

5041A

Operating Manual

Genelec 5041A
Active In-Wall Subwoofer

GENELEC®



Genelec 5041A Active In-Wall Subwoofer

General

The Genelec 5041A Active In-Wall subwoofer system consists of a subwoofer enclosure and a matched RAM3 remote amplifier module. It has been designed to the same rigorous standards as Genelec's high-performance HT series active Home Theater loudspeakers.

Unpacking

When unpacking, check that nothing is missing or damaged in transit. If there is a problem with the product, contact your local Genelec dealer. A Genelec 5041A system includes the following items:

- 5041A enclosure unit
- Grille frame and grille insert
- Four mounting brackets
- RAM3 amplifier unit
- M4x16 and M4x30 thumb screws for the grille frame
- Plastic washers for the thumb screws
- Mains power cable
- One 4-pole and one 2-pole cable connector
- 12 4,2x32 screws for the mounting brackets

Installation

We recommend that you use the services of an authorized installation specialist for the installation of the 5041A subwoofer.

Choosing the Location for the Subwoofer

Usually the best place for the subwoofer is slightly offset from the centerline of the wall. Positioning the subwoofer near a corner will boost the bass level at lower frequencies and may cause asymmetrical spatial imaging. When using multiple subwoofers connected together using the LINK OUT connectors on the RAM3 amplifiers, the subwoofer enclosures should be placed close to one another to achieve efficient summing of the signal.

Subwoofer Cabling

A 2-conductor cable needs to be run between the RAM3 amplifier and the subwoofer enclosure. Two cable connectors are supplied with the loudspeaker system, a four-pole connector

to fit the connector on the amplifier and a two-pole connector to fit the respective input at the bottom of the subwoofer enclosure.

Use a good quality 2-conductor cable and make the cable runs as short as possible. See Table 1 for recommended cable gauges. The connectors accept a cable up to 6 mm² (9 gauge) thick.

Attach the cables to the connectors provided with the kit. Be sure to maintain correct polarity when connecting the cables. The correct pin sequences are marked on the amplifier and subwoofer connectors. Starting from the top, the first two poles on the 4-pole amplifier connector are + and - for the subwoofer and 3 and 4 provide connection to a 12 V trigger remote control. Secure the cable to the strain relief tie next to the loudspeaker connector.

Rout the cables away from electric, video or phone cables, which might induce hum into the system.

Installing the Subwoofer Enclosure

The Genelec 5041A subwoofer enclosure is designed for floating installation using the provided mounting brackets that prevent unwanted vibration transfer from the subwoofer to the wall structure. The enclosure is held in place by rubber springs, clear of any fixed part of the wall.

The woofer protection cover should be left in place until the drywall is installed. It provides a cut-out template for the drywall installers and protects the bass drivers during all stages of work.

Before the installation, make sure that there is sufficient space for the subwoofer in the chosen location. The minimum dimensions are:

1. Free depth between the sheetrock (=width of the wall studs) 89 mm (3¹/₂")
2. Free vertical space 1308 mm (51¹/₂")
3. Free horizontal space between the wall studs 360 to 440 mm (14³/₁₆" to 17³/₈")

First attach the two lower brackets. Note that the lower edge of the cut-out will be 140 mm (5¹/₂") above the lowest edge of the bracket.

Cable gauge	Max. length
2,0 mm ² (14 AWG)	30 m (100 ft)
3,3 mm ² (12 AWG)	40 m (130 ft)
5,3 mm ² (10 AWG)	60 m (200 ft)

Table 1. Recommended cable thicknesses for different lengths of cable

The flanges on the bracket correspond to the minimum permissible mounting depth. Attach the brackets to the studs so that the edge of the flange is level with the inside edge of the stud. This will automatically provide sufficient clearance for the subwoofer.

Next connect the subwoofer cable to the connector at the bottom of the subwoofer enclosure and position the enclosure on the lower brackets. The rubber springs on the bracket fit the grooves on the bottom of the enclosure.

Secure the subwoofer in place by attaching the top brackets to the studs. Align them in the same way as the lower brackets and ensure that the rubber springs press against the bottom of the grooves, holding the subwoofer firmly in position.

