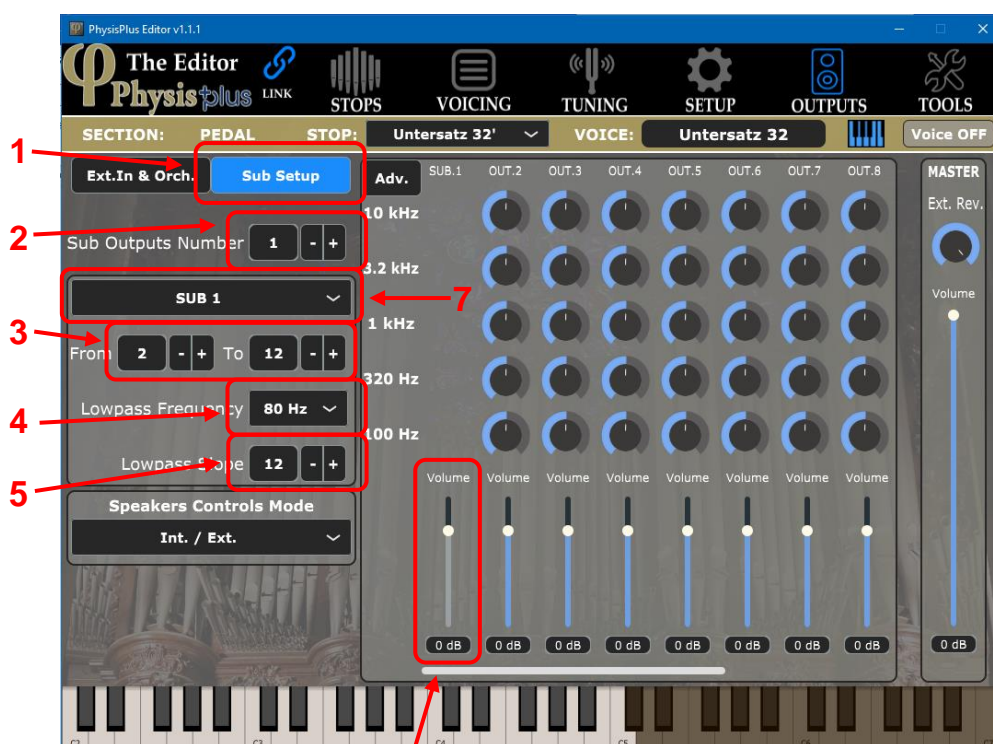
### NOTE

If there are no subwoofer(s) in the installation, you can skip this phase of the outputs setup.

If one or more subwoofers have to be connected to the organ, the first operation to do is to set one or more outputs as Subwoofer outputs. This is the first operation to perform, to avoid conflicts with the next settings and also because the Subwoofer outputs have to be the first (from the n. 1) PROG. OUT outputs.

In the **OUTPUTS** screen of the Editor, to set-up a Subwoofer output, follow this procedure:

1. click on the **Sub Setup** button,



**!** The VOLUME slider is displayed in gray color to inform you that this output is set as subwoofer output

2. in the **Sub Outputs Number** field, click on the **+** button to set-up the PROG. OUT [1] as Subwoofer output,
3. now you can set a range of PROG. OUT outputs that will be sent to the PROG. OUT [1] now set as a Subwoofer output. Each Subwoofer in fact, "collects" a range of PROG. OUTs. Initially the range 2 to the last PROG. OUT will be set, in this way using only one Subwoofer output, all the remaining PROG. OUT outputs will be sent to the subwoofer speaker, however you can already set a smaller range. To do this set the range in the **From** and **To** fields,
4. in the **Lowpass Frequency** field you can adjust the cutoff frequency of the filter applied to the Subwoofer output,
5. in the **Lowpass Slope** field you can adjust the filter slope as dB/octave. Keep in mind that by selecting the value "0" the filter will have no effect on the output,

6. if you use another subwoofer speaker, in the **Sub Outputs Number** field, click on the **+** button to set-up the PROG. OUT [2] as a second Subwoofer output. As you can see, the outputs range is automatically adapted to the use of two Subwoofers, however you can adjust it using the **From** and **To** fields,
7. click on the **SUB 1** drop down menu to select the **SUB 2** and adjust the parameters as described in the previous points,
8. execute points 6 and 7 to add all the necessary Subwoofer outputs.

