

# GLM 3™ Release Note

Genelec Loudspeaker Manager

Software v3.2.0



**GENELEC®**  
the sonic reference

# Release Note

## GLM 3 Version 3.2.0 for Mac and PC

**This update is highly recommended for all GLM 2 and GLM 3 users. To get all benefits and improvements, please update GLM software and the firmware inside every device you have in the system.**

### PC requirements:

**OS:** Windows 10, Windows 8 or 8.1 (32- or 64 bit), Windows 7 SP1 or newer (32- or 64 bit)

**Processor:** Intel Pentium or compatible, 1.6 GHz minimum.

**GPU\*:** DirectX 11.0 class or better.

**RAM:** 2 GB minimum

**Disk space:** 2 GB minimum

**Display:** 1024 x 768 or higher-resolution monitor.

**Internet connection** for downloading software\*\*.

### Mac requirements:

**OS:** MacOS 10.14 Mojave - 10.9 Mavericks

**10.15 Catalina not supported**

**Processor and GPU\*:** Mac has a qualified Processor and GPU if Mac is running either of the operating systems above.

**RAM:** 2 GB minimum

**Disk space:** 2 GB minimum

**Display:** 1024 x 768 or higher-resolution monitor.

**Internet connection** for downloading software\*\*.

\*GPU - Graphics Processing Unit

\*\* Link [www.genelec.com/glm](http://www.genelec.com/glm)

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This version includes support for the latest SAM devices, firmware updates, bug fixes, improved performance and user experience.

GLM 3 software calibrates and controls Genelec SAM monitors and subwoofers using Genelec Network Adapter model 8300-416 (see image).

Older Genelec Network Interface models 8200-416 and 8200-416B **are not supported** by the GLM 3 software.



## Compatibility with Genelec SAM Systems

GLM 3 software supports the following SAM products:

### SAM Monitors:

8240A, 8250A, 8260A

8320A, 8330A, 8340A, 8350A, 8331A, 8341A, 8351A, 8351B, 8361A

8430A

1032C, S360A, 1237A, 1238A, 1238AC, 1238CF, 1238DF, 1234A, 1234AC, 1235A, 1236A

8130A when used with SE7261A subwoofer (SE System)

### SAM Subwoofers:

SE7261A

7260A, 7270A, 7271A,

7350A, 7360A, 7370A, 7380A, 7382A

### Other SAM devices:

W371, 9301, 8300-416 Network Adapter

## New Features in GLM version 3.2.0

### Support for New SAM devices

GLM 3 version 3.2.0 supports the new 8351B, 8361A three-way monitor and W371A woofer system in addition to the existing SAM products mentioned earlier in this note.



<https://www.genelec.com/8351b>

<https://www.genelec.com/8361a>

<https://www.genelec.com/w371a>

### Firmware updates for SAM monitors, subwoofers

Firmware included for models:

8331A, 8341A, 8351B, 8361A, 7382A, GLM adapter. Other models might be also included if not updated with earlier GLM versions.

To quickly check if a firmware update is available, select the menu item Setup | View Info menu the option “Check Update available”. This shows information below the monitor and subwoofer icons.

Firmware updates are necessary to ensure that SAM system can support all features and includes common improvements to make system and calibration work better. The firmware update is done using the GLM acoustic editor feature in the GLM software. The steps to update firmware are:

**For users that have completed at least one system Setup that is actively running.**

- One at a time - double click on each monitor, subwoofer or Network Adapter icon in the GLM software Main page to open the acoustic editor page
- Press “Update Firmware” –button.
- **Wait until the device is back online.**
- Repeat the process for all monitors on the GLM Network

**For new users setting up for the first time and not having completed creation of any System Setup yet**

- Connect the GLM adapter to computer and connect monitors and subwoofers to the GLM adapter.
- Launch GLM and create a system layout.
- Define a Group.
- Skip AutoCal and skip AutoPhase (press ‘skip’ button)
- Save the Setup with any name;
- The main window will now open.
- Double click on each monitor, subwoofer or Network Adapter icon in the GLM software main page to open the acoustic editor page
- Press “Update Firmware” – button.
- **Wait until the device is back online.**
- Repeat the process for all monitors on the GLM Network.
- Do the acoustic calibration by selecting Group : Edit Group menu.

## WoofersCal page

For a system containing Adaptive Woofer Systems, the first part of the calibration (calibrating the main monitor) is AutoCal

Once AutoCal process has finished (providing WS are active in the group), you will be directed to the woofer system calibration page.

The first step is to pair the monitors to the respective woofer stands. This is done by first single-clicking on the woofer stand and then single-clicking on the monitor it should be paired with. This process is repeated for all woofer stand + monitor pairs in the Group. Once paired, the pairing will continue to other Groups.

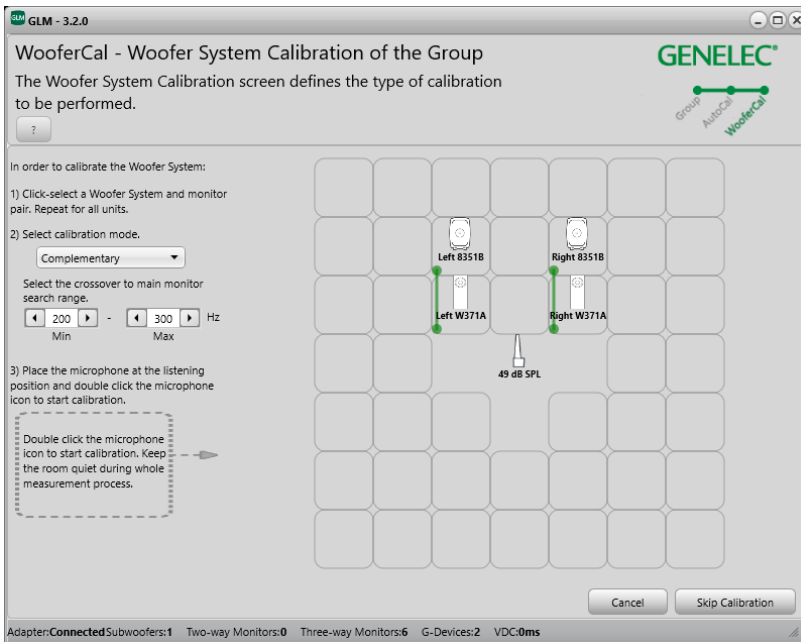
The next stage is to set the controls for the calibration itself.

Firstly, the calibration mode is selected by using the drop-down menu – selecting between Complementary, Continued directivity, or one of the three directivity null modes.

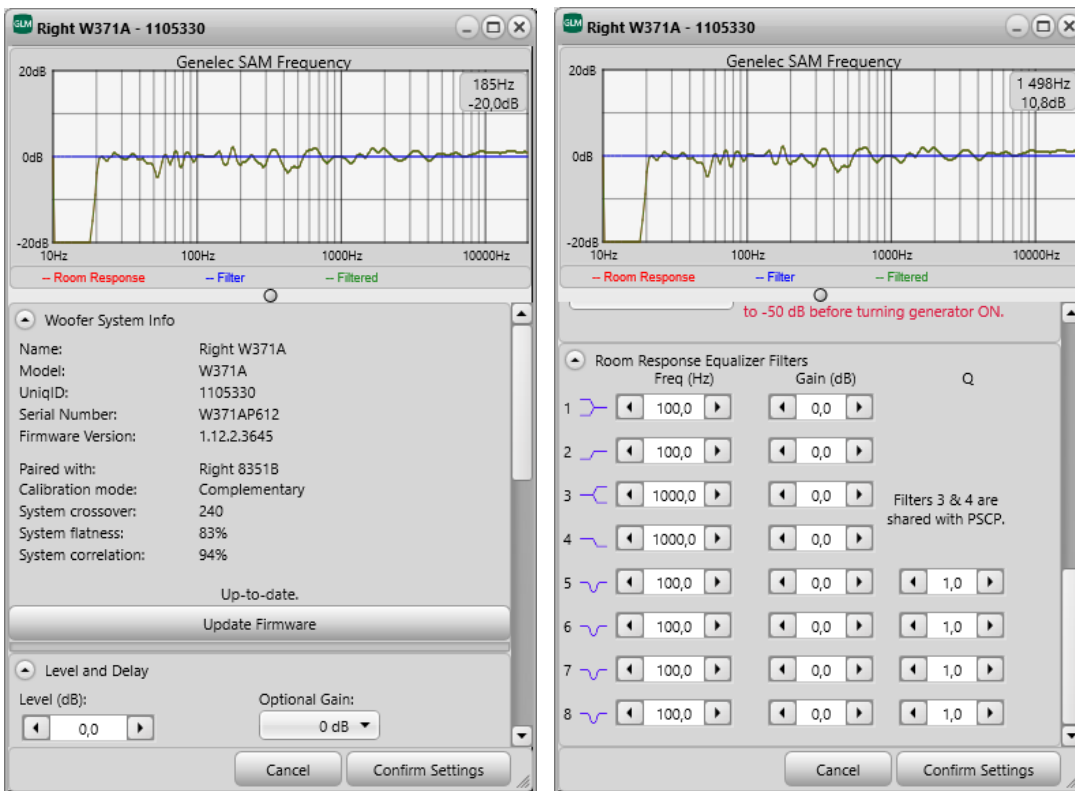
The parameters for setting the search limits for the crossover to the main monitor should then be set. These controls are available for all modes except the Continued directivity mode, where the crossover value is fixed based on the main monitor connected in the pairing. This crossover has been set to where the main monitor and woofer stand have the closest matched directivity.