Check the positioning of the enclosure by placing a level on the studs at different heights. Check also that the enclosure is not touching any other part of the wall structure. As the enclosure may vibrate when played at high output levels, a clearance of at least 3 mm (1/8") is required between the subwoofer enclosure and drywall or any other solid part of the wall. Slight adjustments can be made by carefully bending the brackets.

Installing the drywall

The protective cover on the bass drivers provides a template for the cut-out. Measure its location and cut an opening in the sheetrock accordingly.

Installing the Grille

Once the drywall is installed, remove the bass driver protective cover by unscrewing the three Phillips screws holding it in place. Attach the grille frame with three thumb screws. NEVER use the Phillips screws! Do not tighten the thumb screws more than is needed to hold the frame in place. Be care-

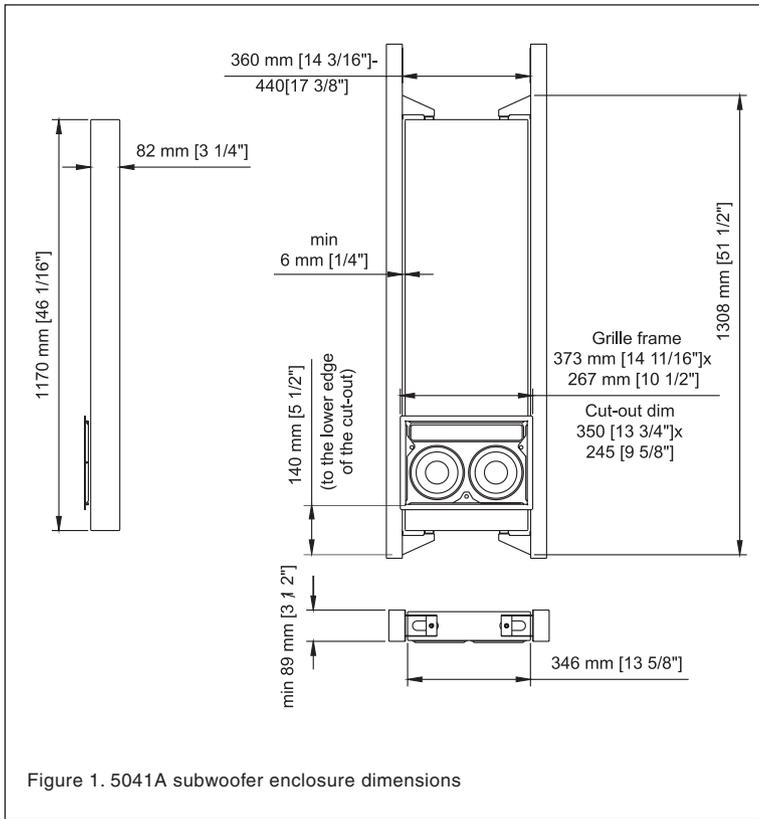


Figure 1. 5041A subwoofer enclosure dimensions

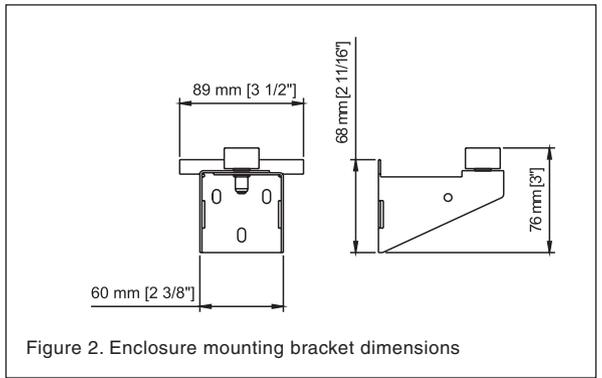


Figure 2. Enclosure mounting bracket dimensions

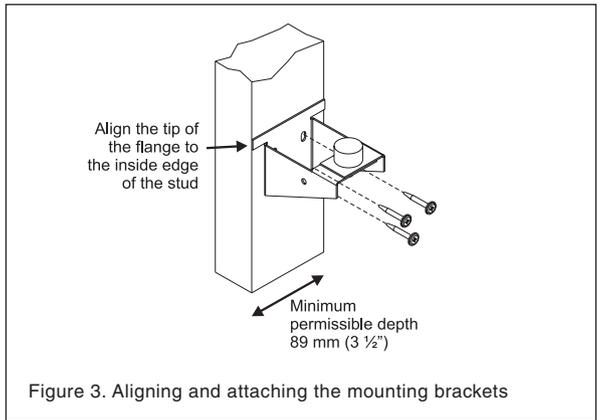


Figure 3. Aligning and attaching the mounting brackets