## Phase 2: setting outputs to have the whole (general) organ signal

### NOTE

If you don't need outputs with general signal, you can skip this phase of the outputs setup.

If you need to have one or more PROG. OUT outputs in which is present the whole signal of the organ, in the **OUTPUTS** screen of the Editor, follow this procedure:

1. click on the **Adv.** button,



**!** The VOLUME slider is displayed in red color to inform you that this output is set as general output

2. click on the **GEN.** button of the output you need to set as GENERAL,
3. in the drop down menu 3 options are available:
  - **NO**: the output is not set as General and it works in according of the EXT. WINDCHEST, EXTERNAL INPUT and ORCHESTRAL VOICES routings.
  - **L**: in the output is present the LEFT general signal.
  - **R**: in the output is present the RIGHT general signal.
  - **L/R**: in the output are present both LEFT and RIGHT general signals.
4. perform points 2 and 3 for all the PROG. OUT you need to set as GENERAL.

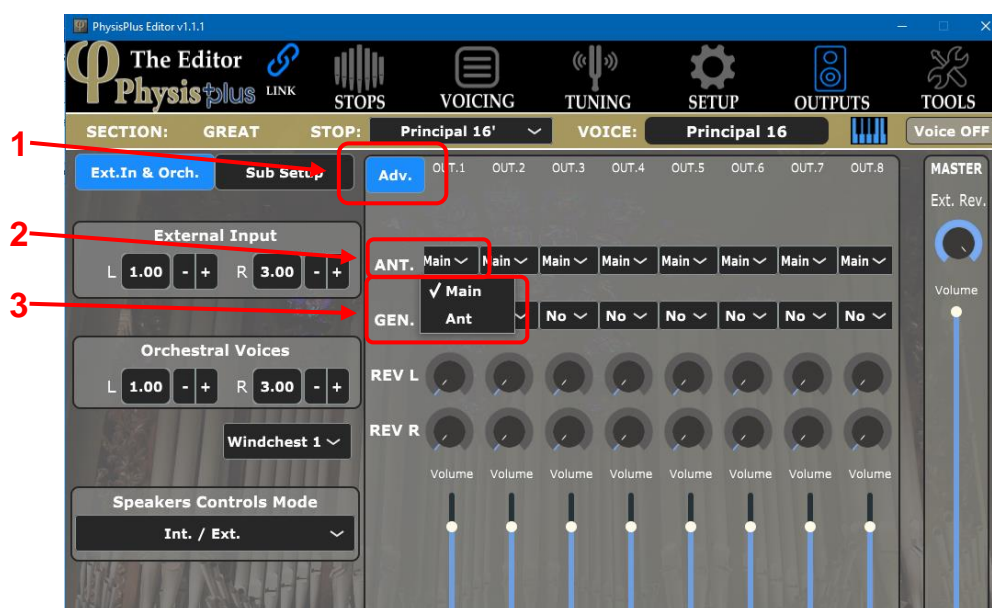
## Phase 3: setting outputs as Main or Antiphonal

### NOTE

If you don't need two groups of outputs or your organ is not equipped with SPEAKERS controls, you can skip this phase of the outputs setup.

In the organs equipped with SPEAKERS control, it's possible to collect the PROG. OUT outputs in two groups, called MAIN and ANTIPHONAL. This is useful to switch the two groups of outputs separately on and off. To create these two groups, you have to assign each output to the MAIN or the ANTIPHONAL group. To do this, in the **OUTPUTS** screen of the Editor, follow this procedure:

1. click on the **Adv.** button,



2. click on the **ANT.** button of the output you need to set as MAIN (**Main**) or ANTIPHONAL (**Ant**),
3. in the drop down menu it's possible to select one of the two groups of output.
4. perform points 2 and 3 for all the PROG. OUT you need to set.
5. now you can set the operating mode of the SPEAKERS controls. On the left bottom of the screen click on the **Speakers Controls Mode** button,



**6.** in the drop down menu 6 options are available:

- **Int. / Ext.:** the SPEAKERS control usually called [INTERNAL] switches on/off the internal amplification, the SPEAKERS control usually called [EXTERNAL] switches on/off **all** PROG. OUT outputs. In this case, both the MAIN and ANTIPHONAL outputs will be switched on/off altogether.