The default setting (150Hz-250Hz) should be suitable under most conditions, however, if listening at particularly short distances, if the monitor is separated from the woofer stand (i.e. not mounted

directly on top) or the WS is visually blocked by obstruction (such as a large mixing desk), it may be beneficial to reduce the upper crossover limit. Listening should be used determine if this is needed.



## Acoustic editor and scoring system for Woofer Systems



In the acoustic editor of each WS/monitor pair, the following information (exclusive to woofer stand systems) can be found:

**Paired with:** The main monitor that the individual WS was paired with for calibration.

**Calibration mode:** The mode of operation chosen for the woofer stand calibration

**System x-over:** The resulting x-over frequency between main monitor and WS.

**System flatness:** This is an indication of how flat the resulting calibrated system response is. This figure is calculated using the system response from 25Hz to 500Hz. A score of 100% means that the system is perfectly flat in this range, with a lower score indicating there is some deviation. Values in the range of 85– 95% can be expected for a good system setup. Values lower than this (in all modes) would indicate that a change in position of listener, main monitor or woofer stand may be beneficial to produce a flatter response.

**System Correlation:** This is an indication of how well the Left and Right signals of a stereo pair sum at the listener position. This figure is calculated comparing the complex sum (considering phase) of the stereo pair to the absolute sum (ignoring phase). A score of 100% would mean that (for a correlated signal) the summed response at the listener position that there is no destructive interference. Values in the range of 90-99% are typical in a setup with good symmetry. Values lower than this (in all modes) would indicate that a change in position of listener, main monitor or woofer stand may be beneficial.

Both the system flatness and correlation scores are designed as simple, quick objective measures to be able to compare the resulting responses of individual calibrations and provide indication if adjustment of the system setup is recommended. However, subjective evaluation should also be considered when making decisions.

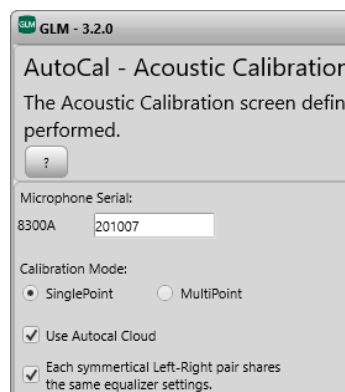
**User controls:** In order to preserve the complex interaction between units, following calibration, the woofer system and main monitor are paired together as a single unit. This means that the two units cannot be controlled individually. However, they can be controlled on a 'global' basis - all parameters that are adjusted within the acoustic editor are applied to both units.

Within the acoustic editor the following controls are available:

- Delay
- Gain
- Individual amp-channel mutes (not saved as part of the Group)
- User EQs (4 Shelves and 4 parametric)
- Sound profiler (found under Group Tab. Uses the 2 HF shelving filters)

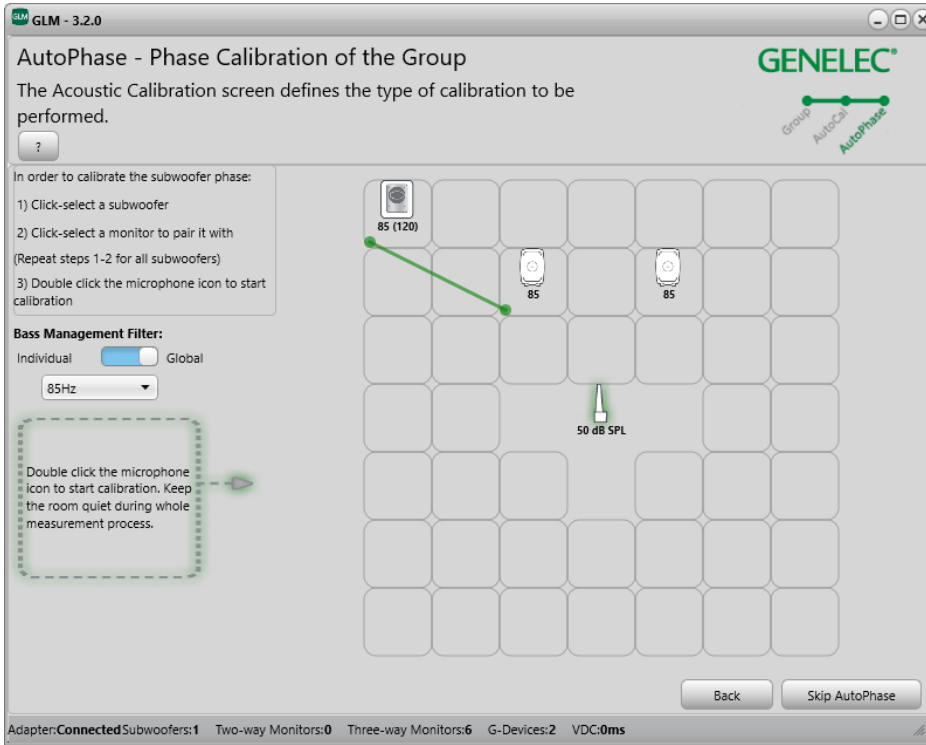
## Autocal Cloud

Autocal optimization will now happen in Genelec Cloud as default. The local optimization can be still used by unchecking the 'Use Autocal Cloud' checkbox in the Autocal page.



## Subwoofer & Monitor pair indicator

The layout templates can be selected from the dropdown list to see example locations for the loudspeakers in the Layout page. The example locations aren't mandatory.



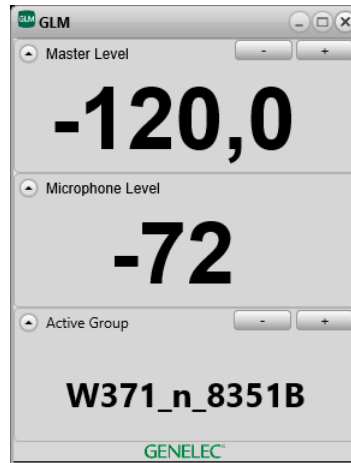
## GLM Language

The GLM screen language can be selected between English, Finnish and Chinese. Selecting each of these languages GLM will change user interface language to the selected one; also, it will remember the selected screen language for next GLM opening.

## GLM Level Panel

GLM Level panel has been improved will show the current master level, the microphone level and current group name and it can be used to control the master level and changing the active group with '-' and '+' buttons. This panel can be enabled using the 'Setup | Show Level Panel' menu command. The Level Panel also shows following states as text:

- |                |  |
|----------------|--|
| MUTED          | = System level muted                               |
| DIM            | = System level dim activated (-20dB)               |
| Sub Bypass     | = Subwoofer bypassed                               |
| AutoCal Bypass | = All filters, level and delay correction bypassed |



## Support for 6-button Wireless Volume Controller

A wireless volume controllers are available for adjusting the sound level. The wireless volume controller uses radio frequency communication and does not need a line of sight to the GLM adapter. The typical operating range is 30 meters. The wireless controller works with the GLM adapter after pairing. The pairing happens during the first 10 seconds after powering up the adapter. To pair GLM Adapter and RF remote first press and hold '+' button and then press and hold '-' button. With 6-button version '<' and '>' buttons can be used to change the active group when GLM is active.

The wireless controller can increase and decrease the sound level and turn the system on and off. For more information on the wireless volume controller, consult your Genelec sales representative.

NOTE: The adapter firmware must be updated to get fully support.





## Previous Features in GLM version 3.1.1

### Firmware updates for SAM monitors, subwoofers and GLM Adapter

Firmware included for models:

8240A, 8250A, 8260A, 8351A, 1238CF, 1237A, 1238A, 1238AC, 1238DF, 1234A, 1234AC, 1236A, S360

**Subwoofer phase need to be recalibrated after firmware update of listed models (not S360) if using the distributed bass management!**

Firmware updates are necessary to ensure that SAM system can support all features and includes common improvements to make system and calibration work better. The firmware update is done using the GLM acoustic editor feature in the GLM software. The steps to update firmware are:

**For users that have completed at least one system Setup that is actively running.**

- One at a time - double click on each monitor, subwoofer or Network Adapter icon in the GLM software Main page to open the acoustic editor page
- Press “Update Firmware” –button.
- **Wait until the device is back online.**

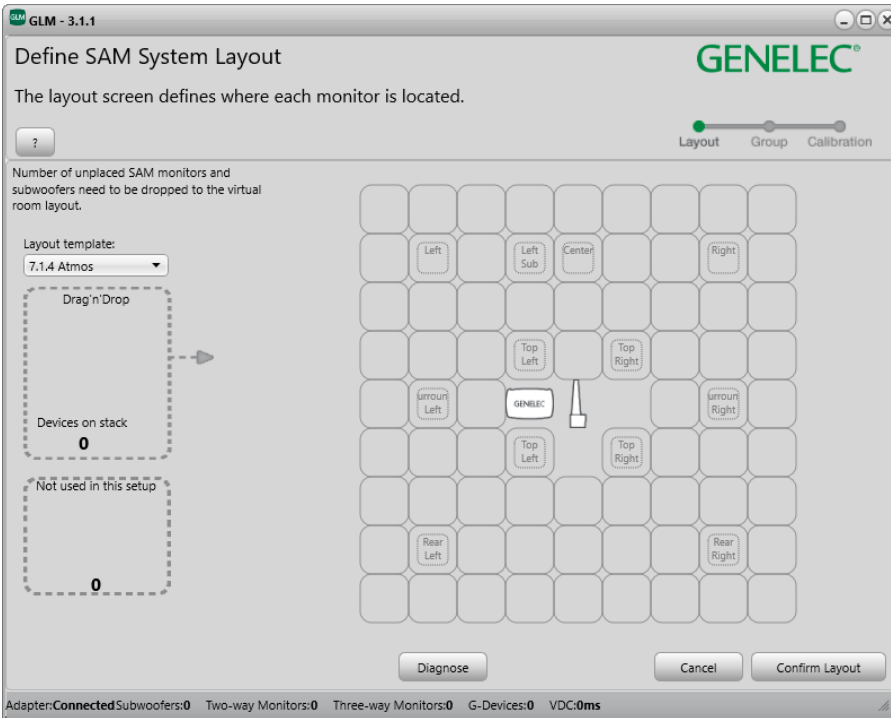
### Layout templates for the Layout page

The layout templates can be selected from the dropdown list to see example locations for the loudspeakers in the Layout page. The example locations aren't mandatory.