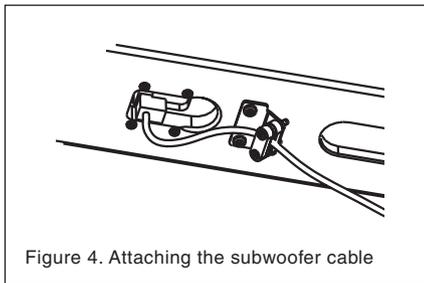


Figure 4. Attaching the subwoofer cable

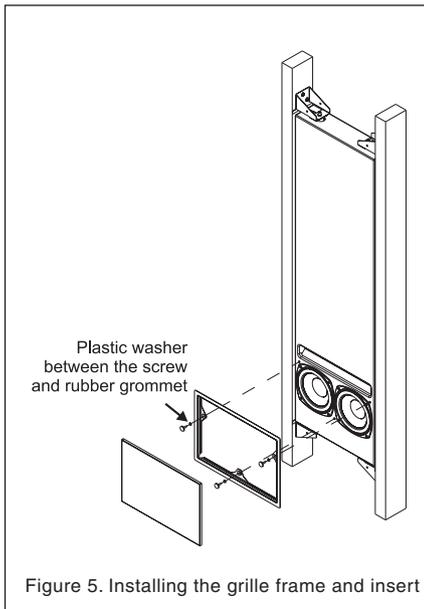


Figure 5. Installing the grille frame and insert

ful not to flatten the vibration isolating rubber grommets on the grille frame by overtightening the screws.

Insert the grille insert to the grille frame.

Painting the Grille

The grille frame and the grille insert can be spray painted to match the wall colour. Paint the grille frame and insert separately with a thin spray. Do not use brushes or rollers. Be careful not to clog the holes on the insert with paint.

Connecting the RAM3 Amplifier

The RAM3 amplifier is designed to be connected to a line level output of a preamplifier, Surround Sound processor or other low level source. *NOTE! Never connect the RAM3 to a speaker level output of a power amplifier!* Before making the connections, check that the power on all components is turned off.

Start by connecting the subwoofer cable to the amplifier as described in the "Subwoofer Cabling" section above. If using multiple subwoofers, check that the amplifier's serial number matches that of the subwoofer enclosure which it will power.