[INTERNAL] control	[EXTERNAL] control	Internal amplification	MAIN outputs	ANTIPHONAL outputs
OFF	OFF	OFF	OFF	OFF
ON	OFF	ON	OFF	OFF
OFF	ON	OFF	ON	ON
ON	ON	ON	ON	ON

- **Main / Antiph. + Int. ON:** the internal amplification will be **always ON** (unless headphones are plugged), the SPEAKERS control usually called [INTERNAL] switches on/off the MAIN outputs, the SPEAKERS control usually called [EXTERNAL] switches on/off the ANTIPHONAL outputs. This will allow you to assign each stop to one of two SPEAKERS control, based on which outputs they have been routed to.

[INTERNAL] control	[EXTERNAL] control	Internal amplification	MAIN outputs	ANTIPHONAL outputs
OFF	OFF	ON	OFF	OFF
ON	OFF	ON	ON	OFF
OFF	ON	ON	OFF	ON
ON	ON	ON	ON	ON

- **Main / Antiph. + Int. w/ Main ON:** as above for the MAIN and ANTIPHONAL outputs, but the internal amplification will be ON only if the SPEAKERS control usually called [INTERNAL] is ON, so the internal amplification will be treated as the MAIN outputs.

[INTERNAL] control	[EXTERNAL] control	Internal amplification	MAIN outputs	ANTIPHONAL outputs
OFF	OFF	OFF	OFF	OFF
ON	OFF	ON	ON	OFF
OFF	ON	OFF	OFF	ON
ON	ON	ON	ON	ON

- **Main / Antiph. + Int. w/ Main OFF:** as above for the MAIN and ANTIPHONAL outputs, but the internal amplification will be ON only if the SPEAKERS control usually called [INTERNAL] is OFF. This will let you to toggle particular stops between internal amplification and external MAIN speakers using only one SPEAKERS control.

[INTERNAL] control	[EXTERNAL] control	Internal amplification	MAIN outputs	ANTIPHONAL outputs
OFF	OFF	ON	OFF	OFF
ON	OFF	OFF	ON	OFF
OFF	ON	ON	OFF	ON
ON	ON	OFF	ON	ON

- **Main / Antiph. + Int. w/ Antiph. ON:** as above for the MAIN and ANTIPHONAL outputs, but the internal amplification will be ON only if the SPEAKERS control usually called [EXTERNAL] is ON, so the internal amplification will be treated as the ANTIPHONAL outputs.

[INTERNAL] control	[EXTERNAL] control	Internal amplification	MAIN outputs	ANTIPHONAL outputs
OFF	OFF	OFF	OFF	OFF
ON	OFF	OFF	ON	OFF
OFF	ON	ON	OFF	ON
ON	ON	ON	ON	ON

- **Main / Antiph. + Int. w/ Antiph. OFF:** as above for the MAIN and ANTIPHONAL outputs, but the internal amplification will be ON only if the SPEAKERS control usually called [EXTERNAL] is OFF. This will let you to toggle particular stops between internal amplification and external ANTIPHONAL speakers using only one SPEAKERS control.