The screenshot shows the 'Define SAM System Layout' window in the GLM 3.1.1 software. The window title is 'GLM - 3.1.1' and the main heading is 'Define SAM System Layout'. Below the heading, it says 'The layout screen defines where each monitor is located.' There are three tabs: 'Layout', 'Group', and 'Calibration', with 'Layout' selected. A progress indicator shows 'Layout' is active. On the left, there is a 'Layout template:' dropdown menu currently set to 'Stereo with sub'. Below this is a 'Drag'n'Drop' area containing a '7380A' device icon and a 'Devices on stack' counter showing '3'. Below that is a 'Not used in this setup' area with a counter showing '0'. The main area is a grid with labels 'Left', 'Left Sub', and 'Right' at the top. A 'GENELEC' speaker icon is placed in the center of the grid. At the bottom, there are 'Diagnose', 'Cancel', and 'Confirm Layout' buttons. A status bar at the very bottom shows: 'Adapter:Connected Subwoofers:1 Two-way Monitors:0 Three-way Monitors:2 G-Devices:0 VDC:0ms'. Two callout boxes with green arrows point to the 'Layout template:' dropdown and the speaker icon on the grid. The first callout box is labeled 'Layout template selection' and the second is labeled 'Example locations for each loudspeaker in the selected template.'

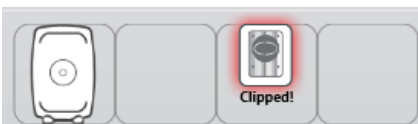
## Bigger layout grid

The layout grid will be 9x9 if there are 15 or more monitors and subwoofers online, default 7x7. That will make easier to build a layout for big systems.



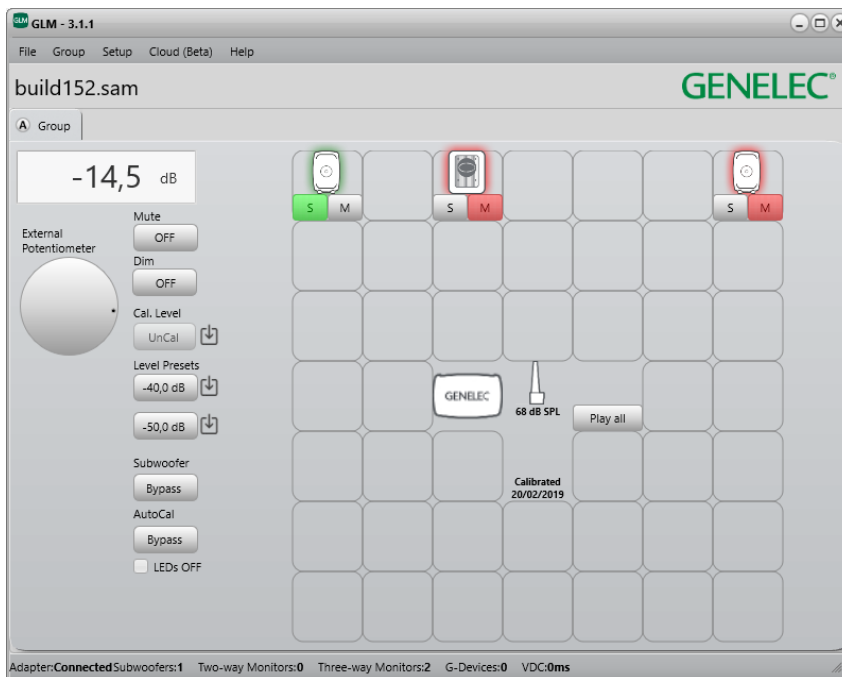
## Clip/Protection indication

The clip and protection states will be indicated in the GLM main page when playing. The clip and protection state will override any other View Info -selected. This feature is available for the latest SAM models (e.g. 83xx, 1032C, S360 and 73xx ). The clip and protection will be always shown with a LED.



## Solo/Mute -view

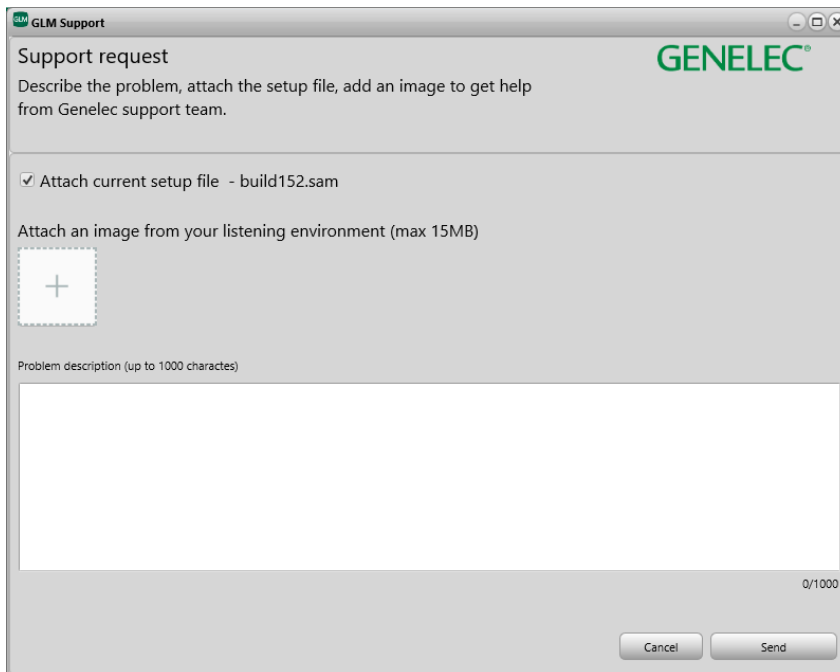
Added Solo/Mute -view for quick access to solo or mute a monitor or subwoofer. The Solo/Mute -view can be activated from 'Setup : View Info : Solo/Mute' menu. The S -button will solo the selected monitor and mute others. The M -button will mute the selected monitor and keep others playing. Multiple monitors can be soloed or muted. The Play All -button in the middle will clear solo/mute states.



## Image attachment for the support request

In GLM support service it's possible to attach an image from the listening environment with the support request. Attaching the setup file and the image (from user's listening environment) will help Genelec support team for analyzing the request. Image can be one of JPG/JPEG, PNG or BMP formats. Size of the image can be up to 15MB.

NOTE: Support service will be available after user has logged into the Genelec Cloud in GLM.



## Previous Features in GLM version 3.1.0

### Support for New SAM devices

GLM 3 version 3.1.0 supports the new S360A two-way monitor and 7382A subwoofer in addition to the existing SAM products mentioned earlier in this note.



<https://www.genelec.com/studio-monitors/sam-master-studio-monitors/s360-sam-studio-monitor>

<https://www.genelec.com/studio-monitors/sam-studio-subwoofers/7382-sam-studio-subwoofer>

### Firmware updates for SAM monitors, subwoofers and GLM Adapter

Firmware updates are necessary to ensure that SAM system can support all features and includes common improvements to make system and calibration work better. The firmware update is done using the GLM acoustic editor feature in the GLM software. The steps to update firmware are:

#### For users that have completed at least one system Setup that is actively running.

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- Define a Group.
- Skip AutoCal and skip AutoPhase (press 'skip' button)
- Save the Setup with any name;
- The main window will now open.
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- Press "Update Firmware" – button.
- **Wait until the device is back online.**
- Repeat the process for all monitors on the GLM Network.
- Do the acoustic calibration by selecting Group : Edit Group menu.

To quickly check if a firmware update is available, select the menu item Setup | View Info menu the option "Check Update available". This shows information below the monitor and subwoofer icons.

Updates are available for the following models:

- GLM Adapter
- three-ways 8260A 8331A / 8341A / 8351A / 1237A / 1238A / 1238AC / 1238CF / 1238DF / 1234A / 1234AC / 1236A
- two-ways 1032C / 8240A / 8250A / 8320A / 8330A / 8340A / 8350A / 8430A
- subwoofers 7350A / 7360A / 7370A / 7380A

## Cloud Services

Currently there are three cloud services in GLM:

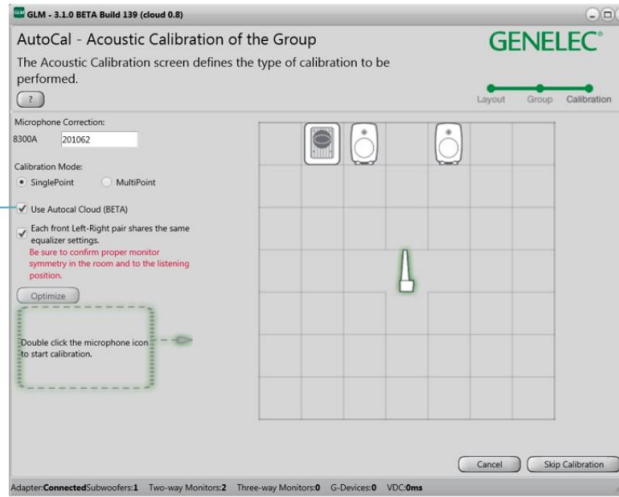
1. Autocal Cloud optimization (available for all users)
2. Backup for Setup files (for logged-in users)
3. Genelec Support Service (for logged-in users)

AutoCal Cloud system response optimization is available for all users, but the backup for Setup files and Genelec Support Service are available only for the users who have created and account and are logged in to the Genelec Cloud. Creating and account and logging in the Cloud can be done using menu item Cloud : Cloud Account Login.