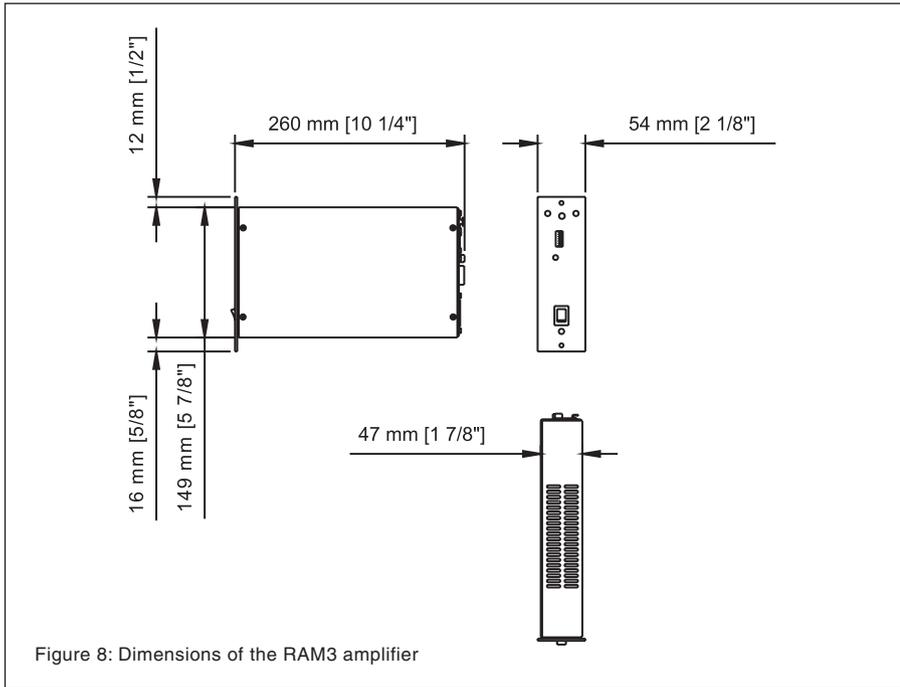
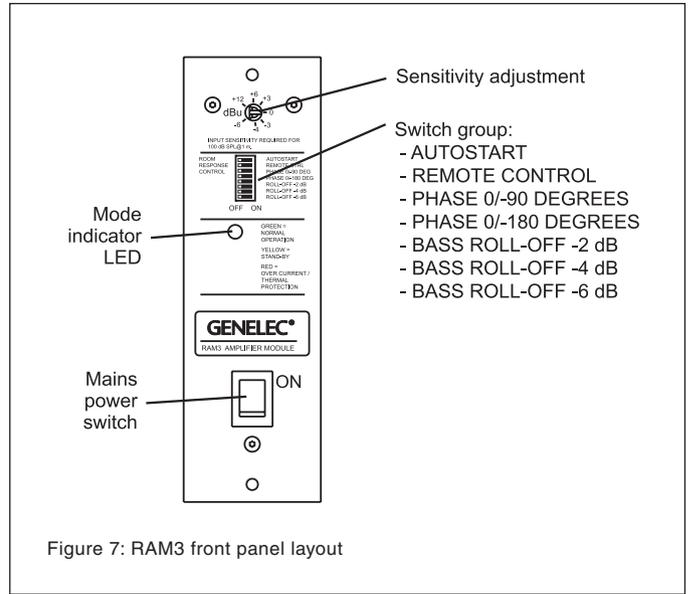
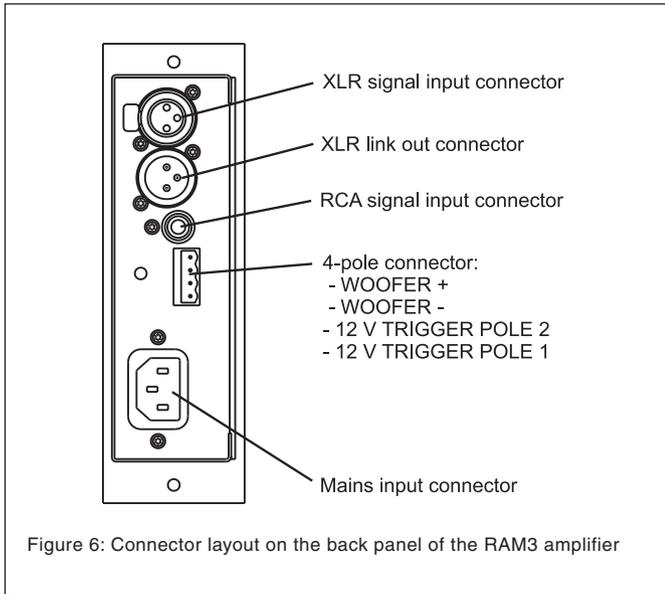
The RAM3 has two 10 kOhm signal input

connectors: a balanced XLR and an unbalanced RCA. For long cable connection lengths (>10m or >30ft) a balanced line connection is recommended as it offers better immunity to external interference. However, the RCA connection method usually works as well for shorter connection lengths in less electrically noisy environments. Do not use both inputs at the same time. Your Genelec dealer can provide you with options for signal cables.

The RAM3 has a provision for remote controlled switching between "ON" and "STANDBY" modes. Poles 3 and 4 on the green connector block provide connection to a 12 V remote control trigger.

Space Requirement for the RAM3 Amplifier

The RAM3 amplifier generates heat when used at full power. To avoid overheating, ensure that there is good airflow around the amplifier and no external heat sources close to it. We recommend installing the RAM3 into a well ventilated equipment rack using its dedicated RM2 rack mount kit which allows airflow through the ventilation holes of the amplifier box. The amplifier must always be installed in an upright position, never flat on its side.



uncluttered and there is a space of 100 mm (4") or more behind the amplifier. The space behind the amplifier must be well ventilated. If the temperature inside the rack is likely to rise close to the maximum ambient temperature of 35° C (95° F), we recommend installing ventilation fans to ensure that the thermal protection is not activated prematurely.