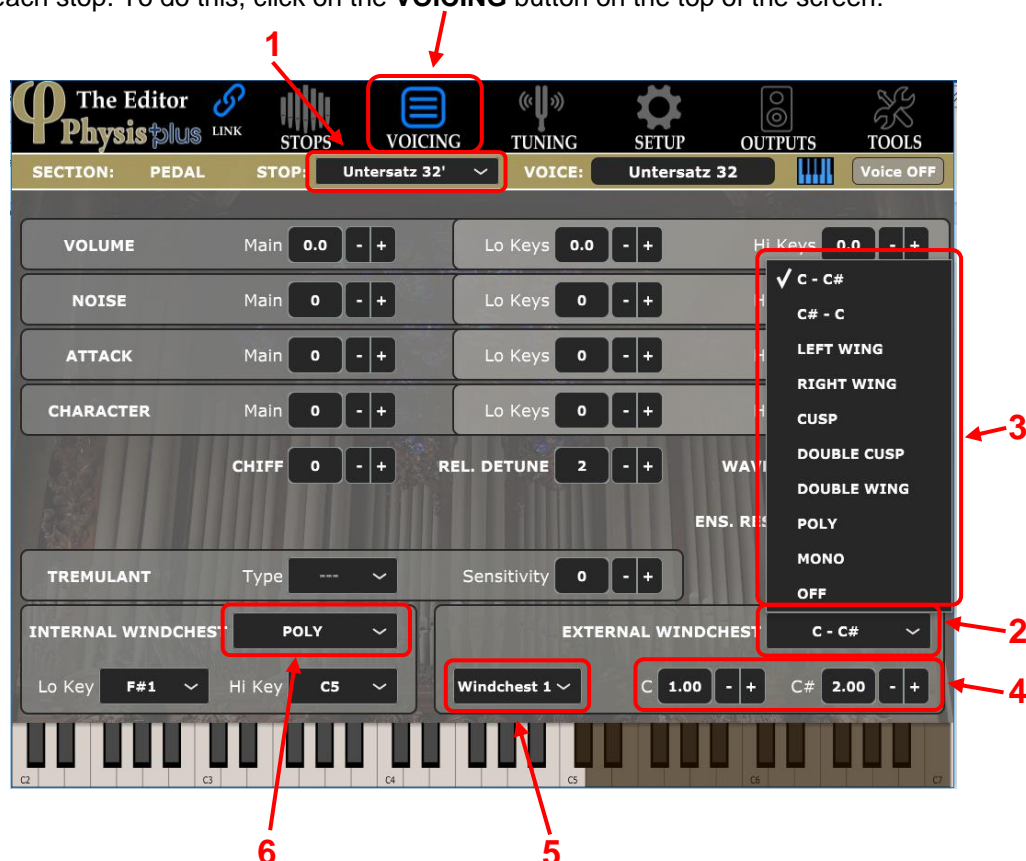
[INTERNAL] control	[EXTERNAL] control	Internal amplification	MAIN outputs	ANTIPHONAL outputs
OFF	OFF	ON	OFF	OFF
ON	OFF	ON	ON	OFF
OFF	ON	OFF	OFF	ON
ON	ON	OFF	ON	ON

## NOTE

Subwoofer outputs can not be set as MAIN or ANTIPHONAL. The Subwoofer outputs, in fact, are not directly switched on/off by the SPEAKERS controls, these controls switch on/off the MAIN and/or ANTIPHONAL outputs and so their own signal will be present in the Subwoofer outputs in according to the SPEAKERS controls state.

## Phase 4: setting each pipe stop external windchest

Now that the general settings of the PROG. OUT outputs have been made it is possible to set the external windchests of each stop. To do this, click on the **VOICING** button on the top of the screen:



1. in the **STOP** field is displayed the stop you are currently editing the Voicing parameters (including the external windchest). There are three ways to select the stop you want to edit:
  - clicking on the STOP button and selecting the stop in the drop down menu,
  - using + and – buttons of the keyboard of your computer,
  - keeping pressed for a few moments the tab / drawknob of your organ in the position of voice ON
2. click on the **EXTERNAL WINDCHEST** button,
3. in the drop down menu you can select the desired windchest,

4. in these fields you can adjust:

- **C:** the output of the odd notes for the C-C# and C#-C windchests
- **C#:** the output of the even notes for the C-C# and C#-C windchests
- **From:** the first output of the Wing and Cusp windchests types
- **To:** the last output of the Wing and Cusp windchests types
- **Width:** the outputs number collected by the Poly windchest
- **Position:** the output of the Mono windchest

5. clicking on the **Windchest 1** button you can select a second windchest for the same stop, and configure it using the same procedure described at the points 2, 3 and 4. In this way you can send the same stop to two different group of PROG. OUT outputs. When Windchest 2 is selected, clicking on this button you can select the Windchest 1 again.

6. if one or more PROG. OUT outputs have been set as General outputs, remember that the panning to these outputs is managed by the Internal Windchest setting. To set it, click on the **INTERNAL WINDCHEST** button and select the desired windchest as described in the point 3.

## NOTES

- Be careful not to overlap a windchest to a Subwoofer or General output to avoid conflicts, and do not split windchests between MAIN and ANTIPHONAL output groups.
- Windchest 2 is available only in the organ models equipped with 12 or more PROG. OUT outputs. In addition to this, be careful not to overlap the two windchests on the same outputs. This would cause the signal to come out of the same output(s) twice, causing an unwanted sum of the signals.
- For detailed explanations of the windchest types, see the "The windchests" chapter of this guide.