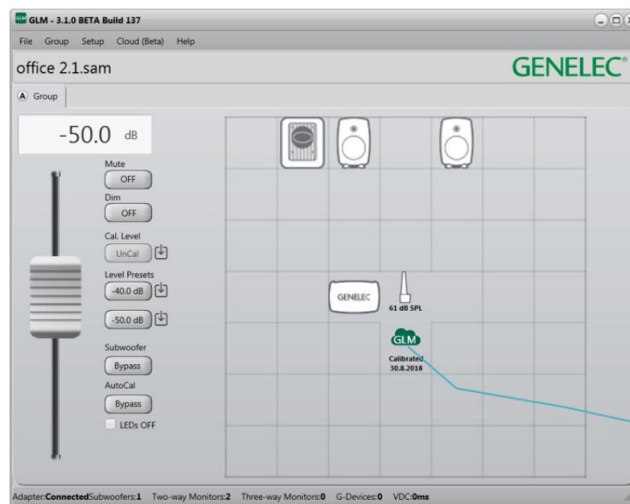
### AutoCal Cloud Optimization

Before starting the calibration select "Use Autocal Cloud" option in calibration page. Selecting AutoCal Cloud, calibration will be done with always up-to-date Autocal algorithm in Genelec Cloud.

By selecting this, GLM will use Autocal algorithm in Genelec Cloud server to calibrate the SAM system.



The cloud icon in the main page means that the current group has been calibrated using AutoCal Cloud.



### Login to Genelec Cloud

To log in to the Genelec Cloud, click “Cloud Account Login” item in the Cloud menu.

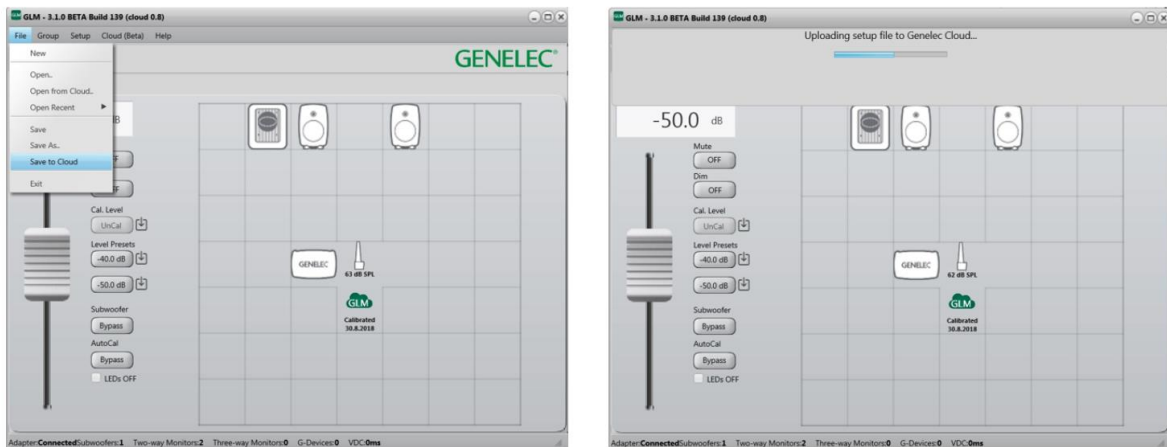


### Logout from Genelec Cloud

Logout from the Genelec Cloud is done by clicking the “Logout: <username>” in the Cloud menu.

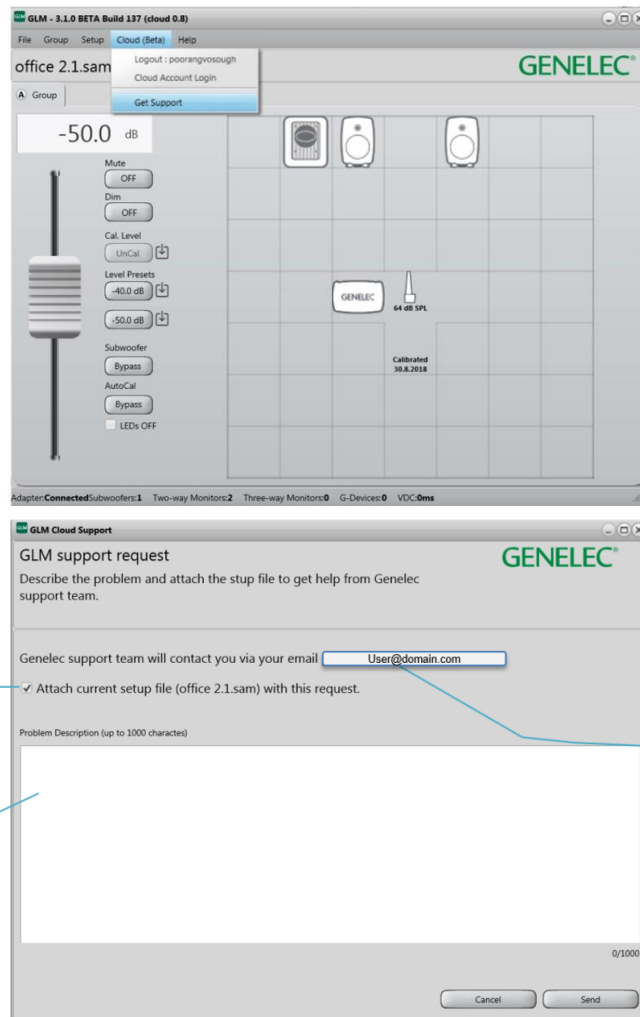
### Backup of Setup Files

The logged-in users can keep up to three setup files in the Cloud account. Opening the File menu and clicking on the “Save to Cloud” menu item uploads the current setup file to the user’s cloud space. After every cloud-based AutoCal optimization, a setup file will automatically be saved in the cloud space when the user is logged in.



### Genelec Support Service

Logged-in users can receive support directly from the Genelec support team by clicking “Get Support” in the Cloud menu.



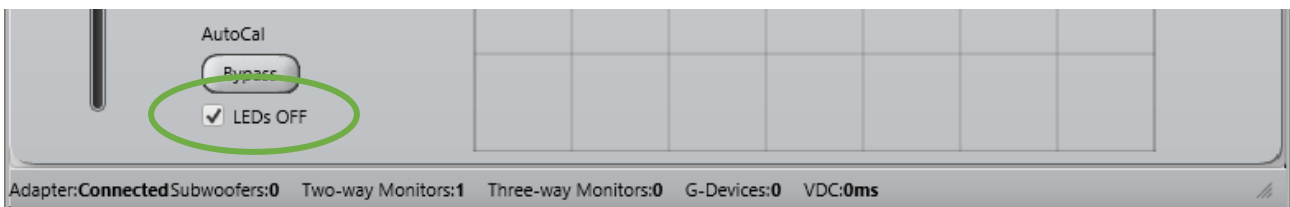
The current setup can be attached with the request

Support description here, max 1000 characters

Genelec support team's response will come to the email address used to login

### LED indicators OFF

It's possible temporarily to turn OFF the LED on the front of the monitors. Use the 'LEDs OFF' checkbox in the GLM main page for this. Checking this turns off all the LEDs on all online loudspeakers. for the normal operating state and the Group OFF state. Mute and Solo/Mute states are still indicated by the LEDs if used.

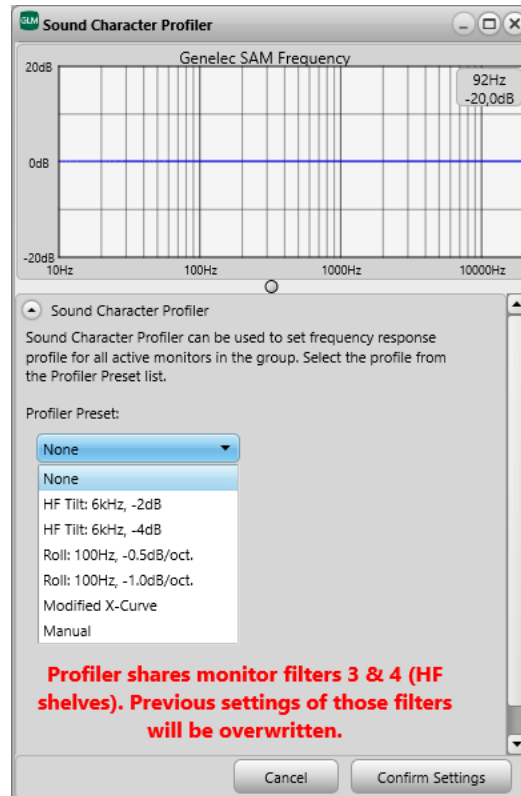


**NOTE: LEDs OFF** is different from the **LED Disable** in the 'Store Group Settings' page. **LEDs OFF** will work with all monitors and subwoofers but this setting cannot be stored permanently in the monitors and subwoofers.