Attach the RAM3 to the RM2 rack mount with two M4 screws provided with the rack mount kit.

Setting the Input Sensitivity

The input sensitivity control is located on the front panel of the RAM3 amplifier. Use this control to adjust the playback level of the subwoofer.

Setting the Bass Roll-Off switches

The acoustic response of the subwoofer may have to be matched to the characteristics of the room and its position in the room. To adjust the subwoofer to match these characteristics use the "BASS ROLL-OFF" control switches located on the amplifier front panel. When all Roll-Off switches are "OFF", a flat anechoic response is obtained.

Setting the phase control

The effect of incorrect phase alignment between the main loudspeakers and subwoofer is a drop in the frequency response of the whole system at the main loudspeaker / subwoofer crossover frequency. The phase difference between the main loudspeakers and subwoofer at the lis-

Sufficient cooling for the amplifier must be arranged at all times. As a general rule, the ambient temperature around the amplifier must not exceed 35 degrees Celsius (95°F). The ventilation openings on the amplifier box must not be blocked and a free space of 1 U (=1.75" or 45 mm) must be left above the amplifier when installed. This space must be sufficiently ventilated to maintain the temperature below the maximum level.

If the RAM3 amplifier is placed on a shelf or other solid surface, the metal support

provided with the amplifier must be attached to the lower part of the amplifier front panel with an M4 screw. This improves the stability of the amplifier and provides sufficient clearance for air circulation below the amplifier.

Rack Mounting the RAM3 Amplifier

We recommend using the Genelec RM2 rack mount adapter when installing the RAM3 amplifier in an equipment rack. Make sure that the space above and below the RAM3 is

tening position is dependent upon the position of the subwoofer.

Two phase matching switches in the crossover allow compensation for incorrect phase alignment. Four settings are provided between 0° and -270°.

Coarse phase correction method

- Configure the processor so that the main speakers (L, C, R) are set to "small" and check the main speaker/subwoofer crossover frequency setting on your processor. This frequency may be variable or fixed: consult the operating manual of your processor.
- Connect an audio signal generator to one of the input channels used in the system.
- Set the signal generator to the same frequency as the subwoofer crossover frequency on your decoder. If a signal generator is not available, you can use an audio test recording with a suitable range of test frequencies.

- Toggle the -180° phase switch (#4) "ON" and "OFF" and set it to the position which gives the lowest sound level at the listening position.



- Next toggle the -90° phase switch (#3) "ON" and "OFF", and again set it to the position which gives the lowest sound level.



- Finally, set the -180° phase switch to the opposite setting.



After the phase setting has been completed, return the speaker configuration on the processor to its original settings.

Using multiple subwoofers

The 5041A is equipped with a "LINK OUT" connector to provide an easy way of coupling two or more subwoofers together in high SPL applications. Connect an XLR cable from the "LINK OUT" connector of the master subwoofer to which the decoder is connected, to the "XLR IN" input connector of the other, slave subwoofer. When two subwoofers connected in this way

are positioned close to one another, bass level increases by 6 dB. Three subwoofers give a bass SPL increase of 9,5 dB and four subwoofers provide a 12 dB increase compared to a single subwoofer. Adjust the sensitivity control of all subwoofers in the group to match the SPL level of the main loudspeaker system. Note that the sensitivity setting must be the same on all subwoofers.

Autostart and Remote Control Function

The 5041A is equipped with an "AUTO-START" function, which automatically turns the amplifier to "STANDBY" mode if an input signal has not been detected for approximately 30 minutes, and back to "ON" mode when the signal returns. The function can be deactivated by turning the "AUTO-START" dip switch to "OFF". A two-colour LED on the amplifier panel indicates the amplifier status: green for "ON" and yellow for "STANDBY".

The amplifier mode can also be switched by a 12 V trigger type remote control unit connected to the respective inputs on the amplifier (see "Subwoofer Cabling"). Switch the "REMOTE CONTROL" dip switch to "ON" to activate this function. Remote control overrides the "AUTOSTART" function.