## Phase 5: setting External Inputs and Orchestral voices windchests

It's possible to select two PROG. OUT outputs in which are present the Left and Right signals received by the AUX [IN] (underneath the manuals), INPUT [L(+R)] / [R] and INPUT [MIC] (on the rear panel) connectors and the Orchestral voices. To do this, in the **OUTPUTS** screen of the Editor:



1. In the **External Inputs** L and R fields you can select the PROG. OUT outputs in which the Left and Right signals received by the external inputs are present,
2. In the **Orchestral Voices** L and R fields you can select the PROG. OUT outputs in which the Left and Right signals of the Orchestral voices are present,

- clicking on the **Windchest 1** button you can select a second windchest and configure it using the same procedure described at the points 1 and 2. When Windchest 2 is selected, clicking on this button you can select the Windchest 1 again.

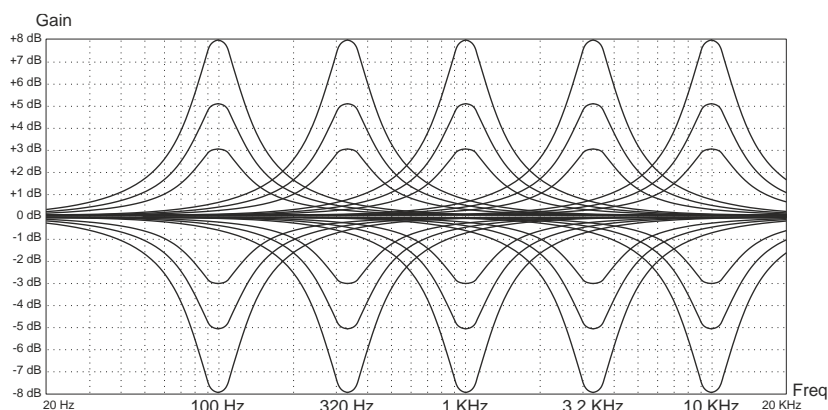
## NOTES

- Be careful not to overlap a windchest to a Subwoofer or General output to avoid conflicts, and do not split windchests between MAIN and ANTIPHONAL output groups.
- Windchest 2 is available only in the organ models equipped with 12 or more PROG. OUT outputs. In addition to this, be careful not to overlap the two windchests on the same outputs. This would cause the signal to come out of the same output(s) twice, causing an unwanted sum of the signals.

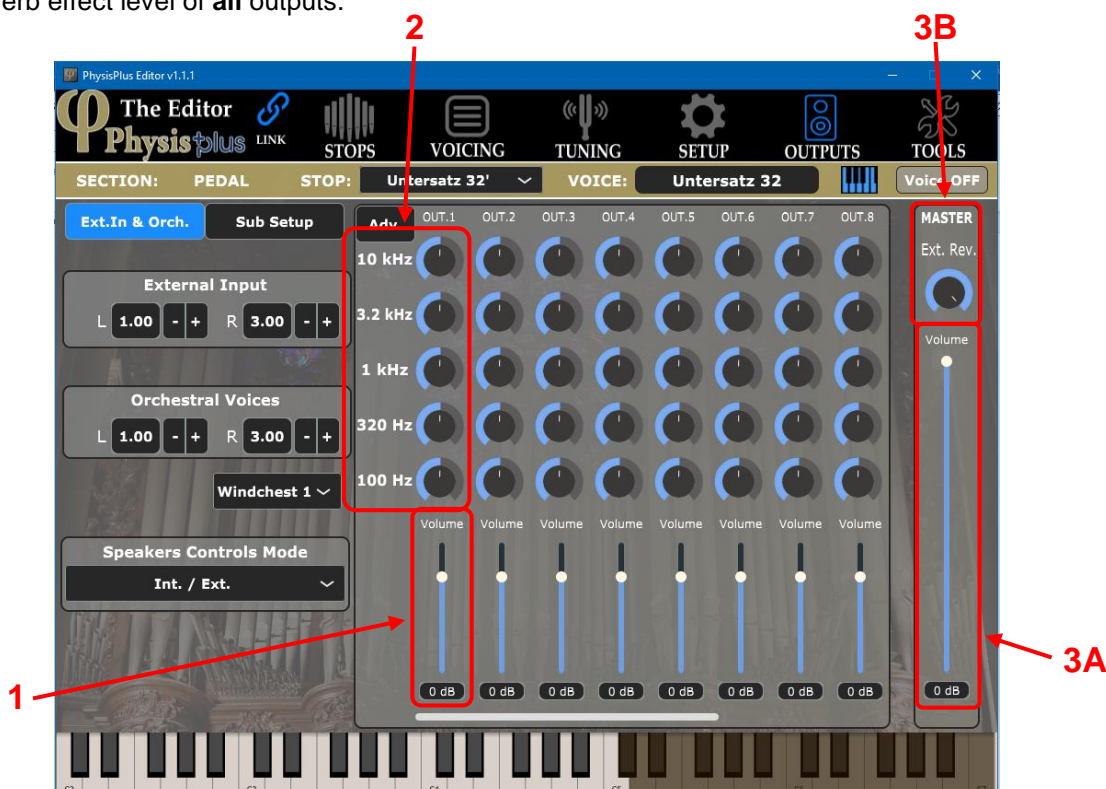
## Phase 6: adjusting the sound in each PROG. OUT output