### Sound Character Profiler

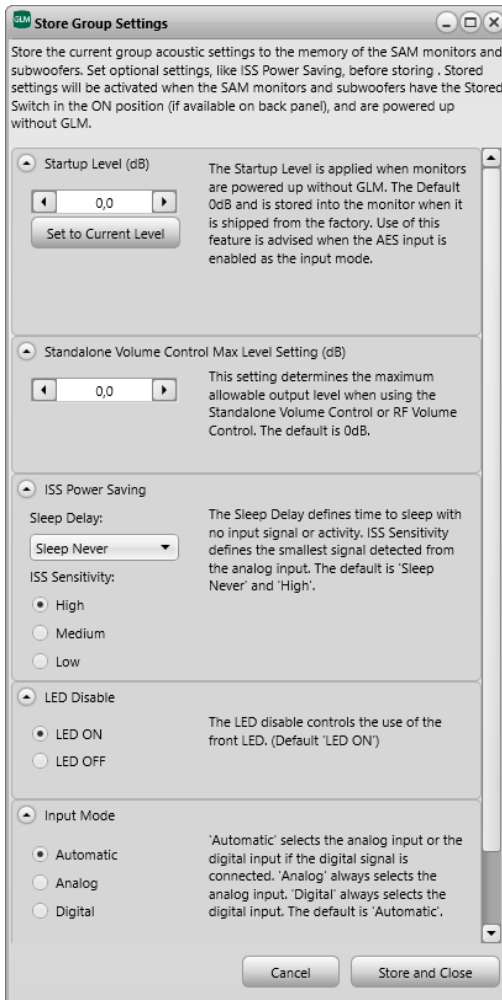


The Sound Character Profiler enables global adjustment of the calibrated system sound character. The Sound Character Profiler can be accessed through the Group : Sound Character Profiler menu item. It includes a new function, Profiler Presets.



## Store Group Settings

All settings created for a Group can now be stored permanently in the SAM monitors and subwoofers using the Store Group Settings page. The Store Group Settings page can be opened from Group : Store Group Settings menu. The settings that are stored in the monitors and subwoofers include acoustic settings, Startup Level, standalone volume control max level, ISS Power Saving settings, LED Disable and the Input Mode.



ISS support is not available for the following products:  
7260A, 7261A, 7270A, 7271A, 8240A, 8250A, 8260A, 1238CF

LED Disable and Input Mode support are not available for the following products:  
7260A, 7261A, 7270A, 7271A, 8240A, 8250A, 8260A, 8351A, 1238CF, 1237A, 1238A, 1238AC, 1238DF, 1234A, 1234AC, 1236A

## New Features in 3.0.0

### Support for New SAM devices

GLM 3 version 3.0.0 supports 1032C two-way monitor, 8331A and 8341A coaxial three-way monitors and 7380A subwoofer in addition to the SAM products mentioned earlier in this note.

### Standard Loudness related SPL Calibration

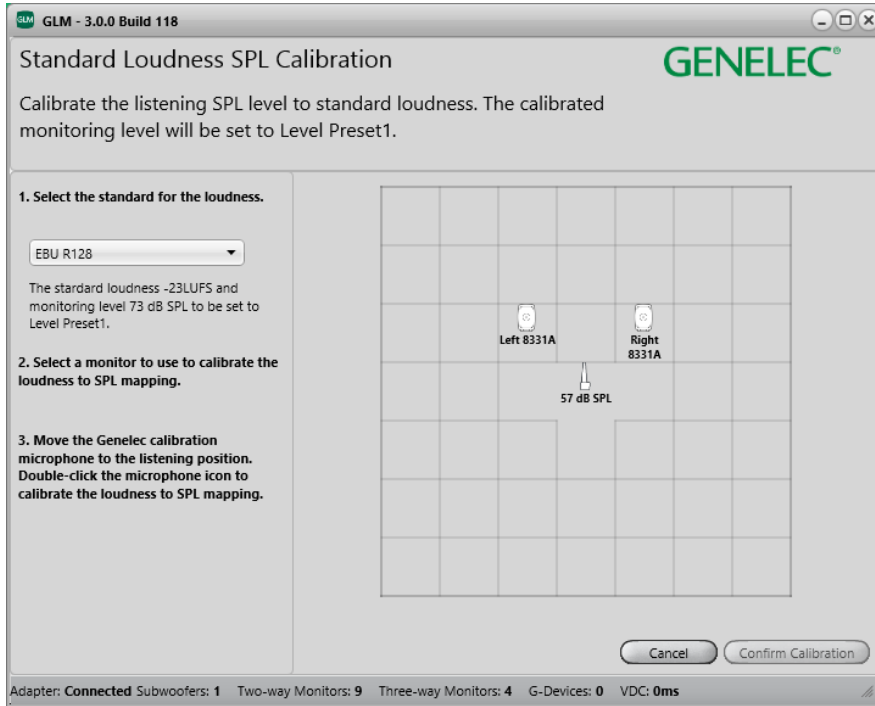
The new Standard Loudness SPL feature allows calibration of the listening level in accordance with digital loudness standards such as ATSC A/85 and EBU R128. Calibrated listening level is important to judge e.g. speech intelligibility, spectral balance, platform compatibility etc.

The in-situ frequency response compensation and system alignment should be followed by the absolute SPL listening level calibration. Note: Digital monitor interfacing should be used to reduce uncertainty and tolerances.

- Before SPL calibration, first perform the other calibration functions to compensate frequency response, time of flight, level difference between channels and sub phase. You would typically do this by creating a new “Group”, using the Add Group command; or by editing an existing “Group”, using the Edit Group command.
- If you require a frequency response different than flat, for instance a HF roll-off such as x-curve, now make those adjustments. To edit all channels at once, consider using the Sound Character Profiler. Per channel, select and edit individual monitors.
- SPL calibration should be the final item: Click the ‘set’ icon next to the ‘Cal. Level’ key on the main page. The Standard Loudness SPL Calibration window opens.



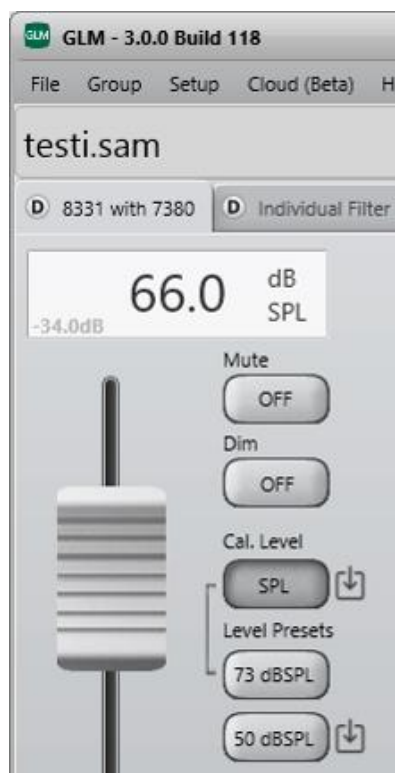
- Select level calibration standard from the dropdown list.
- Select which monitor to base the calibration on. Any channel would normally be ok.
- Place the Genelec calibration microphone at the listening position.
- Double click the microphone icon to start the calibration process. Note that the test signal may be loud. If the background noise in the room is more than 65 dB SPL, the loudness preset cannot be calibrated. Reduce the noise and calibrate again.



- After calibration, click the 'Confirm Calibration' key to save the results and return to the main page.

After SPL calibration, the main page shows the master level in dB SPL units, and the Level Preset 1 is set at the standard level, e.g. 73 dB SPL for EBU R128. (Notice the graphical link-line between the Cal. Level and Level Preset 1 keys).

After SPL calibration, you can use the Cal. Level key to toggle between displaying levels in dB SPL (absolute) or in dB (relative).



## SAM System Power -menu

'SAM System Power' -menu can be used to power up and shut down SAM monitors.

By default, GLM sends a wake-up command to the GLM network when the application is launched, 'Automatically Wake Up System with GLM' menu is checked, and all SAM monitors and subwoofers will power up.

When the GLM application is closed, SAM monitors and subwoofers will continue to play audio by default. It's possible to turn off the entire system when the GLM application closes. Select this option by checking 'Automatically Shut Down System with GLM' in the menu. This selection sends a shut/down command to the GLM network when the GLM application is quit.

These two menu items are stored for each GLM setup file.

'Send Wake Up All' and 'Send Shut Down All' menu items command GLM network once. Command can be used to e.g. wake up monitors that have been powered down by using the power push button on the monitor.

Notes:

- Some older SAM models do not support ISS (8240, 8250, 8260, 1238CF, 7260, SE7260, 7270, 7271) and some models requires a firmware update (8351, 12xx with version 'xxxx x xxxx 0152 xxxx' or older).

## GLM Level Maximum -menu

'GLM Level Maximum' -menu may be used to set monitor gain maximum. It would normally be used to avoid accidental high system output level.

The maximum can be set by selecting the desired maximum level with the main level fader and clicking the "Set Maximum to Current Level" menu item in the 'Setup | GLM Level Maximum' menu. After setting the maximum, the system level will not exceed this maximum. When the maximum is reached the 'Level Max' text appears in the level reading box. To remove the level maximum, select the 'Remove Level Maximum' from 'Setup | GLM Level Maximum' menu item.

## ISS Power Saving Sensitivity selection

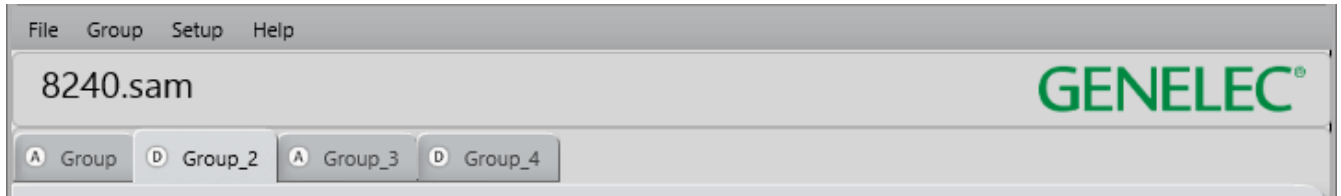
ISS Power Saving sensitivity can be selected between three levels: High Sensitivity (default), Medium Sensitivity and Low Sensitivity. High Sensitivity means that a modest analog signal is required to wake up or to keep monitors/subwoofers active. Low Sensitivity means that a large analog signal is required. (ISS: Intelligent Signal Sensing)

Notes:

- GLM network communication, or AES/EBU digital audio clock, wakes up a system and keeps it active.
- Some early SAM models do not support ISS (8240, 8250, 8260, 1238CF, 7260, SE7260, 7270, 7271), and some models require a firmware update to support ISS (8351, 12xx with version 'xxxx x xxxx 0152 xxxx' or older).