Automatic Protection Circuits

The 5041A is equipped with protection circuits against bass driver thermal overload and amplifier overheating. The protection system resets automatically so that the user only has to turn the input level down to ensure that it does not reactivate.

Safety considerations

The Genelec 5041A complies with international safety standards. However, to ensure safe operation and maintain the equipment in safe operating condition the following warnings and cautions must be observed.

- Servicing and adjustment must only be performed by qualified service personnel.
- Opening the amplifier is strictly prohibited except by qualified service personnel.
- Do not expose the subwoofer or amplifier to water or moisture. Do not place any objects filled with liquid, such as vases on or near them.

- Always use a mains power cable and connection with protective earth. Failing to do this may lead to personal injury.
- Note that the amplifier is not completely disconnected from the AC mains service unless the mains cable is removed from the amplifier or the mains outlet.

Warning!

This equipment is capable of delivering sound pressure levels in excess of 85 dB, which may cause permanent hearing damage.

Maintenance

There are no user serviceable parts inside the amplifier or subwoofer enclosure. Any maintenance of the unit must only be performed by qualified service personnel.

Guarantee

This product is supplied with two year guarantee against manufacturing faults or defects that might alter the performance of the unit. Refer to supplier for full sales and guarantee terms.

5041A Operating Manual

SYSTEM SPECIFICATIONS	
	5041A
Free field frequency response (± 3 dB)	35 Hz...95 Hz
Maximum short term sine wave SPL output averaged from 40 to 85 Hz, measured in half space at 1 meter	105 dB
Maximum peak SPL output with random pink noise, measured in half space at 1 meter	110 dB
Self generated noise level in half space at 1 m on axis (A-weighted)	≤ 15 dB
Drivers	2 x 165 mm (6.5")
Weight	
Subwoofer enclosure	15 kg (33 lb)
Amplifier	1.4 kg (3.1 lb)
Dimensions (see Figure 1)	
Subwoofer enclosure	
Height	1170 mm (46 ¹ / ₁₆ "
Width	346 mm (13 ⁵ / ₈ "
Depth	82 mm (3 ¹ / ₄ "
Amplifier	
Height	177 mm (6 ³ / ₃₂ " (4U)
Width	54 mm (2 ¹ / ₈ "
Depth*	260 mm (10 ¹ / ₄ "
*Note that the cable connectors require at least 100 mm (4") of space behind the amplifier	

AMPLIFIER SECTION	
	5041A
Amplifier short term output power (Long term output power is limited by driver unit protection circuitry)	125 W
Amplifier system THD at nominal output	≤ 0.05 %
Mains voltage	85-132 V or 170-265 V according to region
Power consumption (average)	
Stand by	8.5 VA
Idle	11 VA
Full output	150 VA

CONNECTORS	
	5041A
Input connector XLR female	1, balanced gnd + -
pin 1	
pin 2	
pin 3	
Input connector RCA female	1, unbalanced gnd +
pin 1	
pin 2	
LINK OUT connector XLR male	1, balanced gnd + -
pin 1	
pin 2	
pin 3	
Input impedance	10 kOhm
LINK OUT gain	0 dB

CONTROLS	
	5041A
Input sensitivity	+12 to -6 dBu
Phase matching control in 90° steps	From 0 to -270°
Bass Roll-Off control operating range in 2 dB steps	From 0 to -6 dB @ 35 Hz
Remote control	Remote controlled Standby/On switching by 12 V trigger

EC Declaration of Conformity

This is to certify that the Genelec 5041A Active In-Wall Subwoofer conform to the following standards:

Safety:
EN 60065: 2002 + A1:2006 / IEC 60065:2001 7th Edition
+ A1: 2005
EMC:
EN55013(2001)+A1(2003)
EN55020(2002)+A1(2003)
EN61000-3-2(2000)+A2(2005)
EN61000-3-3(1995)+A1(2001)

The product herewith complies with the requirements of The Low Voltage Directive 2006/95/EC and EMC Directive 2004/108/EC

Signed: 
Ilpo Martikainen
Chairman of the Board
Date: 25-September-2008