After windchests of each stop, Orchestral voices and external input are set, you can adjust several audio parameters of the PROG. OUT outputs. To do this, in the **OUTPUTS** screen of the Editor:

- using the **Volume** slider you can adjust the Level of each output,
- using the five potentiometers above the Volume slider, you can adjust the equalization of each output. Alongside each potentiometer is showed the central band frequency of the band-pass filters.



- using the **Master Volume** (3A) slider and **Reverb Master** (3B) potentiometer you can adjust the audio level and reverb effect level of **all** outputs.



4. clicking on the **Adv.** button you can display the **REV L** and **R** potentiometers to adjust the Left and Right Reverb levels of each output.



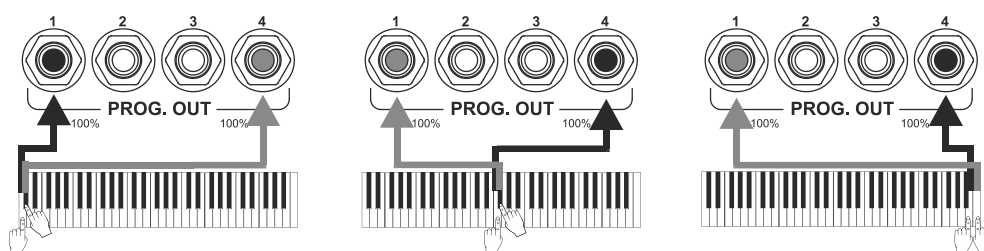
## THE WINDCHESTS

Here is a brief description of the windchests available in the organ and how the signals are distributed on the outputs of an organ equipped with 4 PROG. OUT outputs.

### C-C#

### C#-C

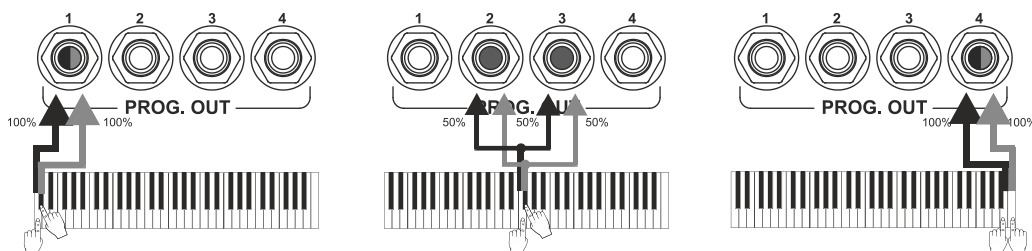
In the C-C# windchest the notes sound alternated (one right, one left) from C on left to C# on right. C#-C works the other way around, so C on right, C# on left.



### Left Wing

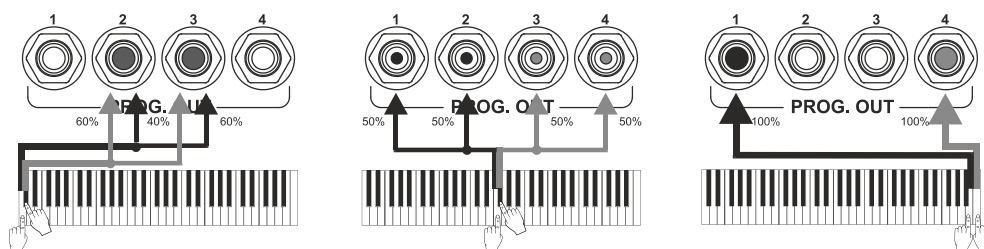
### Right Wing

In the Left Wing windchest the tallest, broadest pipes are installed on the left, so the lowest notes are played by the speakers furthest to the left. As the pitch rises the notes are played more and more to the right. Right Wing works the other way around, so The tallest, broadest pipes are installed on the right, so the lowest notes are played by the speakers furthest to the right. As the pitch rises the notes are played more and more to the left.