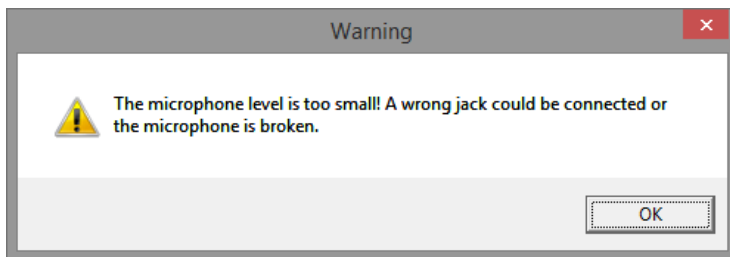
## Indication of input signal type

To improve usability of the GLM UI, an indication of active input type has been added in “Group” panes. If the letter to the left of the Group tab is “A”, analogue inputs is used in that Group. If the letter is “D”, digital inputs is used in the Group.

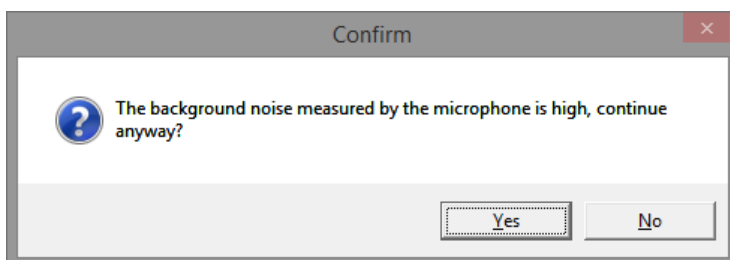


## Microphone level checks before measurement

To ensure the quality of measurements, and to make problem solving easier, the microphone signal is monitored prior to any calibration. If the microphone level is below 25dB SPL, the microphone or microphone input is broken, or a wrong 3.5mm jack is connected to the microphone input. A dialog is shown and the measurement cannot be performed.

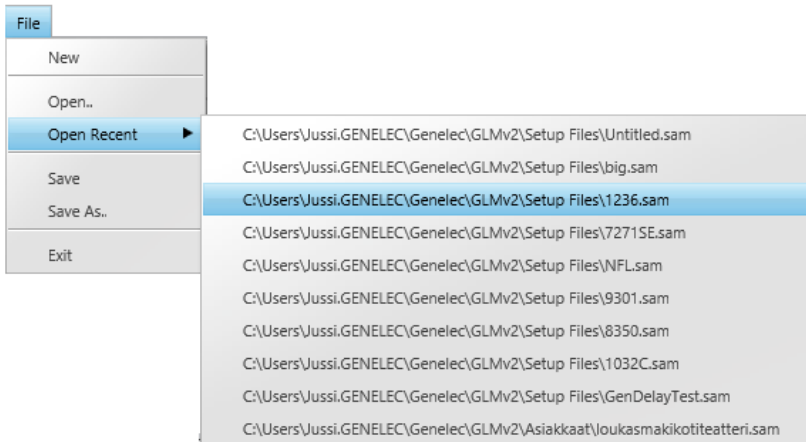


If the microphone measures a background noise level higher than 65dB SPL, a dialog is also shown. The measurement may be performed, albeit maybe not with ideal results. Background noise may result e.g. from air ventilation, though low frequency rumble may not be audible.

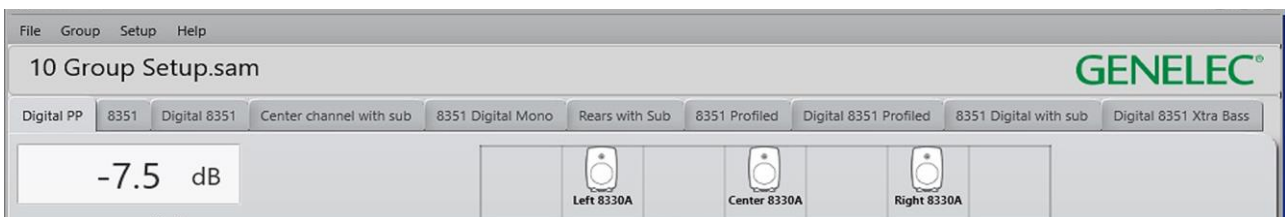


## Longer Recently Used Setups Menu

Recently opened setup files log and menu items includes the ten last used GLM setups for quick access.



## Number of Groups Increased from five to ten



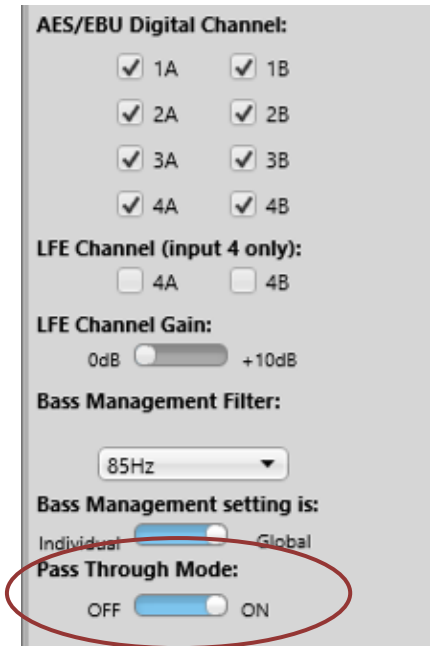
Users can create as many as 10 “Groups” in a Setup initiated from the Group tab and selecting either Add Group (creates a non-calibrated Group) or Duplicate Group. Attributes of the Groups can be modified via Group tab>Edit Group.

## ID Tones are consistent between all SAM models

All ID tones are now band limited pink noise when dragging virtual monitors off the Stack during the Layout phase of building a Setup.

### \*Digital Audio 7260, 7270, 7271 Series Subwoofers (not 7261).

If you have updated your 8240, 8250, 8260, or 1238CF monitors with this release, default is to have their **Distributed Bass Manager filter** turned **ON** when building File > New > Setups. This means your 7200 no longer needs to do the **High Pass** filtering on its outputs. You need to edit the subwoofer to Pass Thru. From Group > Edit, single click the subwoofer and in the selection area set Pass Thru Mode to ON, then confirm the Group.



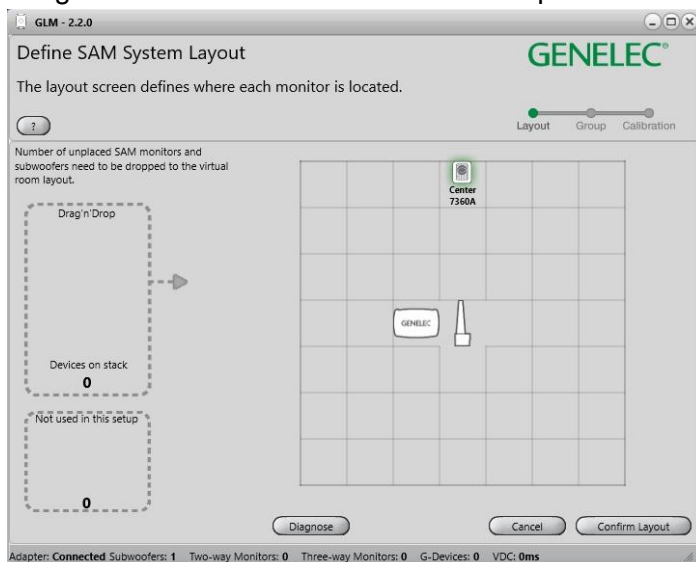
### Using the 7360 and 7370 with non-SAM monitors (Hybrid mode).

With GLM3, the 7360 and 7370 subwoofers can be used under the control and calibration available with GLM3 and AutoCal with non-SAM monitors.

Since the 7360 and 7370 have the built-in 85Hz analog HP filters that are regularly available in Manual mode using the panel dip switches, a new feature in GLM3 enables the 85Hz High Pass outputs and AutoCal filters as well as phase control available for optimization.

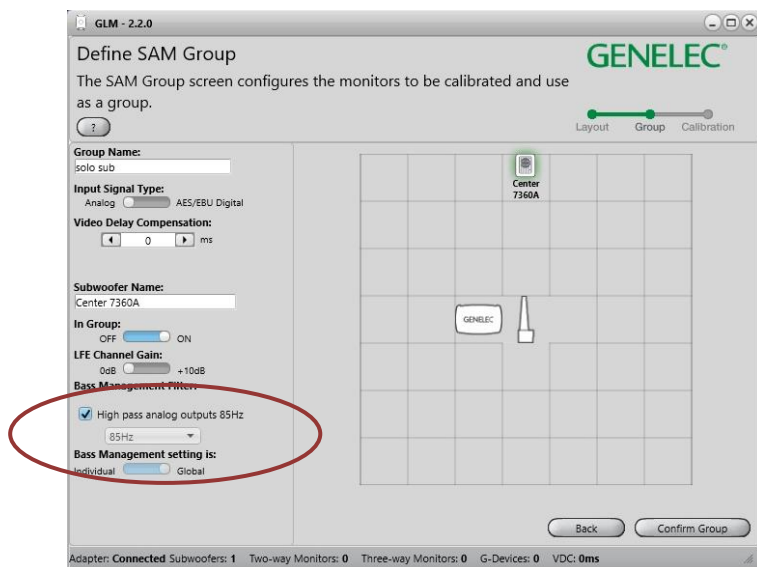
### Making New Setup with GLM3

1. Launch GLM3 and make File>New
2. Drag the 7360 or 7370 off the Stack and place in on the Grid. Press “Confirm Layout”



3. Then on the Group Define page check the box marked “High Pass analog outputs 85Hz”. “Confirm Group”





4. On the Calibration Page make all the checks for mic placement and serial number entry. Double click the mic icon and do the AutoCal calibration for the subwoofer. Confirm Calibration and
5. Skip **AutoPhase**
6. Save the Setup and return to Main Screen

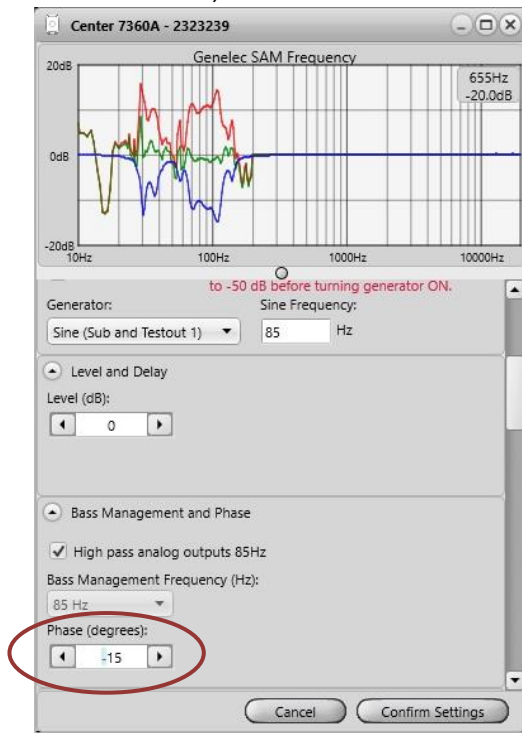
### Setting Manual Phase In Hybrid Mode From the Main Page

1. Increase GLM Master Fader to -0dB (Full up)
2. Double click the sub icon. The Acoustic Settings page will appear. Move it to the left or right of the GLM Main Page.
3. Scroll down to Generator and select **Sine Wave Test out 1 or 2** depending on which **L or R** monitor you want to phase align to.



4. Using the mic SPL reading slowly change **Phase setting** using the < or > keys. We suggest you start at -180 then click > stopping at -135, -90, -45, 00, +45, +90, +135, +180

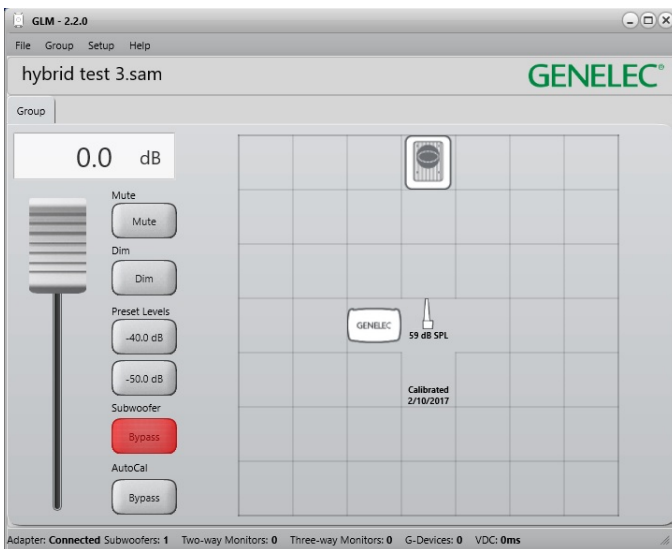
and then noting which setting is the loudest SPL on the mic. Do this slowly (about 4 seconds secs) as the mic uses a slow update rate. Then Choose Confirm Settings.



### Adjusting level with Mains

It is possible, with significant subwoofer eq bass reduction in AutoCal (see acoustic traces above), that the Main speakers may need attenuation in order to level match the compensated sub. This may require a bit of experimentation and can be confirmed by Bypassing the Bass Manager 85Hz filter as well as adjusting the sensitivity on the main monitor inputs.

1. Press the Subwoofer Bypass button On, then Off to make this comparison.



## Digital Audio 5.1 with a 7300 Series Subwoofer and 9301 Example

Before cabling, turn off the power in all monitors and subwoofers. 7300 series subwoofers have only one (stereo) input for AES/EBU digital audio, 9301 Multichannel AES/EBU Interface is needed for multichannel digital installations. An example of the audio cabling for AES/EBU digital audio is shown in figure below.

Connect the following XLR digital audio cables:

### Left/Right channel pair

- from the AES/EBU output of the audio source to the 9301's AES IN 1 connector
- from the 9301's AES OUT 1 to the right monitor DIGITAL IN
- from the right monitor DIGITAL OUT to left monitor DIGITAL IN

### Surround Left/Right channel pair

- from the AES/EBU output of the audio source to the 9301's AES IN 2 connector
- from the 9301's AES OUT 2 to the surround right monitor DIGITAL IN
- from the surround right monitor DIGITAL OUT to surround left monitor DIGITAL IN

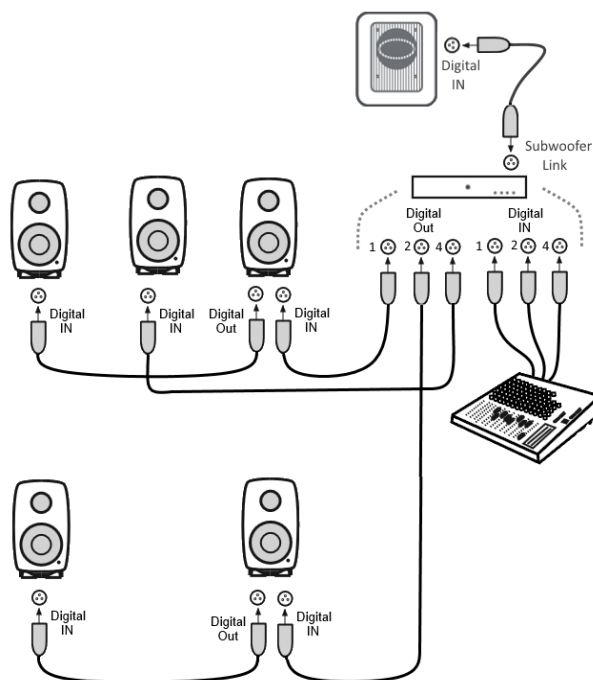
### Center/LFE channel pair

- from the AES/EBU output of the audio source to the 9301's AES IN 4 connector
- from the 9301's AES OUT 4 to the center monitor DIGITAL IN

### Sum signal

- from the 9301's SUBWOOFER LINK output to the 7300 series subwoofer DIGITAL IN connector

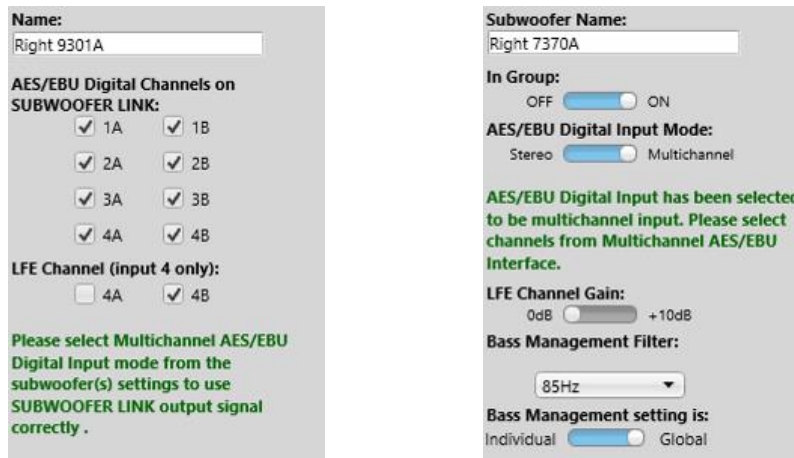
**NOTE: AES/EBU Digital input mode of 73xx subwoofer needs to be in Multichannel mode. See below for more details.**



When 9301 is activated to be part of the group, it will be automatically sum all channels together to be passed through SUBWOOFER LINK (left figure) and all 7300-series subwoofers will

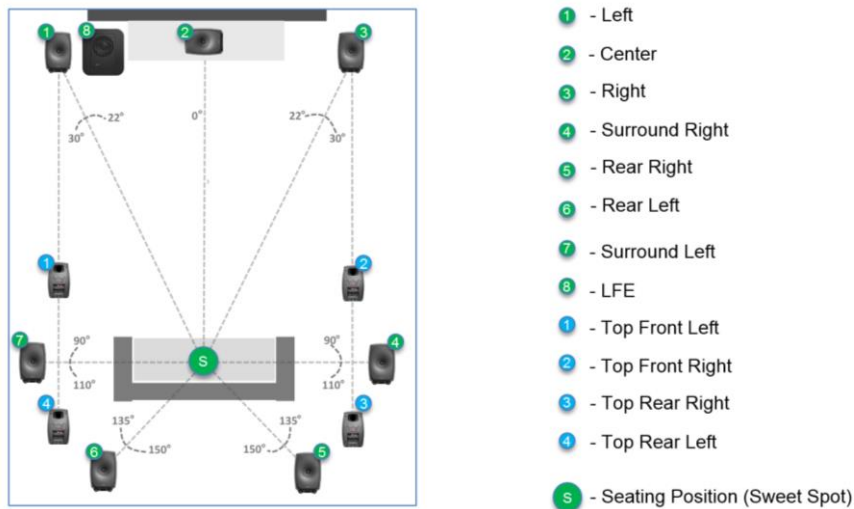
automatically turn its AES/EBU Digital Input Mode to Multichannel (right figure). This is required to reproduce the sum signal properly.