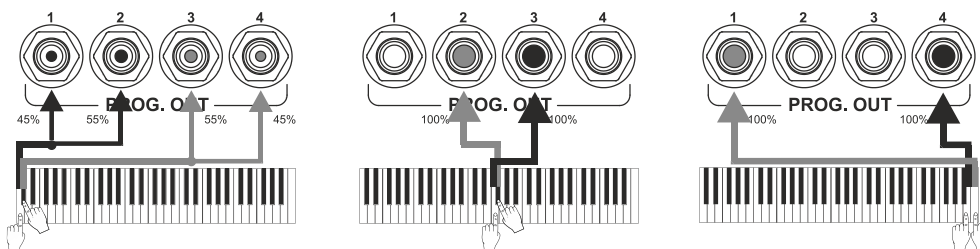
### Cusp

The tallest, broadest pipes are located in the centre, so the voice's lowest notes are played by the most central speakers. As the pitch rises the signal is gradually distributed further and further to the outside, alternating.



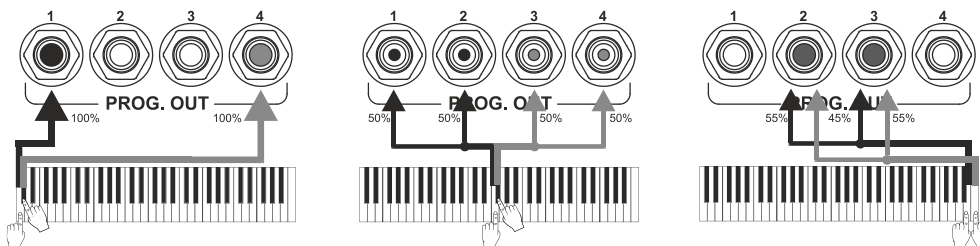
## Double Cusp

There are two separate cusps, both resembling to the single cusp described above. The lowest keys sound in an intermediate position, between the centre and the outside, alternating (one on the right cusp, one on the left cusp). As the pitch rises, rises the signal is gradually distributed further and further to the outside, alternating.



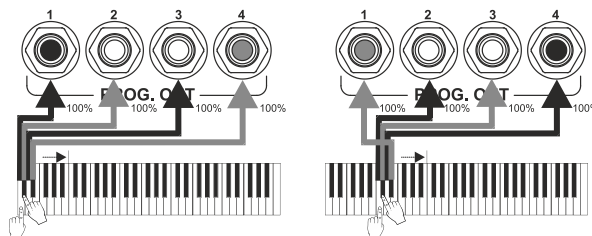
## Double Wing

The highest notes sound in the centre. As the pitch lowers, the signal is gradually distributed further and further to the outside, alternating.



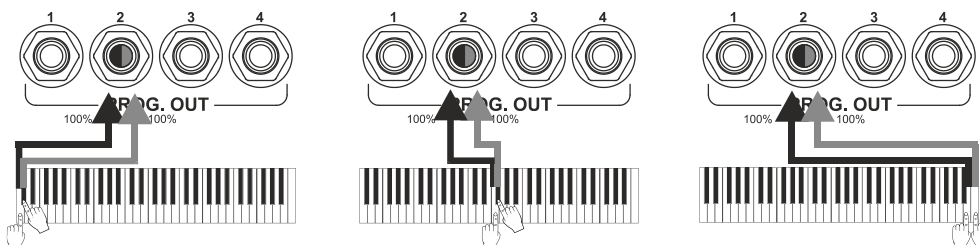
## Poly

The notes are distributed among the outputs, so as to avoid having more unison frequencies on the same speaker. This limits the electrical sum of the signal, so as to favour the “in air” melting of the sound, as in a real pipe organ. The distribution of the notes on the outputs is not unique but depends on the register, the pitch, and the keyboard area in which the note is located.



## Mono

All notes sound on only one output.





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