*If using the LFE channel for Dolby Digital or DTS playback, be sure to set the +10dB Channel Gain as well.*

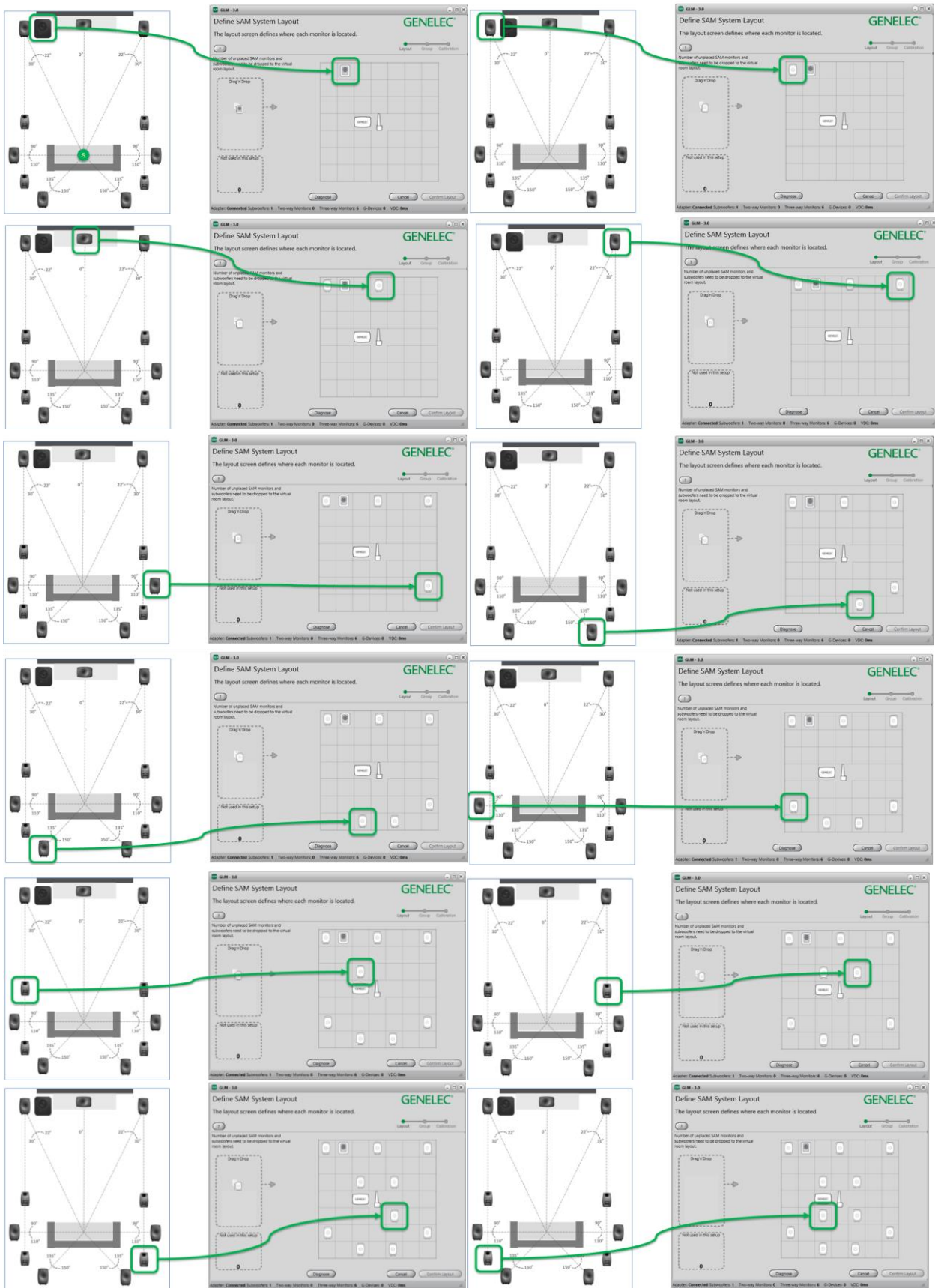


### 3D Immersive Audio Systems

Here is an example of how to create a Dolby Atmos 7.1.4 system layout in GLM. Configuration of the system in the room is shown below. The green tags are ear-level surround monitors and the blue tags are overhead monitors (top layer).

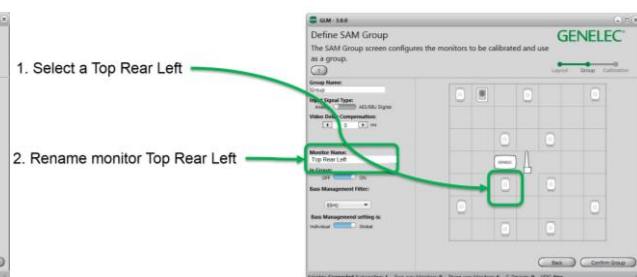
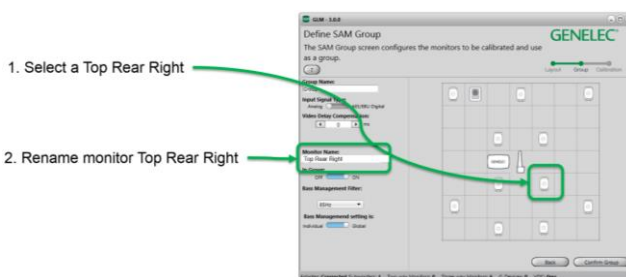
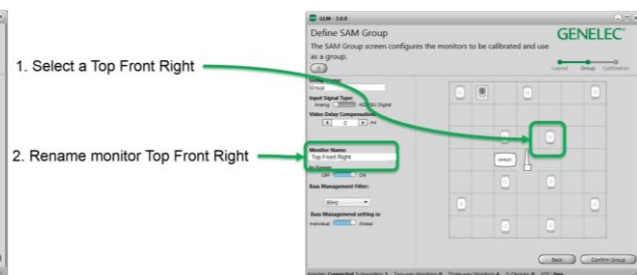
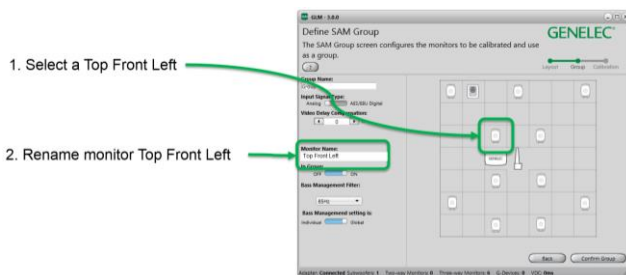
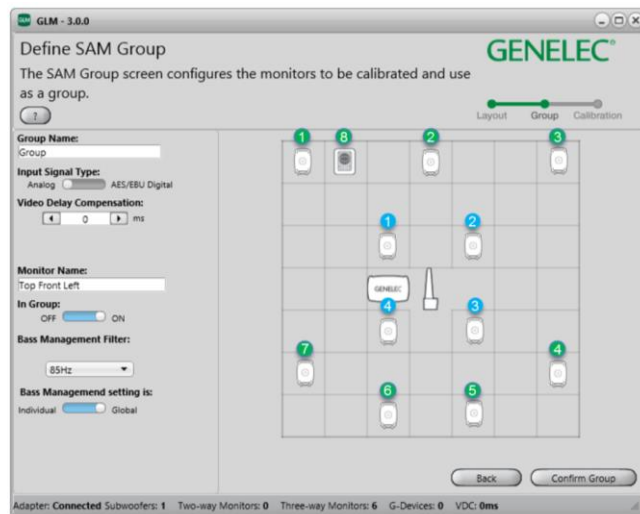
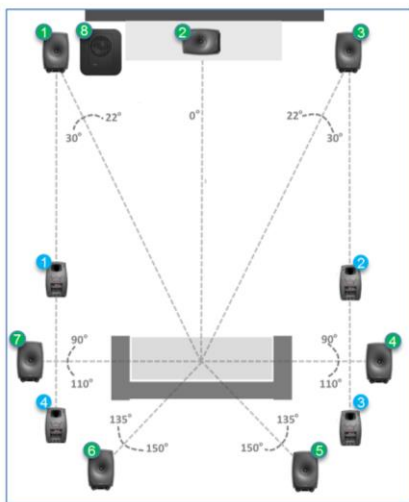


*Defining a system layout in GLM:* Start by dragging monitors/subwoofers from the Drag'n'Drop box to the grid. Each monitor and subwoofer plays an ID tone when dragged and that helps to identify which monitor is handled. For example, when dragging a subwoofer it plays a sine tone and can be placed to the grid. Next page shows an example where each monitor is placed to match an Atmos layout. Note that monitors may not appear in the same order as in these examples.



After all monitors and subwoofers are placed in the grid, confirm the layout by clicking the 'Confirm Layout' key. After confirmation, monitors should be shown comparable to the picture below. GLM

assigns default names to monitors and 'Top Front Left' in Atmos system is named "Left". To rename, click the 'Top Front Left' monitor icon (Blue 1 tag) and change the name.



Atmos works like other multichannel or immersive systems, so no special operations are needed in GLM. Autocal compensates room responses, level and time of flight differences automatically; and SPL level calibration is performed as the last step as described previously.

For more information about GLM 3 software, please click on the following website link [GLM](http://www.genelec.com). Here you may also download the latest GLM 3 software version and its installation package.

If you have any questions, please do not hesitate to contact us!

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